

# Professional Services for Emergency Backup Generators

VILLAGE OF HOMEWOOD

# Table of Contents

<b>01</b>	<b>Cover Letter</b>	<b>3</b>
<b>02</b>	<b>Knowledge and Experiences</b>	<b>4</b>
<b>03</b>	<b>Team Lead</b>	<b>5</b>
<b>04</b>	<b>Key Personnel</b>	<b>7</b>
<b>05</b>	<b>Subcontractors</b>	<b>13</b>
<b>06</b>	<b>Projects - Facility Assessments</b>	<b>14</b>
<b>07</b>	<b>References</b>	<b>22</b>

**Attachment: Sample Facility Assessment**

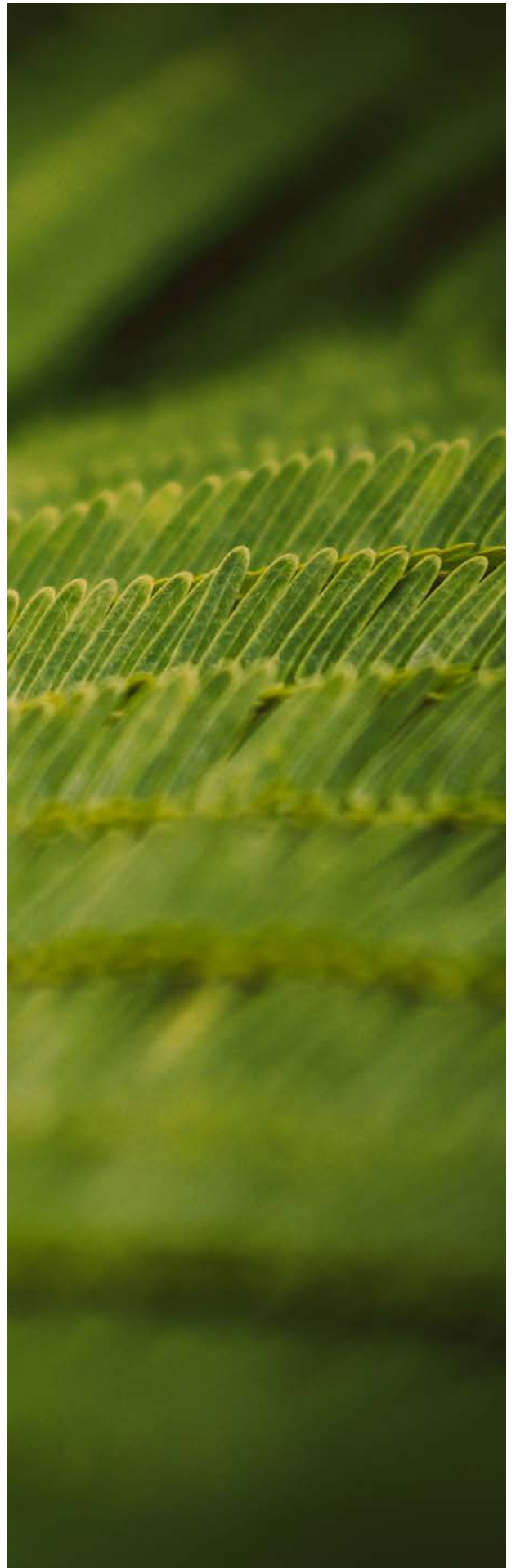
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**MARK BLAZIS PE, LEED AP**

Principal  
MarkB@InterfaceEng.com  
312.964.4453

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Chicago, IL 60606

[www.interfaceengineering.com](http://www.interfaceengineering.com)



# 01

## Cover Letter

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September 23, 2024

Village of Homewood  
ATTN: Terence Acquah  
2020 Chestnut Road  
Homewood, Illinois 60430

Dear Mr. Acquah:

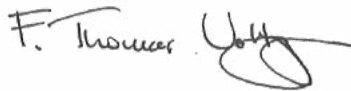
We appreciate the opportunity to present our qualifications for Professional Services to assess power requirements and develop plans, specifications, options and estimates for the phased installation of emergency backup generators for Homewood's village facilities.

**Commitment.** The proposed project team and Interface Engineering are fully committed to providing the services outlined in the RFP and the timeline identified by The Village of Homewood in the RFP documents.

**Firm History and Capacity:** Interface Engineering was incorporated in Oregon in 1969, now has ten offices in the U.S., and works both domestically and internationally. The firm is a multidiscipline mechanical, electrical, and energy engineering firm known for innovative resource use, visionary sustainable design and breakthrough engineering solutions for new and existing buildings.

Work performed under this contract will be completed from our Chicago Office which includes a highly experienced team of electrical professionals. The team slated for this project will assure their availability for the work to be performed under the contract and will utilize the capacity of the firm's 200+ employees to ensure that all commitments for current and projected workload are met.

Sincerely,



**F. THOMAS VOLTAGGIO, PE**

Principal

# 02

## Knowledge & Experience

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The Interface Chicago team has extensive experience with power studies and generator installation for Governmental, Commercial and Institutional facilities located across the United States and around the world. The individual team members that we have proposed for this project range from twenty to fifty years of consulting and design work, which typically includes feasibility analysis and budget evaluation, Schematic Design, Design Development, Construction Documents, Bidding and Negotiation, Construction Administration, Project Closeout and Commissioning/Post Construction phase services.

Our projects include small, medium and large scale projects with both 15KV class and 600 Volt generator and electrical distribution system design. Generator designs have included gas turbine, natural gas and diesel engine generator equipment. Some of the electrical projects, including generator, transfer switching and emergency/standby power distribution that we have undertaken include:

- McCormick Place South Hall Expansion - Chicago, Illinois
- McCormick Place West Hall Expansion - Chicago, Illinois
- John F. Kennedy Center for the Performing Arts - Washington, D.C.
- University of Illinois Chemical and Life Sciences Laboratory - Urbana, Illinois
- Wuhan Greenland Center - Wuhan, China
- Chengdu Doncun Center - Chengdu, China
- National Commercial Bank - Jeddah, Saudi Arabia
- Citicorp Center - Los Angeles, California
- San Filipe Plaza - Houston Texas

03

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Team Lead

# Mark Blazis PE, LEED AP

**TEAM LEAD/PROJECT MANAGER | PRINCIPAL | LEAD MECHANICAL ENGINEER**

## Education

Bachelor of Science  
Mechanical Engineering  
University of Illinois at  
Urbana-Champaign

Master of Business  
Administration  
DePaul University

## Registration

Mechanical PE: Illinois,  
Florida, Indiana

LEED Accredited  
Professional

Certified Energy Manager  
(CEM)

## Professional Affiliations

American Society of Heating,  
Refrigeration and Air-

Conditioning Engineers  
(ASHRAE)

American Society for  
Healthcare Engineering  
(ASHE)

of the American Hospital  
Association



Mark is a competent project manager with nearly 30 years of experience as a mechanical engineer, specializing in district heating and cooling, healthcare, and education. He has expansive knowl-

edge of HVAC and laboratory design and extensive experience in sustainable design strategies. He is a registered LEED AP and Certified Energy Manager.

Mark led a six-phased project at the University of Illinois at Chicago that was awarded "Refrigeration Comfort Cooling Award for Project Excellence" from ASHRAE and "Excellence in Engineering" from ASHRAE Illinois Chapter in 2006 and 2005, respectively.

## PROJECT EXPERIENCE

### Confidential Tech Client Headquarters Campus / LEED Platinum + Living Building Challenge Goals

NORTH CAROLINA

- » 1,415,000 gross square foot development consisting of workplace buildings, cafeterias and kitchens, conference, wellness and fitness centers, childcare, reception, ground source heat pump, central utility plant, and parking.

### Confidential River Front Mixed Use

CHICAGO, ILLINOIS

- » Energy Masterplan for 18 million square feet of mixed use space using river water to facilitate district wide water source heat pump system.

### Northern Illinois University East Campus

DEKALB, ILLINOIS

- » 7,200 ton chiller plant.

### Northern Illinois University West Campus

DEKALB, ILLINOIS

- » 4,800 ton chiller plant.

### University Of Illinois at Chicago West Campus

CHICAGO, ILLINOIS

- » Replacement of the existing 4,000-ton chiller plant with a new 16,000 ton central chilled waterplant with 10,000 tons of initial capacity.

### University Of Illinois at Chicago East Campus

CHICAGO, ILLINOIS

- » 6,000 tons electric, 1,000 tons absorption cooling off of CHR

### University Of Illinois At Urbana-Champaign

URBANA-CHAMPAIGN, ILLINOIS

- » Chilled Water Production and Distribution Long Range Planning for a 35,000 ton system.

### Illinois State University Central Steam Plant Expansion

NORMAL, ILLINOIS

- » 80,000lb/hr steam boiler plant.

### Edgerton Hospital

EDGERTON, ILLINOIS

- » Geothermal

### Northwestern Medicine Delnor Community Hospital Utility Master Plan

GENEVA, ILLINOIS

- » Central Heating/Cooling Study

### Secretary of State, Stratton Building, Chiller Replacement Phase I and II

SPRINGFIELD, ILLINOIS

- » 3,200 ton chiller plant

### Akhmat Tower

GROZNY, CHECHEN REPUBLIC, RUSSIA

- » Chiller Plant

### Renaissance District Master Plan Engineering Services

SOUTH BEND, INDIANA

*Resume includes experience prior to Interface Engineering.*

04

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Key  
Personnel

Resumes

# Steven Eich PE, LEED AP, CDT

**ASSOCIATE PRINCIPAL | TECHNICAL LEAD, ELECTRICAL ENGINEERING**

## Education

Bachelor of Science,  
Electrical Engineering,  
Bradley University

## Affiliations

Institute of Electrical and  
Electronic Engineers

International Association  
of Lighting Designers

Illuminating Engineering  
Society of North America

AIA Trade Associate

## Registration

Electrical PE: Illinois,  
California, Connecticut,  
Hawaii, Idaho, Louisiana,  
Michigan, Nevada, New York,  
Ohio, Texas, Washington

LEED Accredited  
Professional



Steven Eich has more than 35 years of global engineering experience with a focus on developing safe, reliable, sustainable electrical systems for immediate and long

term improvements to the environment. His expertise encompasses quality assurance and quality control of engineering document preparation; industrial power system design and analysis, industrial instrumentation and control system design and analysis; specification writing; project management; and engineer supervision, training, and mentoring.

## PROJECT EXPERIENCE

**Loyola University Chicago Historic Cuneo Mansion and Garden Estate Masterplan**  
VERNON HILLS, ILLINOIS

**Department of Human Services Historic Fox Development Center**  
DWIGHT, ILLINOIS

**Forest Preserve of DuPage County Willowbrook Wildlife Clinic and Visitor Center Commissioning / Zero Energy Goal**  
GLEN ELLYN, ILLINOIS

**Forest Preserves of Cook County Headquarters High Efficiency HVAC System**  
RIVER FOREST, ILLINOIS

**Abraham Lincoln Presidential Library Outdoor Chiller Replacements**  
SPRINGFIELD, ILLINOIS

**US Government Electric Vehicle Charging Feasibility Study**  
LANGLEY, VIRGINIA

**Keshet Renovation Project**  
HIGHLAND PARK, ILLINOIS

**Woodfield Corporate Center Chiller Plant Study**  
SCHAUMBERG, ILLINOIS

**Michigan Central Station Renovation**  
DETROIT, MICHIGAN

**Illinois EPA Office Renovation**  
SPRINGFIELD, ILLINOIS

**Book Tower**  
DETROIT, MICHIGAN

**Akhmat Tower**  
GROZNY, CHECHEN REPUBLIC, RUSSIA

**Dubai Multi Commodities Center Tower 2**  
DUBAI, UNITED ARAB EMIRATES

**Emirate Palace GCC Summit Forum**  
ABU DHABI, UNITED ARAB EMIRATES

**King Abdullah Medical City**  
SAUDI ARABIA

**Dubai Towers**  
ISTANBUL, TURKEY

**National Tax Center**  
NEW DELHI, INDIA

**Sigma Tower**  
CLUJ NAPOCA, ROMANIA

**Big Ten Conference Headquarters**  
ROSEMONT, ILLINOIS

**330 North Wabash (IBM Building)**  
CHICAGO, ILLINOIS

**333 North Michigan**  
CHICAGO, ILLINOIS

**Aon Insurance, Chicago**  
CHICAGO, ILLINOIS



# F. Thomas Voltaggio PE

## SENIOR ELECTRICAL ENGINEER | PRINCIPAL-IN-CHARGE

### Education

Bachelor of Science  
Electrical Engineering  
University of Illinois

### Registration

Electrical PE: Florida, Illinois,  
Indiana

### Professional Affiliations

NCEES (National Council  
of Examiners for Engineering  
and Surveying)

Attorney at Law Illinois

Council on Tall Buildings and  
Urban Habitat (CTBUH)

Society for College and  
University Planning (SCUP)

University of Illinois  
Electrical and Computer  
Engineering Alumni Board of  
Directors, 1996-2002

Board of Education,  
Glenbard Township High  
School

District 87, 1991-2013,  
President, Head of Finance  
and Facilities Committee



Tom has over 40 years of global, multidisciplinary engineering design and management experience in new construction and renovation for a wide variety of

projects. An experienced problem-solver for immediate and long-term energy consumption reduction, he works effectively with teams to design and implement systems that are the most economically and functionally suited to each project. Tom has a reputation as an effective communicator, which has enhanced his success in leading project teams and maintaining strong client relationships.

### PROJECT EXPERIENCE

#### University Of Illinois Chicago

CHICAGO, ILLINOIS

- » Fire Alarm System Replacements (14 buildings)
- » Lecture Center C Remodel
- » East Science and Engineering Lab Complex Commissioning
- » Commissioning Retainer Lecture Center C Infrastructure Upgrades
- » Lecture Center E - 40 Stall Toilet Renovation project

#### Montgomery County Justice Center / LEED Gold Goal

NORRISTOWN PENNSYLVANIA

#### Leesburg Municipal Government Center

LEESBURG, VIRGINIA

#### Cook County

CHICAGO, ILLINOIS

- » Rockwell Warehouse Fire Alarm System Replacement
- » Department of Corrections Cable TV Upgrade
- » Forest Preserves Caldwell Woods Wellness Studio
- » John H. Stroger, Jr. Hospital AE Lighting Replacement

#### Cook County Park District Facilities, Various Renovations and Lighting Installations (6 Park Districts)

COOK COUNTY, ILLINOIS

#### McCormick Place West Hall Expansion

CHICAGO, ILLINOIS

#### Navy Pier Renovation

CHICAGO, ILLINOIS

#### State of Illinois Department of Human Service Madden Mental Health New Air Cooled Chiller

HINES, ILLINOIS

#### US Coast Guard Headquarters St. Elizabeth's Campus

WASHINGTON, DC

#### Renaissance District Master Plan Engineering Services

SOUTH BEND, ILLINOIS

#### 100 and 150 South Wacker Drive Building System Upgrades

CHICAGO, ILLINOIS

#### 1101 Skokie Blvd Transformer Study

NORTHBROOK, ILLINOIS

*Resume includes experience prior to Interface Engineering*

# Martin Lunkes

## ASSOCIATE PRINCIPAL | SENIOR CONTROLS AND MECHANICAL DESIGNER

### Education

Bachelor of Science  
General Engineering  
University of Illinois

### Professional Affiliations

American Society of Heating,  
Refrigeration and  
Air Conditioning Engineers  
(ASHRAE)

Illinois Chapter, ASHRAE,  
Past President, 1994

University of Illinois, Urbana,  
IL, Department of

Industrial and Enterprise  
Systems Engineering

Alumni Board Member

Tridium Certified



Marty Lunkes is a control systems engineer with more than 35 years of experience in the field of controls engineering and mechanical systems operation. He is a

specialist in the design and construction of building control systems, using vendor proprietary and open protocol control system technologies, and has designed building automation and control systems for over 200 new and existing buildings. His experience focuses on the design of high performance, energy efficient sustainable buildings.

### PROJECT EXPERIENCE

#### Aon Center LEED Engineering Services

CHICAGO, ILLINOIS

- » 83-stories, 3,600,000 sf, office space

#### Marquette Building (140 S. Dearborn)

CHICAGO, ILLINOIS

#### 100 and 150 South Wacker Drive

CHICAGO, ILLINOIS

- » Variable Speed Drives for Building Fan Systems
- » Renovation of the chiller plant control systems and Replacement of the Building Automation System
- » Variable Air Volume conversion of the interior spaces
- » Variable Flow conversion of the perimeter fan systems (100 only)
- » Electrical Distribution Panel installation
- » Digital control system for Tenant Improvements

#### University Of Illinois at Chicago

CHICAGO, ILLINOIS

- » Outpatient Care Center (OCC) BAS Replacement
- » Clinical Sciences Building, BAS Replacement
- » Engineering and Science Campus, BAS Commissioning
- » Campus-Wide COVID Assessment
- » Microbiology and Research Building
- » Campus-Wide Controls
- » Student Center East AHU Replacement

#### Scotiabank Headquarters

KINGSTON, JAMAICA

- » 11-story, 100,000sf

#### Wrigley Global Innovation Center

CHICAGO, ILLINOIS

#### 10 and 120 S. Riverside

CHICAGO, ILLINOIS

#### Tribune Masterplan Energy Services Consulting

CHICAGO, ILLINOIS

#### Renaissance District Master Engineering Services

SOUTH BEND, ILLINOIS

#### Uptown 500

WHEELING, ILLINOIS

#### Marriott Residence Inn Hotel and Residential Apartments / LEED Silver Goal

VAIL, COLORADO

#### Park Tower Hyatt and Condominiums

CHICAGO, ILLINOIS

#### 71 South Wacker Drive, Hyatt Center / LEED Platinum

CHICAGO, ILLINOIS

# Madison Hedlund

## ELECTRICAL DESIGNER

### Education

Bachelor of Science,  
Electrical Engineering,  
University of Illinois  
Urbana-Champaign

### Affiliations

Institute of Electrical and  
Electronics Engineers



Madison joined Interface in 2023 as an Electrical Designer. Her attention to detail and commitment to her work has established her among her peers as skilled

and trustworthy. Madison has placed a particular focus on designing reliable electrical systems that ensure high quality of life for the end user. Her experience includes renovations, new hotel developments, apartments, offices, and school buildings.

## PROJECT EXPERIENCE

### Cook County Health AE Lighting Replacement, John H. Stroger, Jr. Hospital

CHICAGO, ILLINOIS

### University of Illinois at Chicago Taft Hall Renovation

CHICAGO, ILLINOIS

### Illinois State University Bone Student Center Parking Lot

NORMAL, ILLINOIS

### Tinley Creek Resource Management Headquarters and Garage

OAK FOREST, ILLINOIS

### Tinley Maintenance Headquarters

ORLAND PARK, ILLINOIS

### McGinnis Field Station

ORLAND PARK, ILLINOIS

### Franciscan Health Dyer Emergency Department Reconfiguration

DYER, INDIANA

### Goldblatt's Clinic Tenant Improvements

CHICAGO, ILLINOIS

### Woodner Apartments Electric Services Replacement

WASHINGTON, DC

### 1723 South Michigan MixedUse Residential / Green Globes Goal

CHICAGO, ILLINOIS

### Laurelwood Elementary School / Zero Net Energy + CA CHPS Verified

SUNNYVALE, CALIFORNIA

### SS&C Technologies 20th Floor Data Center Deactivation

CHICAGO, ILLINOIS

### 1624-1704 South Wabash Mixed-Use Residential / Green Globes Goal

CHICAGO, ILLINOIS

### 739 South Clark Residential Conversion

CHICAGO, ILLINOIS

### 1010 South Wells Apartments

CHICAGO, ILLINOIS

### 1723 S. Michigan Ave

CHICAGO, ILLINOIS

### 739 S. Clark

CHICAGO, ILLINOIS

### Confidential New Hotel

FRISCO, TEXAS

### Confidential New Hotel

HOLLYWOOD, CALIFORNIA

### Confidential New Hotel

ORLANDO, FLORIDA

# Alex Roesch PE, LEED GA

## ASSOCIATE | SENIOR MECHANICAL ENGINEER

### Education

Bachelor of Science  
Mechanical Engineering  
Washington University of St. Louis

Master of Science  
Mechanical Engineering  
Washington University of St. Louis

### Registration

Mechanical PE: Illinois

LEED Green Associate

### Professional Affiliations

American Society of  
Heating, Refrigerating and  
Air-Conditioning Engineers  
(ASHRAE)

US Green Building Council



Alex is a Mechanical Engineer who focuses on design and documentation of building HVAC and plant utility mechanical systems. He has a particular

focus on the use of analytical tools in the calculation of utility loads analysis and selection of plant equipment, and as such as has focused a large part of his time with Interface Engineering on central plant loads and equipment selection. Alex is proficient in digital design and the use of data driven analysis tools including Revit, MATLAB and Energy Plus.

### PROJECT EXPERIENCE

#### 16241704 South Wabash MixedUse Residential / Green Globes Goal

CHICAGO, ILLINOIS

#### Woodner Apartments Renovation Energy Performance Enhancements

WASHINGTON, DC

#### Uptown 500

WHEELING, ILLINOIS

#### Illinois Governor's Mansion Historic Renovation

SPRINGFIELD, ILLINOIS

#### Universal Studios Hotel Hollywood

HOLLYWOOD, CALIFORNIA

#### Confidential Resort Hotel

ORLANDO, FLORIDA

#### W Hotel Public Space Renovation / LEED Certified, ID+C: Commercial Interiors

WASHINGTON, DC

#### Forest Preserves of Cook County Headquarters High Efficiency HVAC System

RIVER FOREST, ILLINOIS

#### Navy Pier East End Ballroom Kitchen Renovation

CHICAGO, ILLINOIS

#### Illinois State University

NORMAL ILLINOIS

- » Bone Student Center Concourse Improvements
- » E-Sports Arena
- » Center for Visual Arts Rotunda Classroom Renovation

#### Australian Embassy / LEED Platinum Goal

WASHINGTON, DC

#### Scotia Bank Headquarters Energy Retrofit

KINGSTON, JAMAICA

#### New Kingston Complex Energy Masterplan

KINGSTON, JAMAICA

#### Windy City Curling Club

VILLA PARK, ILLINOIS

#### Wrigley Field Sportsbook

CHICAGO, ILLINOIS

#### Tribune Masterplan Energy Systems Consulting

CHICAGO, ILLINOIS

#### Humanscale Showroom Merchandise Mart

CHICAGO, ILLINOIS

#### Aon Center LEED Engineering Services

CHICAGO, ILLINOIS

#### Martha's Table at 14 St / LEED Certified Goal

WASHINGTON, WASHINGTON, DC

# 05

## Subcontractors

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### **ALTUSWORKS, INC. (WBE)**

**CONTACT / ELLEN STONER, AIA, CXA+BE, LEED® AP**

**ADDRESS / 211 N. CLINTON ST, SUITE 3S  
CHICAGO IL 60661**

**PHONE / 773-545-1870 X222**

**EMAIL / ESTONER@ALTUSWORKS.COM**

**NATURE OF WORK / ALTUSWORKS HAS PROVIDED ARCHITECTURAL AND BUILDING ENVELOPE COMMISSIONING SERVICES ON A VARIETY OF PROJECTS FOR MUNICIPAL, HISTORICAL PRESERVATION, AND HIGHER EDUCATION CLIENTS.**

### **CCS INTERNATIONAL, INC. (MBE)**

**CONTACT / CLIVE BRANSBY, CEO/ DIRECTOR OF BUSINESS DEVELOPMENT**

**ADDRESS / 1815 S. MEYERS ROAD, STE. 1070  
OAKBROOK TERRACE, IL 60181**

**PHONE / 551-242-7231**

**EMAIL / CBRANSBY@CCSDIFFERENCE.COM**

**NATURE OF WORK / CCS IS OUR PRIMARY COST CONSULTANT/ESTIMATOR**

### **RUBINOS & MESIA ENGINEERS, INC. (MBE)**

**CONTACT / NIHAR SHAH, PE, SE**

**ADDRESS / 200 S. MICHIGAN AVE.  
SUITE 1500  
CHICAGO, IL 60604**

**PHONE / 312-870-6636**

**EMAIL / NSHAH@RME-I.COM**

**NATURE OF WORK / RME HAS PROVIDED STRUCTURAL AND CIVIL ENGINEERING FOR MUNICIPAL AND HIGHER EDUCATION PROJECTS.**

06

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# Projects - Facility Assessments

# Bevier Hall Infrastructure Renovation Phase II

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN | URBANA, ILLINOIS

## Services

MEP Engineering  
Energy Modeling  
Fire/Life Safety

## Client

University of Illinois at  
Urbana-Champaign

## Building Size

125,000 sf

## Cost

\$2.95 million

## Contact

Mike Stilger  
Project Manager  
217.300.3961

Bevier Hall is a 125,000sf multipurpose academic building housing classrooms, laboratories, offices, conference rooms, restaurant kitchen and dining, auditorium, and support spaces. The building was constructed in 1956, and continues to operate with building infrastructure largely unchanged from inception. The major building mechanical systems had deteriorated and were experiencing higher failure rates and maintenance costs. As the prime consultant for this infrastructure replacement project, Interface Engineering designed the mechanical and electrical infrastructure upgrades to the building, and managed and coordinated a full design team consisting of architecture, structural engineering, cost estimating, and hazardous materials consultants.

This project was the second installment of a multi-phase, multi-year infrastructure renovation designed to renovate and replace a significant portion of this aging infrastructure. The project work

under Phase II included the replacement of the building's main electrical service and addition of a new outdoor 250KW/312.5KVA diesel generator to back up life safety systems and critical laboratory loads in the building. The backup generator was carefully integrated into the exterior facade of the building with a custom designed masonry enclosure.

All the work performed in this phase was performed with the building remaining fully occupied. Phased construction documents were created to ensure minimal disruption to the building during renovations. This project was completed one year ahead of its original schedule and 10% under budget.



# University of Illinois at Chicago

## Student Center East Life Safety System

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**UNIVERSITY OF ILLINOIS AT CHICAGO | CHICAGO, ILLINOIS**

### **Services**

**Electrical Engineering  
Fire/Life Safety**

### **Client**

**University of Illinois at  
Chicago**

### **Building Size**

**360,000 sf**

### **Cost**

**\$2.7 million**

### **Contact**

**Branko Bogicevic  
(217) 300-3997**

The Student Center East complex on the University of Illinois at Chicago campus is a major hub of activity. This 360,000 sf multi-function facility houses offices, meeting rooms, computer labs, the campus bookstore, two food courts/dining facilities, pre-function and ballroom spaces, student lounges, a bowling alley, and a large quantity of circulation space.

This project was created to address the functional and operational deficiencies present with the original installation. The work included complete replacement of the fire alarm system in Buildings 605 and 606 (Student Center East and Tower). The work included installation of a new emergency systems backup generator.

The emergency power work included the installation of a 600 KW diesel engine generator housed in an outdoor weatherproof enclosure, automatic transfer switches, and distribution connecting key life safety and standby power loads in both buildings. Careful consideration was given to the design of a custom masonry enclosure for the generator set.

Loads powered from the emergency power installation include the fire pump, elevators, emergency lighting and exit signs, the fire alarm system, and food service refrigerators and freezers. Construction work occurred with the building in full operation, mandating careful consideration of operational requirements and occupant safety throughout the process. The project was completed in 2021, on time and under the \$2.7 million project budget.



# Building 936 College of Nursing Emergency Power

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**CHICAGO, ILLINOIS | UNIVERSITY OF ILLINOIS AT CHICAGO**

**Services**  
**MEP Engineering**

**Completion**  
**2024**

**Project Cost**  
**525,000**

Building 936, the College of Nursing Building at the University of Illinois at Chicago is a 12-story, classroom, simulation and research laboratory, lecture hall, office facility which houses the nursing program for the University. The project was undertaken to address and remediate backup power deficiencies in the facility. The initial phase of this project included a comprehensive feasibility study, including the development of a project budget cost for the upgrade of emergency power in Building 936, College of Nursing at the University of Illinois at Chicago. This initial study generated three replacement scenarios ranging from the installation of a simple standby generator to a full upgrade, including all required "high rise" life safety loads and building research related standby power loads. The University elected to proceed with the most comprehensive option, and the project moved forward to the design and construction phases of the work.

The design phase work included Schematic Design, Design Development, Construction Documents and Construction Administration. The final design included the installation of a 300 KW diesel engine generator set that provides backup power to the building elevators, fire pump, emergency lighting, fire alarm, security, telecommunications, BAS and a full complement of research freezers and related equipment. The work included automatic transfer switches and all related electrical distribution equipment. The generator installation includes an exterior concrete slab and architectural fencing to properly enclose the exterior equipment. The project was bid, awarded and constructed on time and within the project budget. The final project cost was \$525,000.

# University of Illinois at Chicago

## Student Center East Life Safety System

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**UNIVERSITY OF ILLINOIS AT CHICAGO | CHICAGO, ILLINOIS**

### **Services**

**Electrical Engineering  
Fire/Life Safety**

### **Client**

**University of Illinois at  
Chicago**

### **Building Size**

**360,000 sf**

### **Cost**

**\$2.7 million**

### **Contact**

**Branko Bogicevic  
(217) 300-3997**

The Student Center East complex on the University of Illinois at Chicago campus is a major hub of activity. This 360,000 sf multi-function facility houses offices, meeting rooms, computer labs, the campus bookstore, two food courts/dining facilities, pre-function and ballroom spaces, student lounges, a bowling alley, and a large quantity of circulation space.

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Loads powered from the emergency power installation include the fire pump, elevators, emergency lighting and exit signs, the fire alarm system, and food service refrigerators and freezers. Construction work occurred with the building in full operation, mandating careful consideration of operational requirements and occupant safety throughout the process. The project was completed in 2021, on time and under the \$2.7 million project budget.

# Building 933 DPS Installation

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**CHICAGO, ILLINOIS | UNIVERSITY OF ILLINOIS AT CHICAGO**

## **Services**

**Electrical Engineering**

## **Completion**

**2024**

## **Project Cost**

**600,000**

Building 933, the Bertram Goldberg Research Center is a major technology center that houses instructional and administrative computer facilities that serve the UIC campus. There is a major data center located on the lower level of the building which had become dated. The project included an evaluation of the backup power and UPS equipment as a prelude to development of a final work scope to upgrade the installation.

The work of this project included the installation of a 400KW diesel engine generator and UPS module to replace the existing. The UPS module is rated at 160KVA and was selected to match an existing unit, providing full redundancy. The power distribution feeders and equipment were reconfigured to streamline the backup power and dramatically improve redundancy. The project was undertaken in a fully active data center without shutdown or interruption to ongoing operations. The project work was completed in the Summer of 2024, on time and under the project budget of \$600,000.

# Projects - Facility Assessments

## Project and Services

### City of Geneva Solar and Battery Storage Feasibility Analysis

GENEVA, ILLINOIS

Completed July 2024

Services: Interface was hired by the City of Geneva's Electric Division to assist in resource planning for alternative sources of renewable and battery energy storage power to serve municipal utility demands. Our team worked closely with the City to evaluate both utility scale (in front of the meter) and building scale (behind the meter). The evaluation revealed opportunities to deploy solar power resources into the Geneva system which could contribute to current and future electrical demands while reducing Scope 1 and Scope 2 greenhouse gas emissions associated with the procurement, generation, and distribution of electricity within the system.

Our team also analyzed the effectiveness and potential deployment of battery energy storage systems at a utility scale to reduce peak demand charges off of the ComEd system while also improving the potential economics of utility scale solar power.

Our analysis included year-on-year projections of future demand as well as sources of energy fed into the Geneva System. We successfully provided guidance to the City for their long term resource planning, along with budgetary pricing to understand cost impacts of the various solutions identified.

### 60th Place Resilient Community Direct Current Microgrid

FAIRMOUNT HEIGHTS, MARYLAND

Status: In Construction

Services: After successfully being awarded a grant from the Maryland Energy Administration, Interface joined a comprehensive team to perform a feasibility study, required planning, design, and engineering for a first of its kind resilient community. Located in Maryland, the community consists of six residential homes which share their locally generated and stored solar energy with each other via a Direct Current (DC) power distribution infrastructure. Each home is equipped with high-efficiency DC lighting and appliances that operate alongside legacy Alternate Current (AC) appliances, even during extended power outages.

Furthermore, the study facilitated the planning required to combine these six isolated zero energy ready homes into a single zero energy microgrid that offers resilience to both the homeowners and the utility. This configuration maximizes the utilization of on-site renewable energy resources by providing a direct path from DC solar, DC batteries to DC appliances and increases the overall resiliency of the microgrid community against utility outages.

The homes have been designed using energy efficient electric and heat pump compressor driven technologies for heating, cooling and domestic hot water production. Each home will be sold to first time home buyers with incomes under 80% of the median area income.

### Westin Generator Study

NAPA, CALIFORNIA

Completed October 2019

Services: Interface provided an electrical and mechanical study to connect new equipment to an existing generator due to increased Public Safety Power Shutoffs (PSPS) events affecting the property.

In particular, Interface studied connecting systems related the commercial kitchen, including the existing kitchen exhaust hoods and refrigeration system. Interface also studied connecting additional mechanical and electrical systems supporting telecom rooms, AV rooms, elevators, fire pumps, cooling tower, hot water heaters, and booster pumps.

The facility is served by multiple large PG&E services and an existing 300 kW diesel generator with multiple automatic transfer switches. Interface conducted a detailed analysis on the existing load readings of the generator and proposed loads and provided options for connecting equipment to the existing generator and for providing additional generators to support equipment beyond the existing generator's capacity.

Interface also reviewed and considered the existing generator and ATS age and condition, available physical space for new generators and ATS, and distribution system.

## Project and Services

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### **Sandia Critical Load Microgrid Conceptual Study**

LIVERMORE, CALIFORNIA

Status: Design completed 2022

Services: Interface provided a conceptual study for Sandia National Laboratories to develop a microgrid with the primary goal of resiliency. As a campus that conducts sensitive national research, Sandia wanted to extend the backup power to their existing critical loads to have 720 hours of backup power. The existing critical loads were served by standby diesel generators with a fraction of the fuel storage required. Additional fuel storage was expensive, served no additional economic benefit, and was against the campus's long terms goals of carbon reduction. Interface designed a renewable energy microgrid composed of 11 MW of PV, 30 MWH of batteries, and 2 MW of existing diesel generators that provided renewable and sustainable backup power to the campus's critical loads.

The project required modeling expected load profiles for the critical loads based on limited available historical meter data. In addition to modeling the loads, Interface used HOMER to model thousands of combinations of PV, battery, and generator capacities to arrive at options that optimized for various metrics, including lowest first cost, highest renewable fraction, highest long term payback, etc.

The project also required analysis and development of multiple options to tie in the renewable assets into the existing electrical infrastructure. These options included local building microgrids that tied into each individual building downstream of the building's electrical service, parallel distribution microgrids that tied into multiple buildings downstream of the building's electrical service, and fully interconnected microgrids that tied into the campus's medium voltage system directly to serve the entire campus.

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### **Woodfield Chiller Replacement Study**

SCHAUMBURG, ILLINOIS

Completed 2021

Services: Interface Engineering was retained to evaluate alternatives to replace the chillers for these two office towers. Existing 1000-ton chiller serving the north tower and 720-ton chiller were located in the penthouses of each tower. Six different alternatives for chiller replacements were evaluated and priced. For each option, Interface Engineering provided a Life Cycle Cost Analysis to as part of the evaluation to determine which type of water-cooled chiller was the best replacement solution. Also factored into the evaluation was the anticipated utility rebate calculated for each alternative.

As a result of our analysis, the recommendation was to install two chillers in each tower, and size each chiller for 60% of its respective tower load. This option provided the facility more redundancy than the single chiller options and was more cost effective than the modular options evaluated. It will require a supplemental penthouse be installed on the roof. This option is far less space constrained than many of the other options giving us the option to competitively bid the chillers or pre-purchase the chillers based on a life cycle cost. The final installation will provide excellent energy performance, redundancy, and reliability of new modern equipment.

# 07

## References

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