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DE FL CT D.C. MD NJ NY PA TX VA



## MECHANICAL, ELECTRICAL & PLUMBING (MEP)

Our team's knowledge and talent runs deep. They are licensed or certified as Professional Engineers, LEED AP, ASHRAE BEAP, and ASHRAE CPMP. Falcon has provided extensive design work for existing and new construction projects. If you are considering replacing or upgrading your central heating and cooling plant, HVAC equipment, domestic water heating system, fire alarm system, electrical distribution equipment, sprinkler system, or fire pump; Falcon MEP & Energy Consultants is your trusted team of experts to address and assist you with these needs.

The Falcon Group's team of licensed and certified professionals provides a full-range of mechanical, electrical, plumbing, fire protection and energy consulting services. We are always available to address and assist with your facility's needs. We will make sure your building is running efficiently, compliant to local laws and regulations and help save money on your utility bills. Falcon offers full-service mechanical, electrical and plumbing (MEP) designs and specifications, inspections troubleshooting, building commissioning and energy studies. We can work with your existing systems or design new energy-efficient systems.

## **ENERGY AUDIT: ANALYSIS, EVALUATION & BENCHMARKING**

Analysis and evaluation of existing building systems (lighting, HVAC and domestic hot water heating) are performed to determine the potential for energy savings by reducing expenditure on utility bills and increasing the rate of return on the investment of building owners.

This service starts with a walkthrough, review of utility bills, review of construction documents (if available), followed by performing a targeted energy audit that will uncover energy inefficiency/waste. After these functions, Falcon Energy & MEP Consulting prepares a report that includes a plan with no cost or low cost options, medium cost options and high cost options to reduce the associated utility bills.

If energy reduction is your goal, let Falcon's team of energy experts guide you through the process and implement action. In recent years, many cities including: New York City, Philadelphia and Washington D.C. have implemented laws requiring specific buildings to be benchmarked using the EPA Energy Star Portfolio Manager.

Benchmarking helps to shine a light on your building's energy consumption. It can help you and your consultant know where to look to improve your building's efficiency and reduce your expenditures.





## MEP / ENERGY CONSERVATION SERVICES + CAPABILITIES

# <u>Mechanical Systems | Design Engineering & Optimization</u>

- · Decarbonization and Electrification
- Combined heating/cooling systems, Heat Pump Technology, DOAS
- Domestic Hot Water Generation
- Cooling/Dehumidification Plants
- Heating Plants
- Air Handling Equipment
- Controls (Pneumatic and DDC Systems)

## Plumbing Systems | Design Engineering & Optimization

- Replacement/upgrades to water distribution systems
- Backflow Prevention Devices
- Boosters, Gravity Tank Systems, Hydro-Pneumatic Systems
- Hot Water Heaters
- Drainage Systems
- · Gas Leak Detection Systems and Testing

# <u>Electrical Systems | Design Engineering & Optimization</u>

- EV Chargers Levels 1, 2, 3 / DC Fast Chargers -Circuit design
- Lighting Upgrades and Controls
- Plug Load Management
- Electrical Service Upgrades
- Transformers
- Power Quality Assessments Harmonics, Voltage Imbalances
- · Emergency and Standby Power
- Electric Motor and Controls Upgrades
- Local Law Compliance (where required)



## MEP / ENERGY CONSERVATION SERVICES + CAPABILITIES

## **MO&M Capabilities and Services**

- Preventive Maintenance, Predictive Maintenance and Reliability-Centric Maintenance
- Consultation on Rebuilding versus Replacement
- · Workflow, Processes and Management
- Prolonging Asset Lifecycles Operations and Maintenance Logs and Programming
- Equipment Use Permits and Certificates to Operate (Regulatory)
- Condition Assessments and Capital Planning
- Computerized Maintenance Management Systems (CMMS) / Asset Verification and Management
- · Equipment Scheduling and Monitoring
- Vertical Transportation Systems Elevators and Escalators
- QA/QC Inspections, Testing, Service Contract Performance
- HVAC Service Requirements and Contracts Review
- System Performance Analysis

## Energy Conservation and Decarbonization Services

- Analyze fuel consumption and carbon emissions
- Perform design and installation of energy efficient equipment
- Equipment scheduling, optimization, and energy monitoring
- O&M Program Development
- Demand Response and Peak Load Management



## **ENERGY MANAGEMENT**

## Categories of Measures

- Commissioning and Retro- Commissioning (Cx & RCx)
- Operating Protocols, Calibration and Sequencing
- HVAC Sensors- Validate Calibration, Proper Temperature Setpoints, Setbacks, Automatic Reset
- HVAC Controls
- Ventilation Rates
- Adjustments to Oversized and Undersized Equipment
- · Simultaneous Heating and Cooling
- HVAC System Economizer Controls and Testing
- Building Automation Systems (BAS), Building Management Systems (BMS) and Controls

### **Energy Audit Services and Capabilities:**

- Preliminary Energy Use Analysis
- ASHRAE Level 1 Audit: Walk-Through Analysis
- ASHRAE Level 2 Audit: Energy Survey and Analysis
- ASHRAE Level 3 Audit: Detailed Analysis of Capital Intensive Modifications

#### Retrocommissioning (RCx)

Targeting Systems and Associated Performance Opportunities

- HVAC Distribution Balancing
- Lighting Levels, Lighting Controls and Sensors
- DHW Temperature Settings
- · Water Pumps and Leaks
- HVAC Equipment
- Filters
- · Light Fixtures / Ballasts
- Optimize Operating Conditions of fans, motors & pumps
- Steam Trap Testing
- Thermal Insulation
- Sealants and Weatherstripping
- Cleaning and Repair

## ELECTRIC VEHICLE CHARGING AND YOUR COMMUNITY:

#### TURN-KEY SOLUTIONS

- Falcon has partnerships with seasoned industry veterans to design custom turn-key solutions based on your community's immediate and long-term needs.
- Falcon prepares professional guidelines for Owners to follow if they wish to install new charging stations to ensure safety and consistency in the Community.

#### EV CHARGING FEASIBILITY STUDIES & NEEDS ASSESSMENTS

- Falcon performs site visits and documents existing conditions to identify
  existing electrical infrastructure, prospective locations for EV charging stations,
  and assesses real-world power usage for every aspect of your community,
  taking into consideration current needs of the community, and future
  expansion of your community's EV charging network.
- Our analysis is compiled into a professional, comprehensive, report to guide your community with next steps, including any available financial incentives from state, federal, and local utility companies.
- Our team can assist in developing a detailed plan for make-ready infrastructure installation, and assist in developing a phased EV installation timeline. Utilizing an intelligent planning and scheduling approach, this can allow EV Charger installation to be included in upcoming or future capital improvement projects being deployed within your community, saving you money in the long-term.

#### **ENGINEERING LOAD STUDIES**

 Falcon prepares Electrical Load Studies to support the installation of a range of EV Charging Stations.

#### ENGINEERING DESIGN. BID ADMINISTRATION & SUPPORT SERVICES

- Falcon's team of licensed engineers prepares detailed Design Documents and Engineering Plans for schematic, design, bid, permit, and construction phases. In addition, Falcon can assist your community with competitive bidding prior to construction start, preparing bid documents, and collecting bid responses from EV Charging yendors and service companies.
- Falcon provides bid-leveling, ensuring all bids received from contractors are leveled, and that the pricing provided includes proper scoping, to ensure all bids received are compared apples-to-apples.

#### CONSTRUCTION ADMINISTRATION & OBSERVATION SERVICES

- Falcon reviews the scope of work and schedule with the selected Contractor on-site, prior to construction start. We provide the Association and Management with peace of mind, keeping them informed regarding expected start and completion dates, the schedule of work, verification of insurance requirements and required permits.
- Upon completion, Falcon performs a final inspection and issues a punch list if needed to ensure all work is completed in accordance with the project specifications and prepares all necessary project closeout documentation.

#### AVAILABLE INCENTIVES

 Falcon performs real-time research, reporting, and facilitation of available state, federal, or local utility company-specific incentives that may be available for installation of EV Charging Stations.





## <u>Development of Energy Conservations Measures specific to equipment type; custom</u>

## tailored to your unique Facility's needs:

## **Boiler Plant Optimization**

- Air-Fuel Ratio (boiler combustion efficiency testing, installing automatic controls)
- · Draft adjustment
- Burner and fan systems (clean, adjust, repair)
- · Firesides and watersides (cleaning)
- Combustion gas heat transfer and heat recovery
- · Condensate, feedwater, and water treatment
- Fuel oil systems (fuel temp, fuel pump efficiency)
- Steam and water leakage (boiler system water loss monitoring, steam trap testing and repair)

## Service Water Systems Optimization

- · Install efficient water consuming fixtures
- Minimize hot water temperature
- · Clean scale and build-up

### **Chiller Plant Optimization**

- · Equipment scheduling and operating practices
- · Optimize operating temperatures
- Condenser and Evaporator heat transfer efficiency (cleaning, testing, water treatment)
- Heat rejection equipment (fan modulation, cleaning)
- · Pump energy consumption
- Compressors
- · Test refrigerant condition / pressure
- System design for efficient low-load cooling
- Utilizing low ambient temperatures for water chilling
- · Heat recovery from chillers
- Cooling thermal storage

## <u>Air Handling Systems</u>

- · Single-zone systems
- Single-duct and dual-duct reheat systems
- Multizone Systems
- Variable air volume (VAV) single-duct & dual-duct systems
- Induction Systems
- Fan-coil units (FCU)



## <u>Additional Building Systems Opportunities:</u>

## Room Conditioning Units & Self-Contained HVAC Equipment

- Install placards near controls to motivate efficient operation
- · Install automatic controls
- Schedule periodic cleaning of coils
- Steam to hydronic heating conversion

## Envelope Air Leakage and Insulation

- Sealing/weatherstripping
- Vestibule installation
- Repair broken insulation
- Insulate cavities
- Install high-efficiency glazing
- · Reduce total area of glazing

# <u>Control and Use of Sunlight (Heating/Cooling Load Impacts)</u>

- External Shading Devices
- High-efficiency glazing
- Improve exterior insulation
- Daylighting

## **Artificial Lighting**

- Eliminate excessive lighting/delamping
- Substitute existing fixtures with higher-efficiency lamps
- · Replace ballasts
- Reduce light trapping/improve light distribution
- Install dimmers
- LED exit signs

# <u>Trade Ally Partnerships & Incentive Programs for Equipment Upgrades:</u>

- Custom/Prescriptive Trade Ally Partnership Agreements
- SBDI
- Engineered Solutions Programs
- Pay for Performance Programs



Providing Engineering Solutions for over 27 Years!