

Commissioning & Retrocommissioning

ANALYZE - DESIGN - OPTIMIZE

Commissioning helps to ensure that new building systems operate per the Owner's project requirements and that the facility's staff is prepared to maintain and operate the systems and equipment. It also validates that the building meets or exceeds anticipated life-cycle cost projections in terms of energy use and useful equipment life of the systems.

The primary objective of retrocommissioning is to confirm that an existing building is operating in accordance with the design intent for the system. The design intent of the system can include items: such as operating costs, thermal comfort, code or regulatory compliance and infection control.



NORTHLAND COLLEGE, DEXTER LIBRARY
ASHLAND, WISCONSIN

APPROACH

MEP commissioning department utilizes a team approach by integrating the Owner's key personnel in the process starting at design development and continuing to completion of the project. The Owner's personnel provide critical input and objective clarity to ensure the commissioning process is successful.

QUALIFICATIONS

Our staff averages over 25 years of field and design experience in a variety of disciplines ranging from control, fire / life safety systems, industrial, and refrigeration. Our unique and time proven experience has well-prepared MEP to provide the following commissioning services:

- **LEED® Prerequisite Fundamental Commissioning**
- **LEED® Enhanced Commissioning**
- **New Building Commissioning**
- **Design Reviews**
- **Training, Operational, and Continuous Commissioning Programs**
- **Existing Building / Retrocommissioning**
- **Energy Studies, Building Tune-Ups, and Site Assessments**



MAYO CLINIC HEALTH SYSTEMS - EAU CLAIRE HOSPITAL
EAU CLAIRE, WISCONSIN

PARTNERING FOR SUCCESS





We strongly believe in coordinating engineered systems design with the client during the programming phase. By doing so, we are able to understand the architect's goals and to educate the facilities team, resulting in improved design efficiency and productivity. Understanding the building program helps us design systems that are tailored to the intended use of the facility, thereby creating more efficient, cost-effective, and userfriendly facilities.

Once the systems are constructed, the facilities management staff will need to live with the design long after the design team is gone. MEP engages with facilities management staff early in the design process so that their input is integrated into the design. By designing systems that can be properly maintained, MEP can ensure that the designed system efficiency and building performance will be sustained over time.

The MEP team is invested in the long-term success of each project. Our communication with clients continues long after construction is complete.

COMMISSIONING

SCOPE OF SERVICES

-  **PHASE 1 - Design**
-  **PHASE 2 - Construction**
-  **PHASE 3 - Acceptance**
-  **PHASE 4 - Warranty**

MEP Associates will function as The Commissioning Authority throughout Design, Construction, Acceptance, and Warranty Phases.

In addition MEP will provide supplemental services to support the design team. To deliver this scope of services, we envision the following four major tasks will be required:

PHASE	TASKS	DELIVERABLES
DESIGN	<ul style="list-style-type: none"> • Review and comment on Schematic Documents focusing on general design intent. • Review and comment on Pre-Design Development Specifications and Diagrams. • Review and comment on Design Development Documents focusing on overall design features. • Review and comment on Construction Documents focusing on design features that may result in long-term system operational problems. • Review Bid Documents for incorporation of comments as applicable. • Prepare commissioning plan, construction phase forms, and commissioning specifications. 	<ul style="list-style-type: none"> • Schematic Document review comments. • Pre-Design Development Specification and Diagram review comments. • Design Development Document review comments. • Construction Document review comments. • Bid Document I review summary to Owner. • Commissioning plan, construction phase forms, and specifications.
CONSTRUCTION	<ul style="list-style-type: none"> • Review submittals for commissioned equipment. • Attend up to 8 construction/commissioning progress meetings. • Execute monthly construction site observations. • Prepare equipment construction checklists to be filled in by The Construction Team prior to systems functional performance testing. • Witness equipment start-up for major commissioned equipment. • Review and comment on the test & balance report for commissioned equipment. • Review and comment on O&M Manual focusing on Contract Document conformance, content and usability for commissioned equipment. • Submit systems functional performance testing procedures for Owner and Construction Team review and comment. 	<ul style="list-style-type: none"> • Commissioning plan, construction phase forms, and specifications. • Bid Document review summary to Owner. • Commissioning scoping meeting minutes. • Submittal review comments. • O&M Manual review comments. • Construction progress meeting minutes. • Construction site observation reports. • Equipment construction checklists. • Equipment start-up comments. • Test & balance report review comments. • Draft system functional performance testing procedures.
ACCEPTANCE	<ul style="list-style-type: none"> • Perform and document systems functional performance testing. • Prepare functional performance test summary report. • Prepare Commissioning Report including finalized commissioning plan, functional performance test results, acceptance recommendation letter, and recommendations. 	<ul style="list-style-type: none"> • Functional performance test summary report. • Acceptance recommendation letter. • Commissioning report.
WARRANTY	<ul style="list-style-type: none"> • Perform and document systems seasonal / differed functional performance testing. • Prepare functional performance test summary report. • Prepare Commissioning Report including finalized commissioning plan including warranty phase testing results. 	<ul style="list-style-type: none"> • Differed functional performance test summary report. • Updated commissioning report.

RETRO-COMMISSIONING

SCOPE OF SERVICES

The primary objective of retrocommissioning is to confirm that an existing building is operating in accordance with the design intent for the system. The design intent of the system can include items: such as operating costs, thermal comfort, code or regulatory compliance and infection control.

PHASE	TASKS
GOALS	<ul style="list-style-type: none"> • Improve the operational efficiency of all HVAC systems without sacrificing occupant comfort or indoor air quality • Identify energy conservation measures with a simple payback of 1.5 years or less • Identify energy conservation measures for the owner that may require capital investment but will be investigated further outside the scope of the retrocommissioning program • Identify repair or replacement needs discovered during retrocommissioning activities that will enhance the life cycle of systems and equipment
ROLES AND RESPONSIBILITIES	<ul style="list-style-type: none"> • The Owner will provide staff to assist with each step of the program. Their staff will provide detailed information about the site including any available documentation (plans and specifications), equipment lists, initiate any needed trend data collection from the energy management system, and ensure access on an as-needed basis to retrocommissioning team. They will also provide a technician capable of manipulating the energy management/control system for the purpose of function performance testing. • Retrocommissioning provider will be the project manager leading the retrocommissioning effort. They will be responsible for all aspects of the Wisconsin Focus on Energy program which includes the follow key items: • Conducting a project kick-off meeting to obtain preliminary site information • Complete an initial site audit to obtain needed energy, equipment, and system documentation information. • Complete a preliminary analysis that identifies current facility requirements, preliminary findings, and establishes an Energy Star® Benchmark. • Based on the preliminary analysis, we will create a retrocommissioning plan for a detailed building investigation that will include all items identified in the preliminary analysis. The plan will include system level testing requirements, a project timeline, and roles for each team member.
DELIVERABLES	<ul style="list-style-type: none"> • Preliminary site analysis and Energy Star® Benchmark analysis • Documentation of current facility requirements for each system tested • Updated equipment lists and current sequences of operation for each system tested • Completed system level tests • Recommended facility improvement measures that will include: • System deficiencies not related to energy conservation that will improve comfort or system reliability • Energy conservation measures with little or no cost • Energy conservation measures that may require capital investment • Facility improvement measure implementation plan • Measurement and verification plan for implemented measures

OUR CORE ENGINEERING SERVICES



888.637.7726 | mepassociates.com



SELECT COMMISSIONING EXPERIENCE

K-12 EDUCATION

GEORGE GIBBS JR. ELEMENTARY SCHOOL

Rochester, Minnesota
HVAC Infrastructure System (*LEED® Silver*)

GRANDA HUNTLEY EAST CHAIN PUBLIC SCHOOLS

Granada, Minnesota
HVAC Start-up; Commissioning Services

NEW ULM PUBLICSCHOOLS

New Ulm, Minnesota
Jefferson Elementary, Washington, Elementary and New Ulm High School; Retro-Commissioning Services

HIGHER EDUCATION

MIAMI UNIVERSITY

Oxford, Ohio
Geothermal Energy Plant; Commissioning Services

NORTHLAND COLLEGE

Ashland, Wisconsin
Dexter Library; Study, Geothermal System, Solar, Remodel & Commissioning Services (*LEED® Gold*)

UNIVERSITY OF WISCONSIN - EAU CLAIRE

Eau Claire, Wisconsin
New Davies Student Center; Commissioning Services (*LEED® Gold*)
Phillips Hall AHU Replacement; Retro-Commissioning Services
McPhee Physical Education Center; Renovation & Commissioning

UNIVERSITY OF WISCONSIN - STOUT

Menomonie, Wisconsin
Multi-Building Chiller / Tower Replacement; Commissioning Services

UNIVERSITY OF WISCONSIN - RIVER FALLS

River Falls, Wisconsin
Ag Science Chiller Plant; Commissioning Services

GOVERNMENT

MINOT AIR FORCE BASE

Minot, North Dakota
Dormitory; Geothermal Loop Field Redesign

CITY OF EAU CLAIRE

Eau Claire, Wisconsin
New County Jail and Court House, Commissioning Services

CHIPPEWA COUNTY

Chippewa Falls, Wisconsin
Courthouse Energy Audit and Assessment, Commissioning of HVAC Systems

U.S. DEPARTMENT OF INTERIOR, FISH & WILDLIFE SERVICES

Desoto National Wildlife Refuge

Council Bluffs, Iowa
Visitor Center; New Mechanical

Minnesota Valley National Wildlife Refuge

Bloomington, Minnesota
New Visitor Center (*LEED® Silver*)

Morris Wetlands Management District

Morris, Minnesota
New Visitor Center (*LEED® Gold*)

Necedah National Wildlife Refuge

Necedah, Wisconsin
Visitor Center

Tamarac National Wildlife Refuge

Rochert, Minnesota
New Visitor Center

U.S. DEPARTMENT OF VETERANS AFFAIRS

Oscar G. Johnson VA Medical Center

Iron Mountain, Michigan
Commissioning Services
- Electrical Distribution & Generator Upgrades
- Imaging Expansion
- Surgery Center Renovation
- CLC Expansion
- Boiler Plant Control Upgrades

Thomas E. Creek VA Medical Center

Amarillo, Texas
HVAC System Conditions; Commissioning

FARIBAULT COUNTY

Blue Earth, Minnesota
County Justice Center, Geothermal Design and Commissioning Services

ST. CROIX CORRECTIONAL CENTER

Chippewa Falls, Wisconsin
Addition; Commissioning Services

WABASHA COUNTY

Wabasha County
Law Enforcement Center; Geothermal Design and Commissioning Services

WRIGHT COUNTY

Buffalo, Minnesota
Law Enforcement Center; Geothermal Design and Commissioning Services

HEALTHCARE

LAKEVIEW MEDICAL CENTER

Rice Lake, Wisconsin
Retro-Commissioning Services

MARSHFIELD CLINIC

Marshfield, Wisconsin
Laird Building; Retro-Commissioning, Acceptance and Warranty for all HVAC Systems and Controls

MAYO CLINIC HEALTH SYSTEM Eau Claire Hospital, Inc.

Eau Claire, Wisconsin
New Bed Tower; Commissioning, Retro-Commissioning Services
Red Cedar, Inc.
Menomonie, Wisconsin
Menomonie Dialysis Center; Commissioning Services

CAMPUS GEOTHERMAL

BALL STATE UNIVERSITY

Muncie, Indiana
Geothermal Campus Conversion; Commissioning Services

ELON UNIVERSITY

Elon, North Carolina
Geothermal System Assessment

OUR CORE ENGINEERING SERVICES

MECHANICAL

- Facility Assessment & Energy Analysis
- Life-Cycle Cost Analysis
- Feasibility Studies
- HVAC Systems
- Central Chiller Plants
- Central Heating Plants
- Ice Storage
- Industrial Ventilations
- Energy Recovery
- Temperature Controls
- Solar Thermal Systems
- Infrastructure Master Planning
- Dedicated Outdoor Air Systems (DOAS)
- Radiant Heating
- Industrial / Laboratory Space Conditioning & Ventilation

ELECTRICAL

- Facility Assessment & Energy Analysis
- Infrastructure Master Planning
- Life-Cycle Cost Analysis
- Primary Power Distribution
- Secondary Power Distribution
- Emergency Power
- Fault Current Analysis
- Cogeneration
- Uninterruptible Power Supply
- Power Conditioning
- Fire Alarm Systems
- Interior and Exterior Lighting System Design
- Solar Photovoltaic (PV) System Design
- Arc-flash Hazard Analysis
- LEED® Compliant Lighting Design
- State and EPA Energy Code Compliance

PLUMBING / FIRE PROTECTION

- Hot Water Recirculation Systems
- Acid Waste Systems
- Process Piping
- Water Supply & Sprinkler Systems
- Fire Pump Design
- Pumps & Controls
- NFPA 13
- All Occupancies and Hazards
- Wet or Dry Systems

- Early Suppression, Fast Response Deluge
- Pre-action
- Special Hazards Suppression

GEOTHERMAL

- Facility Assessment & Energy Analysis
- Infrastructure Master Planning
- Life-Cycle Cost Analysis
- Vertical Bore field Design
- Horizontal Bore field Design
- Pond Loop Design
- Geothermal Site Planning
- Geothermal Bore field Operational Analysis

MEDICAL GAS

- Manifolds, Piping, Valve Boxes, Gauges & Outlets
- Medical Air Compressors
- Medical / Dental Vacuum Pumps & Systems
- Medical Gas / Liquid Oxygen
- Storage & Bulk Storage Facilities

LEED CONSULTING

- Eco-Charrette Facilitation
- LEED® Process Consulting
- LEED® Submittal Preparation
- Daylighting Analysis
- Photometric Site Lighting Design & Analysis
- ASHRAE 62.1 Ventilation Calculations
- ASHRAE 90.1 - Appendix G Compliant Energy Modeling
- LEED Fundamental & Enhanced Commissioning Services
- Water Use Reduction Calculations
- Renewable Energy Systems Design

COMMISSIONING

- LEED® Pre-requisite / Enhanced Services
- New Building Reviews
- Training & Operational Programs
- Owner's Technical Representation
- Construction Administration
- Retro-Commissioning
- Maintenance Program Development

3D LASER SCANNING & MODELING



MECHANICAL



ELECTRICAL



GEOTHERMAL



ENERGY MODELING



COMMISSIONING &
RETRO-CX



PLUMBING &
FIRE PROTECTION



3D LASER SCANNING
& MODELING



Celebrating 15 Years 2002-2017

MINNESOTA

860 Blue Gentian Road, Suite 175
Eagan, MN 55121
651.379.9120

3416 Lakeridge Place NW
Rochester, MN 55901
507.281.1632

MICHIGAN

N5059 County Road 607
Iron Mountain, MI 49801

OHIO

7237 Cincinnati Dayton Road, Suite 204B
West Chester, OH 45069

OKLAHOMA

2600 Van Buren, Suite 2635
Norman, OK 73072
405.364.9926

WISCONSIN

Corporate Office
2720 Arbor Court
Eau Claire, WI 54701
715.832.5680

901 Whalen Drive, Suite A
Verona, WI 53593
608.848.9556

www.mepassociates.com