MILHOUSE

September 23, 2024

REQUEST FOR **QUALIFICATIONS**

THE VILLAGE OF HOMEWOOD 1893

For Professional Services to Assess Power Requirements and Develop Plans, Specifications, Options and Estimates for the Phased Installation of Emergency Backup Generators for Village Facilities

September 23, 2024

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

RE: REQUEST FOR QUALIFICATIONS FOR PROFESSIONAL SERVICES TO ASSESS POWER REQUIREMENTS AND DEVELOP PLANS, SPECIFICATIONS, OPTIONS AND ESTIMATES FOR THE PHASED INSTALLATION OF EMERGENCY BACKUP GENERATORS FOR VILLAGE FACILITIES

Dear Mr. Terence Acquah,

We are pleased to submit our qualifications to provide professional services to assess power requirements and develop plans, specifications, options, and estimates for the phased installation of emergency backup generators for facilities in the Village of Homewood.

Milhouse Engineering and Construction, Inc. was founded in 2001 with the goal of becoming one of the leading engineering companies in the country based on the belief that if we employed great people, challenged them to excel, and maintained a laser focus on the needs of our clients, we would deliver innovative solutions and successful projects. Driven by our diverse perspectives, we challenge the status quo to pursue a brighter future for the communities we serve.

We have tailored a diverse, multidisciplinary team of engineers with experience performing facility assessments and evaluations to exceed the scope of work detailed in this RFQ. The Milhouse Team is confident in our ability to undertakethis project, and we are committed to delivering technical excellence, innovative solutions, and timely results to meet the Village of Homewood's project requirements. Our approach to this endeavor is rooted in state-of-the-art technical competence, unwavering responsiveness, resourcefulness, and a strategic vision that takes into account not only immediate project needs but also long-term sustainability and cost-effectiveness.

At Milhouse, we listen carefully to your needs while holding ourselves to the highest standards of integrity and professionalism. We have read the RFQ thoroughly, understand the goals set forth by the Village, and have the expertise to ensure this project's success. Should you have any questions or need any additional information, please contact George Bouris, the Vice President of MEP, at gbouris@milhouseinc.com or 630-519-3211.

Sincerely,

Wilbur C. Milhouse III
MILHOUSE ENGINEERING AND CONSTRUCTION, INC.

Why Milhouse?

Multidisciplinary Firm

Our broad experience as a multidisciplinary firm allows us to tailor solutions for any issues that may arise. We listen carefully to your needs while holding ourselves to the highest standards of integrity and professionalism.

A History of Successfully Completed MEP Projects

Our success in dealing with different regulations and standards across multiple municipalities and agencies within the engineering industry allows Milhouse to provide the Village of Homewood with maximized solutions and creative possibilities to execute the assessments of your critical facilities and provide phased and cost recommendations. We are experienced in completing condition assessments and evaluations of facilities and providing professional engineering services across the country.

Sustainable Solutions

We design with the future in mind, predicting what's needed next, now. We deliver results that both address your current needs while working for your future.

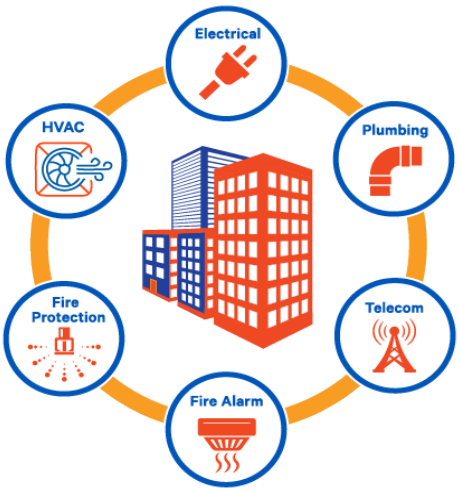
Dedicated to Continual Improvement

This is the heart of our corporate culture—it supports our commitment of delivering the highest quality performance and engineering services to the communities we serve.

Contents

Knowledge and Experience

Milhouse is a multi-disciplinary, full-service engineering firm offering expertise in civil, mechanical, electrical, structural, and environmental engineering, as well as construction and program management. We are a dedicated, interdisciplinary team of talented professionals with individuals licensed in multiple states. Driven by our diverse perspectives, we challenge the status quo to pursue a brighter future for the communities we serve. Our goal is simple: to help our clients mitigate risks, reduce costs, and improve operations safely and reliably.



Finding success with any facilities project starts by partnering with an experienced team that can meet your business goals while working within the aesthetics of your space. At Milhouse, we focus on energy and resource efficiency to develop systems that provide end users with what they need most — comfort, reliability, and a simple user interface.

Our **Mechanical team** has the experience and expertise to design everything from administrative spaces to research labs, single rooms to entire buildings, or a campus master plan with utilities distributed throughout the site. We strongly emphasize energy efficiency and sustainability in our analysis and design to deliver an integrated whole-building solution to our clients. Our **Electrical team** focuses their deep industry expertise to help utility providers maintain uninterrupted services to their customers. As electromechanical engineering experts, we provide an integrated approach to innovative electrical systems engineering, oversee electrical engineering projects, electrical installations, energy storage solutions, economic and planning services to electric utilities, rural electric distribution cooperatives, and industrial clients across the US, collaborating with other firms to best serve our clients.

At Milhouse, we don't just deliver practical, effective solutions; we innovate with top-tier personnel and technology. We recognize that it is paramount to understand the user group's program and budget requirements of a company so we can provide programmatic economic solutions and deliver top-level, efficient, maintainable, and 'on budget' business projects. We understand the complex challenges that come with these projects. When your project demands quality and operational excellence, Milhouse delivers.

For a more detailed explanation of our experience and expertise in providing facility evaluations, building assessments, and MEP systems for industrial, institutional, and municipal facilities, please refer to the following project examples.

Recognitions

- 2024 ENR Top 500 Design Firm
- 2023 ENR Top 500 Design Firm
- 2023 CMAP Equity with Impact
- 2023 ACEC Illinois Large Firm of the Year
- 2022 Best & Brightest Companies to Work For in the Nation
- 2022 ENR Top 500 Design Firm
- 2021 Best & Brightest Companies to Work For in the Nation
- 2021 ENR Top 500 Design Firm

MILHOUSE

Relevant Projects

CLIENT
Village of Flossmoor

LOCATION
Flossmoor, IL

PRIME
Milhouse

Genset Project

MEP ENGINEERING DESIGN SERVICES

Challenge: The Public Works Building serves as a crucial vehicle storage and repair center, and it faced challenges during power outages, especially when trying to meet the immediate response demands expected from Public Works.

Solution: A backup 175kW natural gas generator was desgined to efficiently service the entire facility.

Result: The design set up an automated system to monitor the primary power source and transfer to the generator if normal power was compromised, allowing for the continuity of operations and rapid response by Village staff in storms or other emergencies.

The Public Works Department in the Village of Flossmoor is located at the end of the ComEd overhead power line. Due to the numerous power outages that the facility suffered, they planned to add a new generator and upgrade the existing diesel-powered emergency generator that served the building. The design included a natural gas system to power the facility.

Milhouse provided MEP design services, including evaluating the existing HVAC electrical systems to determine the emergency generator's size based on the essential loads required to remain operational in the event of a power outage. Responsibilities also involved providing existing drawings necessary to perform work, coordinating access to the project sites, and electrical/civil documents and as-built documents reflecting its' current conditions.

ADDITIONAL PROJECT INFORMATION

Construction Cost: $250,000
Timeline: NOV 2021–AUG 2023

CLIENT
City of Atlanta

LOCATION
Atlanta, GA

PRIME
F.H. Paschen

Public Safety Annex Generator Upgrades

ELECTRICAL AND ARCHITECTURAL DESIGN ENGINEERING SERVICES

Challenge: The Public Safety Annex has a 125 kW generator that serves emergency loads only. This generator is not adequate for the operational needs of the building.

Solution: The existing 125 kW generator will be replaced with a 500 kW generator that will serve the entire annex building and emergency loads.

Result: The new generator will provide improved reliability to the annex building by providing whole-building backup power.

The project includes the demolition of an existing 125 kW diesel generator and associated systems, the installation of a 500 kW diesel generator, a new main fused disconnect switch section with an automatic transfer switch, the connection of generator and utility transformer output to the new switch section, and a new feeder into the existing building distribution.

This project is a design-assist effort to support the general contractor.

ADDITIONAL PROJECT INFORMATION

Timeline: MAR 2024–Ongoing

CLIENT
Public Building Commission of Chicago

LOCATION
Chicago, IL

PRIME
Milhouse

Daley Center 27th Floor Generator Load Transfer

ELECTRICAL ENGINEERING SERVICES

Challenge: The existing diesel generator serving the loads on the 27th floor is failing, leaving the loads served by this generator at risk of losing power during emergency operations.

Solution: Transfer the loads from the failing generator to another existing generator that can handle the 27th floor emergency loads.

Result: Improved reliability of emergency power to the 27th floor loads, while keeping construction costs at a minimum by avoiding the need to purchase and install a new generator to replace the failing one.

The project included an assessment of existing generators to verify the feasibility of the design approach, design of proposed emergency power distribution, and preparation of an opinion of probable cost. The design entailed abandoning the in-place failing generator, transferring emergency power of all the 27th floor automatic transfer switches to a new generator distribution panel, and new cable and raceways systems.

The design integrated the salvage and reuse of existing conduit runs to minimize construction costs related to the demolition of existing conduits and installation of new raceways.

ADDITIONAL PROJECT INFORMATION

Timeline: APR 2024–Ongoing

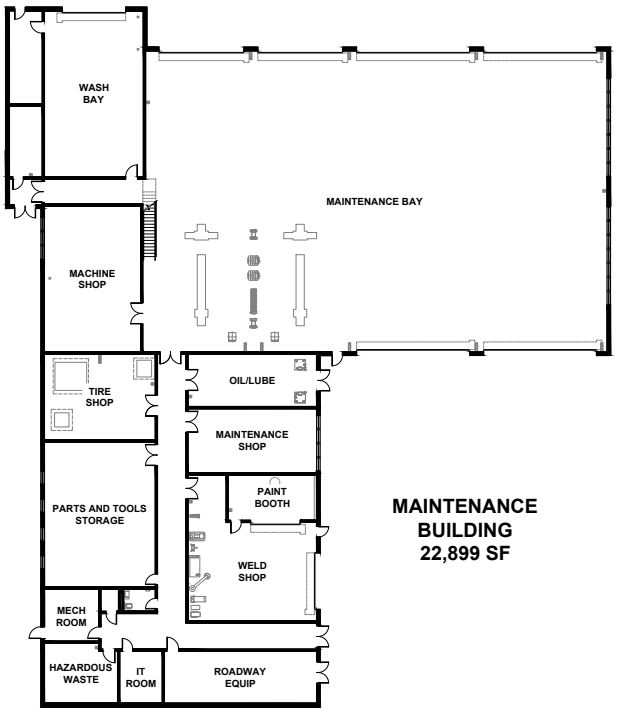
CLIENT
Capital Development Board/IDOT

LOCATION
Morris, IL

PRIME
Milhouse

IDOT Morris Maintenance Storage Facility

ARCHITECTURAL, STRUCTURAL, CIVIL, AND MEP DESIGN SERVICES



ADDITIONAL PROJECT INFORMATION

Construction Cost: $15.8 million
Size: 36,812 sq. ft., 2.9 acres
Timeline: FEB 2020–AUG 2024

The Illinois Department of Transportation (IDOT) Morris Maintenance and Storage Facility was established in 1955. The facility maintains roads and grounds, and plows Interstate 80 and other Illinois State roads. This project demolishes the existing office building and maintenance building and replaces them with a state-of-the-art facility for vehicle maintenance. Milhouse developed Construction Documents to demolish and replace the Office/Administration Building and five-bay Maintenance Building. The IDOT Morris Maintenance Facility operates year-round and ramps up during the winter snow season. Construction was closely coordinated around the IDOT operations.

- Office/Administration Building
  - Break room with kitchenette
  - Ready/training room
  - Men's and women's locker room
  - Management offices
- Salt Brine Mixing and Storage Building
  - Brine mixing room
  - Brine covered storage with six storage tanks
- Vehicle Maintenance and Storage Building
  - Indoor maintenance and storage for 13 fully loaded salt trucks with plows
  - Two heavy duty vehicle lifts
  - Truck wash
  - Machine shop
  - Tire shop
  - Maintenance shop
  - Weld shop
  - Paint booth
  - Oil and lube pump room
  - Parts and tool storage
  - Roadway equipment storage

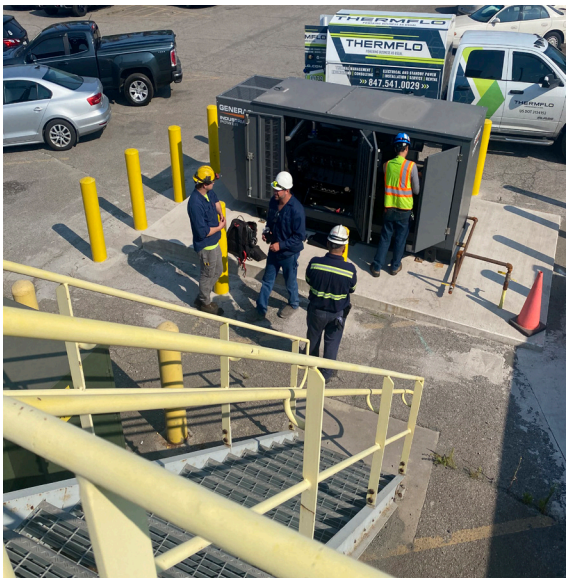
CLIENT
NLMK Indiana

LOCATION
Portage, IN

PRIME
Milhouse

HSM Computer Room Generator

ELECTRICAL ENGINEERING SERVICES



Challenge: The existing Port of Indiana is an industrial area with poor power quality and many power outages; many are not storm related.

Solution: Routing the plant's main computers on a generator allows the production team to monitor and control processes is essential for ensuring smooth operations during the loss of normal power

Result: Backup power kept production running smoothly, ensuring that operation continued uninterrupted during power outages, reducing downtime, avoiding delays in orders, and preventing potential dam-age to equipment or materials. By maintaining consistent power, NMLK avoided lost revenue and extra costs associated with restarting halted production processes. This highlights the importance of reliable backup power solutions in industrial settings.

NLMK Indiana installed a new backup electrical generator for the Hot Strip Mill Computer Room. The design included a natural gas system to power the facility, a smart choice for minimizing the need for refueling, which saves both time and costs for the village.

Milhouse was tasked with providing base drawings for necessary structural engineering services, coordinating access to the project sites, and electrical/civil documents and as-built documents reflecting its' current conditions.

ADDITIONAL PROJECT INFORMATION

Construction Cost: $310,000
Timeline: MAY 2021–DEC 2022

CLIENT
Walgreens

LOCATION
Mansfield, MA

PRIME
Milhouse

Nucleus Mansfield Commissioning

COMMISSIONING OF HVAC, PLUMBING, ELECTRICAL, AND CONTROL SYSTEMS

Challenge: The need for a comprehensive commissioning process to ensure system efficiency and regulatory compliance in a new pharmacy production facility.

Solution: Milhouse provided extensive commissioning services, including development of commissioning forms, startup and pre-functional checklists, systems functional performance tests, and training support.

Result: Efficient system operation and regulatory compliance were achieved, ensuring the facility's readiness for operation.

The Nucleus Mansfield Commissioning project focused on commissioning HVAC, plumbing, and electrical systems in a new pharmacy production facility. This initiative highlighted Milhouse's expertise in navigating the complexities of commissioning to ensure all systems operated efficiently and complied with strict regulatory standards. The primary challenge was integrating these diverse systems within the stringent requirements of a pharmaceutical production environment. Through innovative problem-solving and meticulous planning, Milhouse ensured the facility's systems were not only compliant but also optimized for operational efficiency. The project stands as a testament to the firm's commitment to quality and its ability to meet Walgreens' needs through technical excellence and strategic execution

ADDITIONAL PROJECT INFORMATION

Timeline: APR 2022–APR 2024

CLIENT
Public Building Commission of Chicago

LOCATION
Chicago, IL

PRIME
AECOM

Joint Public Safety Training Campus Projects – EMS Addition

ELECTRICAL ENGINEERING SERVICES

Architectural Rendering of the Emergency Medical Services (EMS) Addition

Milhouse is providing electrical engineering services for the Chicago Joint Public Safety Training Campus to serve the city's continued efforts to provide comprehensive, joint, best-practice training for the Chicago Fire Department (CFD), the Chicago Police Department (CPD), and the Office of Emergency Management and Communications (OEMC).

The Joint Public Safety Training Campus projects include electrical power and lighting control design for free-standing full-size homes configured in neighborhoods to provide a location to prepare emergency first responders for new and emerging threats through joint training exercises. It entails adding a three-story, 53,000 sq. ft., Emergency Medical Services area to the main building, which includes state-of-the-art training classrooms and a simulation lab for indoor scenario training.

The JPSTC EMS addition involves coordination with ComEd (the electric utility provider) to bring electrical service across existing railroad tracks at an abandoned rail yard. Managing this infrastructure challenge, especially when dealing with utility companies and legacy rail systems, involves significant planning to ensure safety and compliance with local regulations. The Chicago Energy Transformation Code emphasizes sustainability and energy savings, so integrating features like energy-efficient lighting controls and alternatives to traditional generators helped align with their goals.

ADDITIONAL PROJECT INFORMATION

Construction Cost: $30 million
Timeline: August 2023–Ongoing

CLIENT
Public Building Commission of Chicago

LOCATION
Chicago, IL

PRIME
Milhouse

Engine Company No. 1 Condition Assessment

ARCHITECTURAL AND MEP/FP ENGINEERING SERVICES

Milhouse performed a Condition Assessment for Engine Company No. 1. This Assessment was used to define a scope of work with the Public Building Commission of Chicago (PBC), Chicago Assets, Information and Services (AIS), and Milhouse Engineering, and had to be designed and constructed before January 2022.

The assessment found many issues, but using the budget, the users chose to replace the roof, replace roof access, upgrade the building lighting to LED, inspect the boiler system, replace the air conditioning, replace the hot water system, replace all of the electric panels and add additional power from ComEd, rout out and video the drain lines, and develop background AutoCAD drawings.

The Initial Condition Assessment to Substantial Completion (January 2022) was 6 ½ months.

ADDITIONAL PROJECT INFORMATION

Construction Cost: $1 million
Timeline: JUNE 2021–JAN 2022

CLIENT
Chicago Public Schools

LOCATION
Chicago, IL

PRIME
Ilekis Associates

CPS Assessments

MEP ENGINEERING SERVICES

Fusebox & Generator at Chicago's Catalyst Maria Charter School


Chatham Academy's exterior electrical systems

Challenge: Some of the schools had minimal documentation/drawings to use for reference.

Solution: Milhouse performed detailed site surveys to obtain all the information required for presenting thorough reports.

Result: Milhouse provided complete reports documenting the existing field conditions and recommendations for improvements.

The project involved performing field visits to seven (7) Chicago Public Schools and documenting their existing conditions for mechanical, electrical, plumbing, and fire protection. Mechanical conditions documented included chillers, boilers, pumps, air handling units, and fans. Electrical conditions documented included electrical panels, emergency service, fire alarm systems, interior and exterior lighting, and security systems. Existing plumbing conditions documented included plumbing fixtures, water heaters, and roof drains. Existing fire protection conditions documented include sprinkler heads, sprinkler mains, and fire pumps. The schools included the following:

- Sullivan House High School
- Progressive Leadership Academy
- Community Youth Development Institute
- Catalyst Maria Charter School
- Olive-Harvey Middle College High School
- Chatham Academy
- Perspectives High School of Technology & Leadership Academy

After each field visit, Milhouse prepared a report documenting the existing conditions. The reports included descriptions of major systems and equipment, life safety deficiencies, code compliance deficiencies, ADA/accessibility compliance deficiencies, maintenance recommendations, and site photos.

ADDITIONAL PROJECT INFORMATION

Size: 7 schools
Timeline: JUNE 2024–Ongoing

CLIENT
Port Authority of New York and New Jersey

LOCATION
LaGuardia Airport

PRIME
Gabel Associates, Inc.

EV Vehicle Charging Infrastructure Program

ELECTRICAL ENGINEERING SERVICES

ADDITIONAL PROJECT INFORMATION

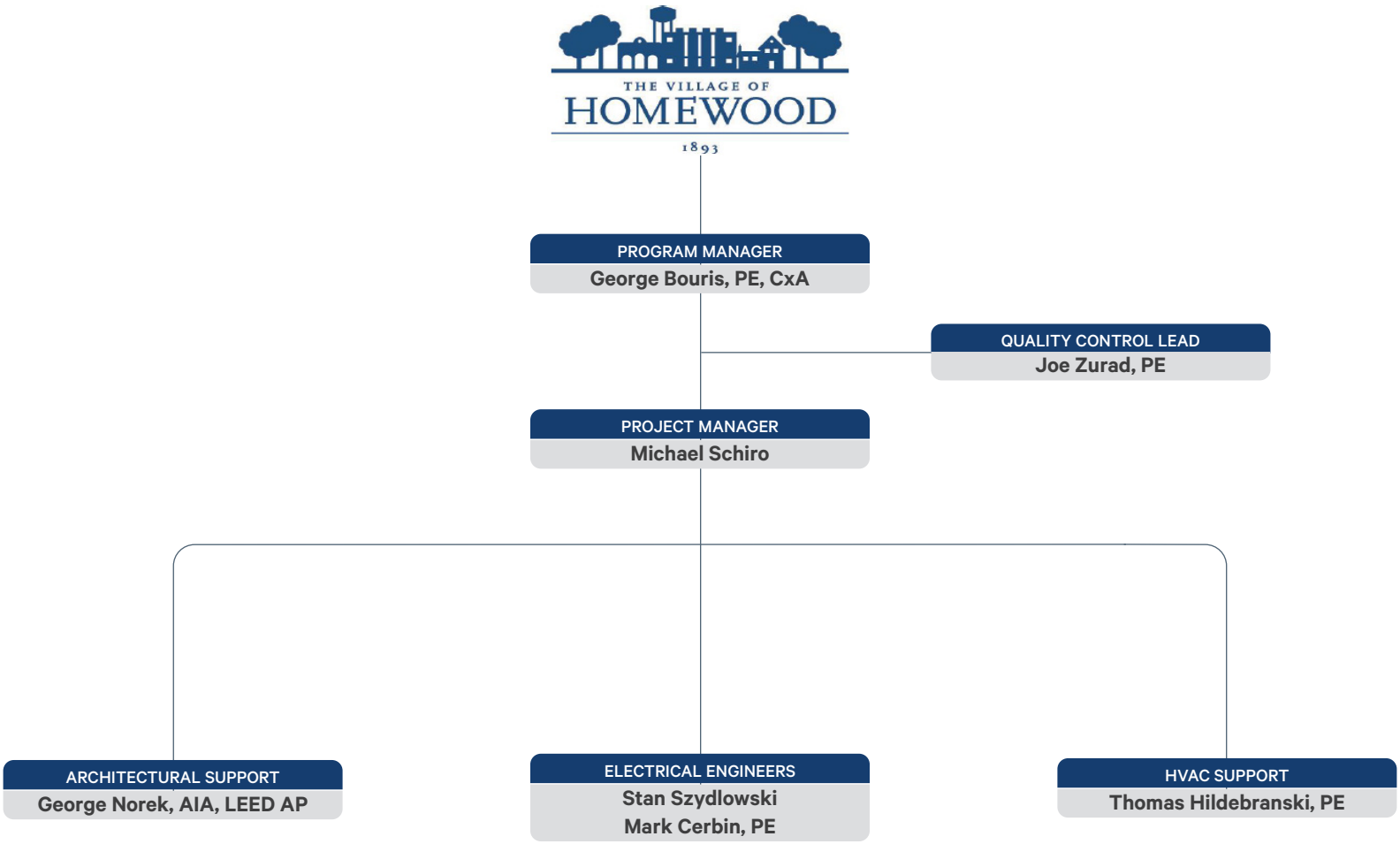
Construction Cost: $500,000
Timeline: FEB 2023–Ongoing

The EV Vehicle Charging Infrastructure Program is a fleet vehicle sustainability endeavor by the Port Authority of New York and New Jersey to convert to a fully electric fleet by 2030. The immediate goal is approximately 25% by 2025. For one location near Building 5 West, plans include 6 locations immediately. Existing infrastructure is being examined for remaining useful capacity, that can be used for EV charging without large capital improvements.

Milhouse is providing electrical engineering services for the Port Authority, assisting with exploring and implementing infrastructure to add Level 2 AC electric charging stations with “plug and play” capability for their non-revenue, not-for-hire vehicle fleet.

The Port Authority of New York and New Jersey plans to deploy 6–12 vehicles with the ability to scale up to 24, with 100+ charging stations expected in the future.

Organization



Team Lead

George Bouris, PE, CxA

VICE PRESIDENT OF MEP

REGISTRATIONS

Licensed Professional Engineer

- IL #062.055291
- NY #094389
- PA #082721
- NJ #24GE05990500

EDUCATION

BS Mechanical Engineering

- University of Illinois at Chicago, IL

YEAR JOINED THE FIRM

- 2020

CERTIFICATIONS

- ACG Certified Commissioning Agent

AFFILIATIONS

- ASHRAE
- Union League Club

George is a mechanical engineer and construction expert with a 31-year record of achievement in MEP Engineering, construction management, and commissioning for projects throughout the continental US. George brings experience in working with internal and external clients as well as contractors. He is a results-oriented leader with recognized success in problem-solving while remaining pragmatic, hands-on, and focused.

Relevant Project Experience

EV Charging Stations LaGuardia Airport Project *Port Authority NYNJ, New York City*

DESIGN PHASE COMMISSIONING

The EV Vehicle Charging Infrastructure Program is a fleet vehicle sustainability endeavor by the Port Authority of New York and New Jersey to convert to a fully electric fleet by 2030. The immediate goal is approximately 25% by 2025. For one location near Building 5 West, plans include 6 locations immediately. Existing infrastructure is being examined for remaining useful capacity, that can be used for EV charging without large capital improvements. Milhouse is providing electrical engineering services for the Port Authority, assisting with exploring and implementing infrastructure to add Level 2 AC electric charging stations with “plug and play” capability for their non-revenue, not-for-hire vehicle fleet. The Port Authority of New York and New Jersey plans to deploy 6–12 vehicles with the ability to scale up to 24, with 100+ charging stations expected in the future.

Walgreens Fulfillment Center Commissioning *Walgreens, Multi-State: FL, MA, IN, MO, CO*

LEAD COMMISSIONING AUTHORITY

Approximately 100,000 sf fulfillment centers with rooftop HVAC systems, refrigeration systems, and state-of-the-art building automation. Challenges included meeting clients’ fast-track schedules by implementing a customized commissioning approach. $250 million project. (2022–Present)

CPS Assessments *Chicago Public Schools, Chicago, IL*

QUALITY CONTROL LEAD

The project involved performing field visits to seven (7) Chicago Public Schools and documenting their existing conditions for mechanical, electrical, plumbing, and fire protection. Mechanical conditions documented included chillers, boilers, pumps, air handling units, and fans. Electrical conditions documented included electrical panels, emergency service, fire alarm systems, interior and exterior lighting, and security systems. Existing plumbing conditions documented included plumbing fixtures, water heaters, and roof drains. Existing fire protection conditions documented include sprinkler heads, sprinkler mains, and fire pumps. (2024–Present)

Falconer Middle School *Chicago Public Schools, Chicago, IL*

LEAD HVAC ENGINEER

Modernization of early 1900s HVAC system for 1500 student population education facility. Systems included three 50,000 cfm air handling units, introducing a new dual pipe cooling and heating plant, and refurbishing the school toilet exhaust system. Challenges included designing modern systems that could be integrated with the 1900s construction methodology. The project included a 125 kVA genset.

South Battery Park Resiliency Project *Port Authority NYNJ, New York City, NY*

PROJECT MANAGER/LEAD HVAC ENGINEER

Approximately a 5-acre site with a 30,000 sf community center multi-use facility that includes ADA-compliant restrooms, gathering space, and a restaurant. This highly sustainable building was engineered to meet the net zero carbon footprint. Challenges included designing a deep-well geothermal heating and cooling system and state-of-the-art energy recovery systems. This project received WEDG (Waterfront Edge Design Guidelines) Verification, the gold standard for waterfront design, which recognizes excellence in resilient, ecological, and accessible waterfront projects. South Battery Park is one of the 13 in the nation to receive this prestigious certification. $150 million project. (2021–Present)

VA Jesse Brown Replace Obsolete Electrical Panels *Chicago, IL*

COMMISSIONING AUTHORITY AND PROJECT MANAGER

The project included commissioning and replacing obsolete electrical panels due to a life safety hazard and non-code compliance. Project requirements included design phase reviews and construction phase commissioning associated with replacing more than 70 electrical panels under the requirement that the hospital remains in operation throughout construction.

USACE Hunstville District-Electrical Inspections and Repairs and Fire Training-USFOR-A *Afghanistan, Entire Country*

PROGRAM MANAGER

Electrical Energy Assessments, and Electrical Inspections/Commissioning and Repairs on over 400 bases. Detailed assessments were performed to identify life safety hazards and to evaluate the more cost-effective optimization solution for consolidating multiple prime power generators to reduce energy costs for various structures, such as offices, Hospitals, DFACs, etc., on a military basis. Inspections included a detailed investigation to identify non-code-compliant installations. The energy commissioning requirement assessment of facilities included a go/no evaluation with detailed payback and energy consumption reduction with a detailed investment grade report and design to implement the ECM. Energy commissioning audits resulted in over 30 buildings being upgraded.

Key Personnel

Michael Schiro

DIRECTOR OF ELECTRICAL ENGINEERING

EDUCATION

BS Mechanical Engineering

- University of Illinois at Chicago, Chicago, IL (1987)

YEAR JOINED THE FIRM

- 2021

CERTIFICATIONS

- Project Management Certificate Program training (PMP), Loyola University, Chicago, IL
- OSHA 10

AFFILIATIONS

- Electric Association of Chicago: Currently President of the the Consulting Electrical Engineers Division
- NETA InterNational Electrical Testing Association
- Illuminating Engineering Society of North America
- International Association of Electrical Inspectors (IAEI)

Michael is an electrical engineer with over 32 years of experience in vertical and commercial building construction, including electrical design, writing technical specifications and construction agreements, managing design and installation teams, and overseeing design project management. His design experience includes industrial, healthcare, office buildings, high-rise, retail, commercial, hospitality, municipal, and federal.

Relevant Project Experience

Marine Terminal Climate Risk Assessment (TO #9) *PANYNJ, NJ & NY*

PROJECT MANAGER

The Climate Risk Assessment (CRA) is an initiative to identify and cost-effectively mitigate the PA's highest priority climate-related risks by performing enterprise-wide assessments of physical climate-related risks and potential mitigation measures that will result in the development of an optimized risk reduction investment strategy for integration into capital planning. It involves the following two study areas:

- Study Area 1: New Jersey Marine Terminals (NJMT) and Brooklyn Port Authority Marine Terminal (BPAMT); scope of work requires a Climate Risk Assessment, an Electrical Capacity Assessment, and an Electrical Demand Study of vehicles and buildings.
- Study Area 2: Brooklyn Port Authority Marine Terminal (BPAMT); scope of work requires participation in program meetings, assessment scheduling, asset criticality and consequence, site-specific climate risk, risk mitigation measure development, a final report, and a post-assessment review.

(January 2024–Present)

HSM Computer Room Generator *NMLK Indiana, Portage, IN*

PROJECT MANAGER

Milhouse was tasked with providing base drawings for necessary structural engineering services, coordinating access to the project sites, and electrical/civil documents and as-built documents reflecting current conditions for NLMK Indiana's installation of a new backup generator for their Hot Strip Mill Computer Room.

Richard Daley Center 27th Floor Generator Load Transfer *Transwestern, Chicago, IL*

PROJECT MANAGER

The project included an assessment of existing generators to verify the feasibility of the design approach, design of proposed emergency power distribution, and preparation of an opinion of probable cost. The design entailed abandoning the in-place failing generator, transferring emergency power of all the 27th floor automatic transfer switches to a new generator distribution panel, and new cable and raceways systems. The design integrated the salvage and reuse of existing conduit runs to minimize construction costs related to the demolition of existing conduits and installation of new raceways.

Joint Public Safety Training Campus EMS Addition *AECOM, Chicago, IL*

PROJECT MANAGER

Milhouse provides electrical engineering services, including electrical power and lighting control design for free-standing full-size homes configured in neighborhoods to provide a location to prepare emergency first responders for new and emerging threats through joint training exercises. The project also entails adding a three-story, 53,000 sq. ft., Emergency Medical Services area to the main building, which includes state-of-the-art training classrooms and a simulation lab for indoor scenario training.

Genset Project *Village of Flossmoor, Flossmoor, IL*

PROJECT MANAGER

The Village of Flossmoor's Public Works Department required the installation of a new generation and upgrades to the existing diesel-powered emergency building to efficiently service the facility after power outage challenges. Milhouse provided MEP design services, including evaluating the existing HVAC electrical systems to determine the emergency generator's size based on the essential loads required to remain operational in the event of a power outage. Responsibilities also involved providing existing drawings necessary to perform work, coordinating access to the project sites, and electrical/civil documents and as-built documents reflecting its' current conditions.

EV Charging Stations LaGuardia Airport Project *Port Authority NYNJ, New York City*

SECTION MANAGER/ELECTRICAL ENGINEER

The EV Vehicle Charging Infrastructure Program is a fleet vehicle sustainability endeavor by the Port Authority of New York and New Jersey to convert to a fully electric fleet by 2030. The immediate goal is approximately 25% by 2025. For one location near Building 5 West, plans include 6 locations immediately. Existing infrastructure is being examined for remaining useful capacity, that can be used for EV charging without large capital improvements. Milhouse is providing electrical engineering services for the Port Authority, assisting with exploring and implementing infrastructure to add Level 2 AC electric charging stations with "plug and play" capability for their non-revenue, not-for-hire vehicle fleet. The Port Authority of New York and New Jersey plans to deploy 6–12 vehicles with the ability to scale up to 24, with 100+ charging stations expected in the future.

CAO Public Annex Generator Replacement *Atlanta, GA*

ELECTRICAL ENGINEER

The project includes the demolition of an existing 125 kW diesel generator and associated systems, the installation of a 500 kW diesel generator, a new main fused disconnect switch section with an automatic transfer switch, the connection of generator and utility transformer output to the new switch section, and a new feeder into the existing building distribution.

Joe Zurad, PE

CHIEF QUALITY OFFICER

REGISTRATIONS

Licensed Professional Engineer

- CO #54581
- DC #PE905637 (2010)
- IL #062-033694 (1976)
- LA #PE-0047292
- MD #45434 (2014)
- MI #6201311058
- MO #2018011339
- NC #47071
- NJ #24GE05502800
- NY #099967
- PA #PE082833
- TX #148038
- VA #402047428
- WI #40891-006 (2010)

EDUCATION

BS Electrical Engineering

- Illinois Institute of Technology, Chicago, IL (1972)

YEAR JOINED THE FIRM

- 2006

CERTIFICATIONS

- CDB—Project Management for Architects/Engineers
- Construction Quality Certification —US Army Corps of Engineers

AFFILIATIONS

- Lifetime Member Institute of Electrical and Electronics Engineers—Power and Energy Society
- National Association of Electrical Inspectors
- Chicago Electric Association

Joe is an accomplished design engineer with over 40 years of extensive managerial and electrical engineering experience. He serves a clientele that includes the public and private sectors with a heavy concentration on water/wastewater design and construction management.

Relevant Project Experience

Program Management Operations *Public Building Commission of Chicago*

DEPUTY DIRECTOR OF CONSTRUCTION

Public Building Commission of Chicago's $2.4 billion city-wide, multi-agency Capital Program to rehabilitate existing and build new schools, fire and police stations, libraries, parks, and other public buildings. Work included project and construction management, code and constructability reviews, environmental engineering, and QA/QC. Joe was responsible for installing, starting, and commissioning all building systems, including boilers, chillers, lighting-control systems, solar-assist domestic water heating systems, co-generation systems, and building automation systems for various public buildings. The program involved the construction of 60 new facilities. Three fire stations were also completed and put into commercial operation during this time, and every structure completed under the program achieved a LEED Silver or greater certification.

South Air Traffic Control Tower *CDA, O'Hare Airport, Chicago, IL*

LEAD DESIGN ENGINEER

The reconfiguration of the runways at O'Hare International Airport necessitated the construction of two new control towers. Milhouse provided design services for the South Air Traffic Control Tower and its associated base building. This 13-level, 218 ft tower has a 565 sq. ft. cab with a 10,000 sq. ft. base building, is a LEED Gold certified control tower, and required extensive electrical and site-utility engineering services. Work included the design and construction administration of essential and critical electrical power distribution systems, grounding systems, lightning protection systems, and auxiliary systems such as load shed, generator control schemes, etc., for the new FAA South Air Traffic Control Tower at O'Hare Field. Work also included completing short-circuit and coordination, arc-flash hazard, and load flow utilizing Paladin DesignBase software.

333 West Wacker Drive *Chicago, IL*

PROJECT MANAGER

Retrocommissioning engineering services for this 1.1-million-square-foot commercial, all-electric office building. The retro-commissioning process included condition assessments of chilled water pumping systems, air-handling units, variable-volume boxes, fan coil units, perimeter radiant heaters, and two independent building BAS systems (JCI and Siemens Controls systems). The project's goal was to reduce energy consumption while improving the quality of the indoor environment for several areas with comfort issues. The project identified issues with temperature sensors, which resolved comfort issues and resulted in a total projected energy savings of 15%.

Raw Wastewater Pump Station 2 Upgrades *DC Water, Washington, DC*

ELECTRICAL QUALITY REVIEWER

Milhouse provides architectural, civil, mechanical, and electrical design and construction management services for a study and subsequent design work to upgrade the Blue Plaines Raw Wastewater Pump Station Number 2. This included a 4-floor size of 31,743 sq. ft. and a roof size of 21,545 sq. ft. The DC Water Raw Wastewater Pump Station Number 2 was last upgraded in the 1970s when an extension to the existing 1967 Pump Station was added to house additional equipment.

George Norek, AIA, LEED AP

SENIOR ARCHITECT

REGISTRATIONS

Licensed Architect

- IL #001011629 (1986)
- DC #ARC102647 (2015)
- IN #AR11700001 (2017)
- NJ #21AI02181500 (2020)
- WI #13327 (2021)
- MD #04-21273 (2022)

Registered Interior Designer

- IL #161000127 (1992)

NCARB Certified (2015)

Self-Certification Professional Registration, Chicago Department of Buildings

EDUCATION

BArch Design

- University of Illinois at Chicago, Chicago, IL (1984)

YEAR JOINED THE FIRM

- 2014

CERTIFICATIONS

- LEED Accredited Professional, 2003
- IFMA Certified Facility Manager – CFM, 1998
- U.S. Department of Energy 'Q' & 'SCI' Security Clearances
- FBI Security Clearance

AFFILIATIONS

- American Institutes of Architects (AIA) Chicago
- National Council of Architectural Registration Boards (NCARB)
- US Green Building Council

George Norek is a Senior Architect with over 33 years of experience in design, architecture, facilities director, project management, construction, facilities management, business and strategic planning, and quality control. George is a team leader in all phases of architectural design and construction administration with a record of completing innovative, complex projects on time and within budget. George brings a wealth of experience designing new construction, renovation, high security, and historic rehabilitation. He is a subject matter expert on ADA compliance, LEED, and life-safety requirements. George is a LEED-AP and has received many high-profile design awards for his sustainable projects.

Relevant Project Experience

Chicago Housing Authority *Chicago, IL*

ARCHITECT

Condition Assessments (49 Senior High Rises)

Milhouse performed Architectural and Mechanical Condition Assessments on 49 Senior Housing Facilities 5,509,913 gross square feet, having a total of 10,935 apartment units, ranging from 5 stories to 22 stories, with a majority of the buildings built in the 1960's and early 1970's. The facilities are maintained, but in need of upgrading. Total Estimated Construction Cost is $505,043,455. George's responsibilities included Architectural assessments, recommendations and cost estimates for each building. (2016)

Poke School Preliminary Designs

CHA received an unused school building to convert into housing. Milhouse performed a number of preliminary designs for the CHA Architect. George developed these preliminary Architectural designs. (2016)

Drawing Reviews for Upcoming CHA Projects

Milhouse performed an Architectural drawing review for a townhouse community rehab in an area north of the United Center. George performed this Architectural review. (2016)

Morris Maintenance Facility *Capital Development Board/IDOT, Morris, IL*

ARCHITECT

This project is to remove and replace a garage and maintenance building and redesign the entire site including the construction of 4 new buildings to support the IDOT vehicles and salt for the snow-plows for Interstate 80. Architectural work includes the design a new Office Building (6,880 gsf.), new Maintenance/Service Building (22,820 gsf.), new Brine Mixing Building (481 gsf.) and new Brine Tank Storage Building. This work is to be performed on an active site. (2020-2021)

Stan Szydlowski

SENIOR ELECTRICAL ENGINEER

EDUCATION

» Illinois Institute of Technology (1977)

YEAR JOINED THE FIRM

» 2023

AFFILIATIONS

» Chicago Electrical Association
» Illumination Engineering Society
» National Fire Protection Association

AWARDS

» IES Award of Excellence in Lighting Riverway Parking Structure
» Chicago Electrical Association Award of Merit Pansophic Headquarters

Stan is an electrical engineer with nearly 50 years of experience with electrical engineering design in the transportation, hospitality, and residential building sectors.

Relevant Project Experience

CAO Public Annex Generator Replacement *Atlanta, GA*

QUALITY CONTROL

The project includes the demolition of an existing 125 kW diesel generator and associated systems, the installation of a 500 kW diesel generator, a new main fused disconnect switch section with an automatic transfer switch, the connection of generator and utility transformer output to the new switch section, and a new feeder into the existing building distribution.

Bally's Garage/Podium Casino *Environmental Systems Design, Chicago, IL*

SENIOR ELECTRICAL ENGINEER

The project includes a casino with approximately 4,000 gaming positions, food and beverage venues which are adjacent to the casino, an approximately 3,000 person capacity Event Center, a museum located at the Riverwalk level, a small amount of retail, and parking containing approximately 3,300 spaces, and a River Garden providing and interior link between the casino and hotel as well as the main vehicular Porte Cochere to the Riverwalk level, and a 38-story 500 room Hotel Tower with amenities and meeting rooms. Milhouse is providing MEP and Fire Protection Engineering services.

Borough Based Jails – Brooklyn Facility *Brooklyn, NY*

SENIOR ELECTRICAL ENGINEER

Over 20-story high-rise building nearly 1M sq. ft. housing over 800 inmates that includes all prison functions such as kitchens, office space, community rooms, cell blocks, and general areas. Milhouse design involved powering the lighting systems and developing an integrated control system to comply with the latest Department of Corrections standards. In addition, the systems control strategies included compliance with the energy code without comprising the security and operations.

Joint Public Safety Training Campus EMS Addition *AECOM, Chicago, IL*

SENIOR ELECTRICAL ENGINEER

Milhouse provides electrical engineering services, including electrical power and lighting control design for free-standing full-size homes configured in neighborhoods to provide a location to prepare emergency first responders for new and emerging threats through joint training exercises. The project also entails adding a three-story, 53,000 sq. ft., Emergency Medical Services area to the main building, which includes state-of-the-art training classrooms and a simulation lab for indoor scenario training.

Richard Daley Center 27th Floor Generator Load Transfer *Transwestern, Chicago, IL*

QUALITY CONTROL

The project included an assessment of existing generators to verify the feasibility of the design approach, design of proposed emergency power distribution, and preparation of an opinion of probable cost. The design entailed abandoning the in-place failing generator, transferring emergency power of all the 27th floor automatic transfer switches to a new generator distribution panel, and new cable and raceways systems. The design integrated the salvage and reuse of existing conduit runs to minimize construction costs related to the demolition of existing conduits and installation of new raceways.

Mark Cerbin, PE

ELECTRICAL ENGINEER III

REGISTRATIONS

Licensed Professional Engineer

- FL #96458
- GA #PE050410
- IL #062.072420
- IN #PE12200829
- NY #104965
- NC #054626
- PA #PE092481
- TX #147220

EDUCATION

BS Electrical Engineering/Applied Mathematics

- Northern Illinois University, DeKalb, IL (2016)

YEAR JOINED THE FIRM

- 2015

ADDITIONAL TRAINING

- SKM Power* Tools Software 40-hour in-class training/IEEE certificate
- Revit Electrical Training 2017: Basic
- OSHA 10-Hour Training

SOFTWARE

- Revit
- AutoCAD Civil 3D
- MicroStation
- AGI
- ElumTools
- Bluebeam
- SKM
- ProjectWise
- Axiom
- Geopak

Mark is an electrical engineer with over 9 years of design and contracting experience. His aviation-related work includes airfield and airport terminal design for runway and taxiway lighting, underground utility coordinator, and communication systems. He has acted as a lead electrical designer on various building projects including new airport terminals and pump stations. Mark also has solid expertise in creating power distribution and lighting designs using Revit and BIM/Virtual Design and Construction (VDC) software.

Relevant Project Experience

ORD 21 O'Hare Global Terminal *CDA, O'Hare International Airport, Chicago, IL*

LEAD ELECTRICAL ENGINEER AND PROJECT MANAGER

At 2.2 million square feet, the new O'Hare Global Terminal (OGT) will be one of the largest, most cutting-edge terminals in the nation. It will dramatically improve the first impressions of tens of millions of travelers who visit Chicago every year. Mr. Cerbin has continued to utilize his diverse and unique experience at O'Hare to lead the coordination/design effort for electrical design and power distribution on the new terminal. He continues to bring practical solutions to complex problems, while meeting and interacting with stakeholders effectively. Coordinating and utility providers and amongst other disciplines and teams outside of the project. Mark is also managing the project for the mechanical piping, fire alarm and fire protection disciplines. This project has many interfaces with existing conditions, many of which need to be maintained while the project is constructed. (June 2019–Ongoing)

Terminal 5 Extension *CDA, O'Hare International Airport, Chicago, IL*

LEAD ELECTRICAL AND POWER DISTRIBUTION ENGINEER

This project consists of a major renovation and a 300,00 sq. ft. extension of O'Hare's Terminal 5 and will include reconfiguring/replacement and installation of new PBBs and MARs gates for wide boy and narrow body aircraft parking positions. These positions include west wing gates M1-M7 and gate M18, relocating gates M19 through M21, adding six contact position gates—M22 through M27, and adding at least four new hardstand positions. The additions will require site/civil, apron lighting, security, fueling, and taxiway work along with substantial expansion and renovations to the existing head house. As the lead electrical and power distribution designer, Mark is responsible for design coordination of the main switchgear and power distribution systems; sizing equipment and required calculations; specifications and plan utilizing Revit; coordinating with client for electrical needs; and performing existing conditions assessment of the terminal. Mark is also assisting in developing additional added services to the original contract scope; revising CBP.FIS screening areas and offices; proposed ramp control tower—among other various modification to the existing terminal and planning for its future use. (March 2017–Ongoing)

Existing UPS Replacement Study *School of the Art Institute of Chicago, Chicago, IL*

ELECTRICAL ENGINEER

Milhouse was retained by the School of the Art Institute of Chicago's (SAIC) to review their existing uninterruptable power supply (UPS) system and evaluate options for modifying and/or expanding its current data center. The existing data center maintains all servers for both SAIC, as well as the Art Institute of Chicago Museum. Mark worked closely with the project management team at SAIC to develop a formal analysis (load flow, sort-circuit, and arc flash electrical studies) of their system and provide dynamic solutions for the infrastructure problem. (August 2018–Ongoing)

Chicago Smart Lighting Program *CDOT, Chicago, IL*

ELECTRICAL ENGINEER

Mark is providing electrical engineering services for the upgrade of more than 270,000 street and alley light fixtures throughout Chicago. The program seeks to improve public safety and quality of life in neighborhoods across Chicago by replacing the city's outdated and inefficient, high-pressure sodium lamps with reliable LED luminaires. The new system improves the City's responsiveness to outages through a citywide lighting control network that provides real-time updates. Milhouse is responsible for the supervision, coordination, inspection, and documentation of the LED conversion and target infrastructure stabilization repairs. Responsible for the inspection of the existing infrastructure while utilizing the city's GIS software for tracking the conditions of each individual pole. The inspections included the evaluation of existing lights and poles. (August 2017–Ongoing)

Pump Station #4 *IDOT, Chicago, IL*

LEAD ELECTRICAL (LIGHTING) ENGINEER

Mark was responsible for design coordination of the lighting and general convenience power needs for the New Pump Station #4. This included sizing conduit, wiring, panelboards, lighting calculations, and plan creation for the work. Milhouse provided HVAC, plumbing, utility, electrical, and control design services for this project. (November 2016–Ongoing)

Maggie Daley Park Equipment Survey and Maintenance Specifications *Chicago Park District, Chicago, IL*

ELECTRICAL ENGINEER

Maggie Daley Park required equipment surveys and maintenance specifications of the Ice Skating Ribbon, Climbing Park, Children's Play Garden, groves and lawns, landscape, and the Field House through general maintenance, which involved maintaining the electrical infrastructure; implementing an Energy Conservation Program; implementing Environmental Stewardship Program; maintaining and repairing fire prevention systems; garbage collection, removal, and recycling; graffiti removal; maintaining and repairing hardscape; pest control; plumbing services; power washing; maintaining, repairing, and installing all necessary signs; and snow and ice removal. Mark participated in the electrical equipment survey and development of the subsequent maintenance specifications for Maggie Daley Park. (June 2016–August 2016)

Thomas Hildebranski, PE

SENIOR MECHANICAL ENGINEER

REGISTRATIONS

Licensed Professional Engineer

- IL #062.073659 (2023)
- NY #108566-01

EDUCATION

BS Mechanical Engineering

- Purdue University School of Mechanical Engineering, West Lafayette, IN (2017)

YEAR JOINED THE FIRM

- 2023

SOFTWARE

- AutoCAD
- Revit
- Recap
- Carrier HAP
- Bluebeam Revu
- Microsoft Office

Thomas is a licensed Mechanical Engineer, effective in HVAC design and collaboration. He is experienced with chilled water, direct expansion, steam, hot water, and condenser water systems, and is knowledgeable with VA HVAC Design Manual, ASHRAE Standards and International Mechanical Code.

Relevant Project Experience

CAO Public Annex Generator Replacement *Atlanta, GA*

PROJECT MANAGER

The project includes the demolition of an existing 125 kW diesel generator and associated systems, the installation of a 500 kW diesel generator, a new main fused disconnect switch section with an automatic transfer switch, the connection of generator and utility transformer output to the new switch section, and a new feeder into the existing building distribution.

Energy Audit for Chicago Public Schools *Ameresco, Chicago Public Schools and Public Building Commission, Chicago, IL*

MECHANICAL ENGINEER/PROJECT MANAGER

Performed Energy audit of 17 Chicago Public Schools to identify potential Energy Conservation Measures in a collaboration project with Ameresco. Energy conservation measures include items related to mechanical systems, controls, and lighting.

GE Building Expansion *GE/CBRE, Pensacola, FL*

MECHANICAL ENGINEER/PROJECT MANAGER

New building for warehouse/storage to connect to an existing facility. Approximately 15,000 sq. ft. building, which also includes a loading dock and fully conditioned warehouse with additional outdoor covered storage area. Milhouse currently provides MEP/FP engineering services.

PAAC Obama Center Community Center *548 Capital LLC, Chicago, IL*

MECHANICAL ENGINEER

The proposed Obama Presidential Center to be located at Jackson Park in Chicago, Illinois consists of an estimated 37,200 sq ft facility/recreation center/community center. Milhouse's scope of work includes HVAC design, advanced building automation, plumbing, fire protection, power, fire alarm LEED design, and energy modeling. This project is pursuing LEED Platinum certification.

Bally's Casino and Hotel *Bally's, Chicago, IL*

MECHANICAL ENGINEER

Project includes a Casino with approximately 4,000 gaming positions, Food and Beverage venues which are adjacent to the Casino, an approximately 3,000-person capacity Event Center, a Museum located at the Riverwalk level, a small amount of Retail, and parking containing approximately 3,300 spaces, and a River Garden providing and interior link between the casino and hotel as well as the main vehicular Porte Cochere to the Riverwalk level, and a 35-story 500 room Hotel Tower with amenities and meeting rooms. Milhouse is providing MEP/FP engineering services.

Morris Maintenance Storage Facility *Capital Development Board, IDOT, Morris, IL*

MECHANICAL ENGINEER

The 7 Bay Truck Storage Building is a 10,368 sq. ft. building constructed in 1955. The scope of work includes an assessment for demolishing the existing 7 Bay Truck Storage Building and constructing a new office maintenance building. The Morris 5 Bay Truck Storage Building is a 4,320 sq. ft. building, constructed in 1963. The scope of work includes repairing and remodeling the Storage Building to allow for additional storage space.

Subcontractors

Milhouse does not intend to subcontract any portion of the design for this project.

Projects – Facility Assessments

Technical Approach

I. Pre-Design Services

A. Program Management

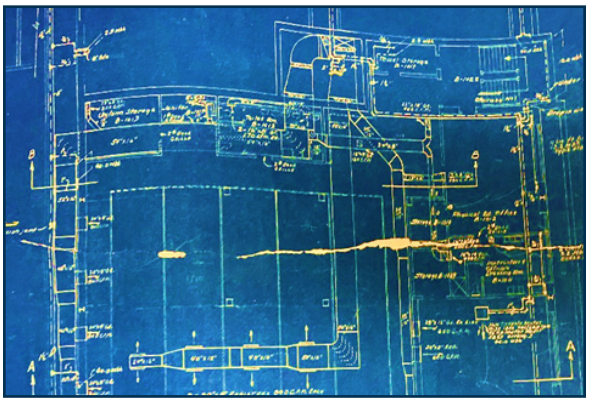
As Program Manager and Project Manager, George Bouris and Michael Schiro bring several decades of relevant experience, managing programs for the private and public sectors including complex programs for Maintenance Facilities, Laboratories, Educational, aviation, and public administration facilities. They bring the knowledge, skills, ability & leadership to rapidly & efficiently grasp and comply with the intent of work expected. They understand that to launch initiatives, one must lead from the front, establish the right team, and fulfill the highest standards with the team to ensure effective communication is fostered.

The essence of good management is the ability to capture and understand the true intent behind each project and process to surpass expectations. The ability to bind together various skill sets in various locations, prioritize work, and achieve these results is true leadership. Milhouse applies a service-centric leadership philosophy that emphasizes understanding and complying with the vision of each project, and then exceeding client expectations.

Milhouse will monitor progress, provide real-time oversight (available to all stakeholders), and use metric-based milestones and achievements to validate that the contract requirements are being met by our management team. Regular virtual meetings using Microsoft Teams with minutes of the meeting will be provided with action items for tracking questions, comments, requests, and their corresponding responses.

B. Pre-Design Scope Validation

Our team's resumes demonstrate the requisite depth, technical qualifications, and proven experience to provide design and consulting services for Architectural and Engineering projects in facilities whether it is a small renovation project, a complex remolding, or a new addition. Upon award of a Project, the Milhouse Team will review the Statement of Work (SOW), and attend the Orientation Meeting to confirm the full scope of work for the project, including any comments to the SOW provided by stakeholders.



Obtain existing drawings from client archives necessary to perform the design.

Once we have evaluated the Statement of Work to determine both Specific Tasks and Implied Tasks, we will reach out to our client to ensure we have captured the 'Intent' and 'Objective' being sought. By capturing the correct scope, we can quickly establish a Plan, Goals, Costs, Project, and Milestone Chart that allows all Stakeholders to monitor, track, and understand expectations. Our methods always include a process to preempt any potential issues by looking forward and communicating with our client the status and progress on planning, procurement, design, implementation, and construction.

We will obtain and review available as-built drawings and specifications against the SOW and compile a list of questions and/or comments necessary to clarify any scope items. This is an important step in that process that assures the design team has a clear understanding of the scope before proceeding.

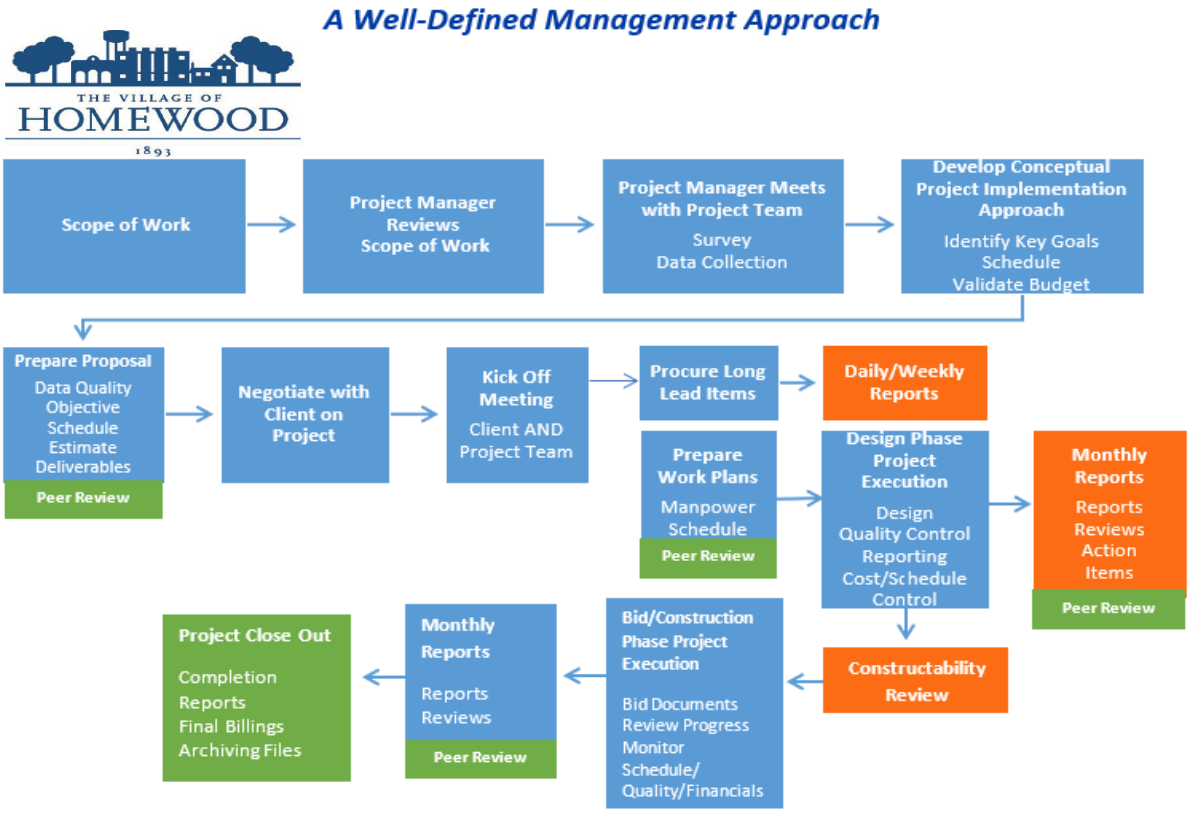
We have found the Pre-Design Phase to be one of the most critical steps in the process since it identifies the options, challenges, and project costs that are the foundation to determining the path forward resulting in fewer issues down the road.

The Milhouse Team will conduct an onboarding to present all findings and recommendations at each deliverable to obtain full stakeholder approval before proceeding to the next design stage. This step is repeated through the Issued for Construction Documents.

The Pre-Design packages will include reports, design drawings, and specifications as required by the defined scope of work. The drawings will consist of General Arrangement Plans, single-line diagrams, equipment schedules, calculations, key sections and elevations, control diagrams and sequences, and outline specifications. The package will be supplemented with a complete design narrative and code review, detailed construction schedule, and preliminary construction estimates, including contingencies and a review of the previous questions, comments, and recommendations to show that they have either been incorporated or resolved.

The Milhouse Team will conduct an onboarding to present all findings and recommendations at each deliverable to obtain full stakeholder approval before proceeding to the next design stage. This step is repeated through the Issued for Construction Documents.

C. Management Approach Summary



II. Design Services

A. Mobilization

Depending on the project's complexity, we anticipate several field inspections throughout the progression of the design to continuously validate the existing conditions against the design to limit unforeseen conditions during construction. Visual inspections will focus on constructability, maintenance access, equipment access, staging, physical obstructions, available utilities such as power, steam chilled water, control sequencing, etc.

After the initial field inspection, Milhouse will provide a full report on their findings and recommendations identifying any concerns with the initial scope vs. existing field inspections. A review meeting will be scheduled with the same personnel that attended the kickoff meeting to review the findings and recommendations from the site walk-through and confirm the path forward.

Construction cost estimates will be provided at each juncture to ensure cost control.

New Backup Electrical Generator Installed for NMLK Indiana

B. Project Phase

As a result of the Pre-Design phase, the contract drawings will mirror the drawings listed under the preliminary design deliverables and facility standards will be supplemented by our standard specifications tailored to the specific project.

The phases are anticipated to be developed based on the following deliverable schedule as determined by the SOW. In addition to the phases listed below, certain projects may require early submissions to the AHJ.

Schematic Design → Design Development → Construction Documents → Construction Phase → Commissioning → Close Out

Revit or AutoCAD will be used to develop the package.

C. Schedule Control

Schedules are managed through an ongoing schedule updated process, reviewed at each design meeting, integrated into each submittal, and pushed out to the Project Team for 'buy-in'. By thoroughly reviewing and communicating the items to be covered in each meeting and integrating those items into the project design timeline we can track pending items, issues, and objectives as well as see into the future to avoid potential conflicts that might cause a potential delay. Listed below are a few of the established processes codified within our team to deliver a quality schedule.

a. Design Review: The staff will provide an in-depth review of the project requirements to immediately identify any design-related and constructability issues. The issues will be logged in a tracking form and shared with the team to be reconciled during the Design Review Process. The tracking log and forms are provided to all stakeholders for review and comments as appropriate.

b. Shop Drawing Reviews: Our subject matter experts, in collaboration with our field staff, will review Shop Drawings and issues will be tracked for resolution.

c. Monitoring and Reporting: Standardized construction monitoring inspection forms for all trades are used to allow for consistent reporting and include pictures (if allowed) of deficiencies. In addition, visual field observation inspections will be performed to capture any unique issues that may arise and are not captured on the standard inspection forms.

d. Reporting Frequency: As determined by project needs, although all information will be accessible to the client at any time.

e. Reporting Collaboration: A collaborative file-sharing information system such as ProjectWise can be used to allow for report sharing with team members, contractors, and all stakeholders if the project warrants it.

f. Issues Resolution: All issues discovered during the design review, shop drawing review, and construction monitoring phase include an associated suspense date to ensure remediation is implemented promptly. Should the installing contractors or designers of record disagree with the issues reported, an immediate discussion will take place to reconcile the differences with the subject matter experts. Should the issue remain unresolved, the Program Manager will facilitate a meeting with appropriate stakeholders to resolve it while always keeping the client informed.

g. Client Communication: The single point of contact with the Port Authority will be the Program Manager. Communication protocols will be reviewed at the kick-off meeting to facilitate quick resolutions to open issues to avoid excessive distribution to the stakeholders.

D. Quality Assurance and Control

Our team has a considered and structured approach to delivering quality projects to our clients. This approach includes a comprehensive Corporate Quality Assurance Plan, Project Management Plan, and project-specific Quality Control Plans. The project-specific Quality Control checklists are developed before any project starts the design. The checklists are signed by all Key Personnel to assure compliance and are available for review at any time. We have an in-house independent Quality Assurance Team that routinely and randomly audits projects to ensure quality control is maintained. Quality Assurance reports are issued to the Project Manager for immediate real-time corrective action and to the Chief Engineer. In addition to the common quality control reviews such as page flips, calculations reviews, etc., we perform a constructability review, which involves walking the site with design drawings in hand to identify any conflict that may cause constructability or maintenance issues.

a. Coordination is key and sets the groundwork for a well-organized construction project. Throughout the design process, each QC lead addresses deficiencies in the quality with the design professionals to ensure the best quality and workmanship is provided to the client. Project deficiency reports such as the one above are generated and provided to the design team throughout the process such that open items are addressed efficiently.

b. Our quality control is integrated into a review process that consists of a 7-step process that mirrors the project phase and intermediate deliverables with each step being applied to each phase as required to resolve issues. This process is applied to all deliverables.

Schematic Design → Design Development → Construction Documents → Construction Phase → Commissioning → Close Out

- **Step 1: Team Review of Project Requirements:** First, we will establish schedules and coordinate review meeting dates and the overall project with the clients' and staff's holidays and other commitments. An in-depth review of the client's program requirements and goals, applicable Client Standards and Design Manuals, codes, interviews of users and facility maintenance staff, identifying challenges and potential solutions, and verifying the project budget and schedule are all required. This information is then documented in the Owner Project Requirements and disseminated to the entire design team for review and comments to develop a baseline of expectations.
- **Step 2:** This step consists of developing and reviewing options through design team and stakeholder planning meetings. Each lead discipline will participate and provide input on their respective design requirements so that all team members can review and comment on the direction of the concept design, schedule or budget/cost considerations, and any potential deviations from the Client Standards that will require approval.
- **Step 3: Schematic Designs:** After field investigations are performed, we present the concept design options to the client and users, gather additional input to verify that the design is progressing in the required direction, and select the acceptable concept design. The design team will further review any comments or concerns generated by the client, provide recommendations, update the Owner Project Requirements, and develop a draft specification.
- **Step 4: Design Development:** The field survey continues to develop project specifics, such as user program block floor plans, one-line diagrams, preliminary engineering calculations, system sections, riser diagrams, and preliminary equipment selections and specifications. The budget and schedule are evaluated and confirmed that they fall within the requirements. Meetings are held with all stakeholders to coordinate project requirements and issues.
- **Step 5: Construction Documents:** Field surveys are finalized, and all the design is completed to include all details such as elevations, final system design, validation of calculations and energy models, enlarged floor plan details, equipment

schedules, building sections, and specifications.

- **Step 6: Construction Phase:** When requested, bids are evaluated before award. Constructing Phase activities include a consistent follow-through to guarantee that the project is being built per the requirements, including field observations, shop drawings reviews, RFI responses, change order requests, punch lists, and closeout.
- **Step 7: Commissioning:** All commissioning activities are supported throughout the project, especially during the functional performance testing to validate that the systems operate as specified. More information regarding our Commissioning Approach is detailed further on.

c. Coordinate Meetings: Milhouse will hold regular team meetings with applicable stakeholders to verify scope, schedule, budget, and quality are met. Any lessons learned will be shared with the team, and if required, the inspection forms will be updated to reflect additional monitoring requirements.

d. Project Controls: All staff are required to complete time weekly sheets that are signed by the individual and immediate supervisor to be sure project production is tracking the project budget and schedule. In addition, we heavily utilize Deltek as our resource management tool to avoid quality issues that may result from overloading staff. Staff resourcing is updated at a minimum every 3 to 4 weeks.

e. Schedule Compliance: Our overlapping capacity enables Milhouse to excel in multiple projects simultaneously by utilizing Deltek and in-house customized tools known as our Project Tracker. Our key to success is to automate where possible, standardization of processes to create efficiencies, and expedite decision-making. We will perform cross-checks against the deliverable requirements on a routine timetable suitable to the project to track that the project is meeting deliverables.

f. Project Closeout: After the project, the Project Manager will be responsible for ensuring all proper closeouts are completed such as evaluations, records transfer, and proper training, ensuring stakeholders have appropriate documents for records such as as-builts and O &M's.

III. Performing Engineering Investigations and Feasibility Studies

The Milhouse Team has performed building investigations ranging from buildings built in the 1900s to retrofits of modern structures. Performing engineering investigations and feasibility studies is a crucial step in the early stages of any engineering project. These studies help determine the viability, potential risks, and overall feasibility of a proposed engineering venture. A typical comprehensive description of the process is as follows.

Homewood Flossmoor Generator

a. Project Definition and Scope: Clearly defining the objectives and scope of the engineering project. Understanding the problem statement or the purpose behind the proposed project.

b. Data Collection and Review: Gathering all relevant data and information related to the project. This may include technical specifications, regulatory requirements, historical data, environmental impact assessments, and any existing infrastructure or systems.

c. Stakeholder Engagement: Identifying and involving key stakeholders, such as clients, end-users, government authorities, and subject matter experts. Their input is critical to understanding project expectations and potential challenges.

d. Site Visit and Assessment: Conducting a site visit to the project's location, evaluating the site's suitability, and assessing any site-specific constraints or opportunities.

e. Technical Analysis: Performing a comprehensive technical analysis of the project. This includes evaluating engineering aspects of the existing systems.

f. Financial Analysis: Conducting a detailed financial analysis to estimate the project's overall cost and potential cost savings, where applicable. Considering capital expenditures and operating expenses.

g. Alternatives Evaluation: Exploring and evaluating different alternatives and solutions to achieve the project's objectives. Comparing the advantages, disadvantages, and risks of each option to make informed decisions.

h. Feasibility Report: Preparing a comprehensive feasibility report summarizing all findings from the investigations and studies. The report will present a clear assessment of the project's viability, potential challenges, and recommendations for moving forward.

Performing engineering investigations and feasibility studies are a meticulous process that requires a multidisciplinary approach and collaboration among experts from various fields. Thoroughly conducted studies lay the foundation for successful and sustainable engineering project

IV. Construction Cost Estimating

A. Schedule of Pricing

The Milhouse Team has extensive experience in developing the Schedule of Prices for the client at different deliverables stages.

Existing Diesel Generator located inside the Richard J. Daley Center

a. At the Schematic Stage, the methodology used is the "Assembly Method". During schematic design, when more is known about the space requirements and general configuration of the building and site, budgeting will be based on major subsystems and room areas. Historical cost information on each type of subsystem or room area is priced using a generalized square-foot method of estimating that applies to the design

b. At the Detailed Design Stage, the methodology used is the "Parameter Method". This involves an expanded itemization of construction quantities and assignment of unit costs for these quantities broken down into carpeting, vinyl tile, wood strip flooring, unfinished concrete, and so forth.

c. At Construction Document Issuance, the methodology used is the "Unit Cost Method". The project is broken down into individual building components and the labor needed to install them is based on historical data for productivity rates; it can only be used when the construction drawings and specifications are complete, and all the requirements of the project are known.

d. Engineering budgets are typically based on the percentage of construction cost and complexity.

B. Detailed Cost Estimates Approach

a. Cost Estimated Scope Definition

In conjunction with our 3rd party cost-estimating experts, our approach begins with understanding the pricing scope and assuring it is consistent with the requirements of the SOW. We can apply our expertise designing for rail, aviation, and other transportation facilities to come up with precise, industry-specific scopes, including, at each deliverable a detailed cost estimate, when required, that allows us to identify any scope creep or construction cost budget issues before moving into the next phase. If necessary, value engineering solutions are presented to bring the project back into the budget. The following describes our detailed cost-estimating approach.

b. Cost Estimating

i. Identification of Project Requirements: Because it is important for a project to be properly researched before the commencement of the estimating process, Milhouse utilizes a Project Scope checklist as a framework for information gathering when performing initial project reviews. A standardized approach to the planning, organizing, and

management of cost-estimating projects, and estimates are prepared using computer systems that are flexible in terms of presentation and format. Our process begins by discussing the project scope with the design team to define and understand key parameters and goals, as well as determine project staffing needs.

ii. Project Briefing: Utilizing the Project Scope checklist, a more in-depth project briefing is conducted by the design team for the client where each building system is discussed and documented. Our technical and in-house construction staff prepare detailed quantity take-offs organized by major building systems such as foundations, slab-on-grade, exterior walls, roofing, and structural systems. Factors such as high cost, large quantities, tangible and intangible issues, and special items requiring quotations from contractors and suppliers are identified.

iii. Quantity Take-offs: Quantities for all disciplines (architectural, structural, mechanical, electrical, and civil) are documented utilizing computerized digitizers. After quantity take-offs are completed and checked, a separate price reflecting the labor and material components for each line item in the estimate is developed based on a specific project location. We also can utilize BIM Model files to review and check quantities for project consistency.

iv. Price Quotations: Our in-house construction unit can obtain and document price quotations from contractors, subcontractors, and suppliers who have previous experience with similar projects, as well as from published trade publications. Our philosophy on pricing is obtaining actual market information and then tempering it with our experience and various reference materials. Our Cost Managers also review issues such as constructability, site access, contractual constraints, and phasing to produce an estimate that is as "real world" as possible.

v. Construction Estimating Quality Control: Bulk quantities are compared against quantities in the estimates, and these values are then documented on Bulk Check Forms to confirm that no major errors have gone undetected. A Principal or Senior Project Manager conducts a peer review, verifying that prices and work scope are appropriate for the project. To further ensure that all parties have a clear understanding of a project as it progresses, all team members agree upon any comments and/or changes before they are incorporated into the final report.

vi. Deliverables: Once the process described above is complete, the estimate is submitted to the client, who then can make comments that can be incorporated. We diligently follow this process for all estimates at all stages of design completion. Deliverables are established in contract negotiations before notice-to-proceed, and services are performed by all applicable state, federal, and local laws, rules, and regulations. Estimates can be produced in parameter cost models; conceptual, schematic, design development, and construction document stages of design, and can be prepared in standard Uniformat, Master format, or customized formats to meet specific project needs.

V. Bidding, Consruction Administration, Occupancy, and Close Out

We recognize in today's fast-track construction environment it is paramount to understand the client's program, and budget requirements and provide programmatic economic solutions that do not comprise delivering high-performance, efficient, maintainable, and 'on budget' buildings and projects.

Construction administration is a critical phase that ensures the successful execution of a construction project according to the approved plans, specifications, and contract documents. It involves the coordination, monitoring, and control of various activities and stakeholders to achieve the project's objectives within the specified budget, schedule, and quality standards. The construction administration approach and methodology encompass a series of systematic steps and strategies to effectively manage and oversee the construction process. Our team is proficient and extremely responsive to the components of construction administration, such as:

- Bid Form Preparation
- Bidding and Supplemental Information
- Bid Analysis and Post Bid Cost Breakdown
- Bidding and Design to Budget Requirement
- Meetings, Site Visits, Conflict Resolution
- Periodic Site Visits
- Submittals, RFIs, and Logs
- Changes, Change Orders, and Contractor Applications for Payment
- Change Log/Change Orders
- Program Change or Construction Change Directive/Bulletin
- Cost Breakdown and Contractor Applications for Payment
- Final Submissions and Close-Out
- Final Inspections and Punch List
- Revised Drawings/As-Builts
- Certificate of Occupancy/DOB Close Out
- Operations and Maintenance

References

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Completed Facility Assessment

Please refer to the attached Richard J. Daley Center Building Assessment Report for a previously completed facility assessment as a deliverable to a municipality.

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