Commissioning
Established in 1965, DEDC is a privately owned, full-service multidisciplined engineering and design firm. We offer in-house expertise in mechanical HVAC, electrical, plumbing, process/chemical, electrical, structural and instrumentation/control engineering and design services. We also provide Certified Commissioning Services (DEDC-Cx). Our organization is structured to meet the challenges of projects of different sizes and complexities. Our practice has been built on the quality of our people, the depth of our client base, and strength of our relationships, coupled with a diverse resume of design experience.

We believe that everything in business and life is about relationships. We strive to develop and maintain good business relationships with our clients. We value each member of our staff and strive to provide a quality work environment in which each professional benefits from experiences and opportunities on a continuous basis. We believe that internal clients are as important as external clients. We encourage each member of our firm to treat others with the same respect and attention that an external client receives. Each engineer and project manager is encouraged to make decisions. We encourage each member of the firm to market and promote DEDC and our services.

DEDC is dedicated to providing excellence in engineering and service. We will provide the highest level of technical expertise for your project. We will use our creativity to solve complex problems. We will be customer focused and flexible in all of our interactions. It is our challenge to ensure that the skills and talents of our staff meet your needs.

We believe that teamwork, communications and partnering are key to making any relationship successful. By consistently listening to you, we will understand your needs and objectives. Our goal is to become an extension of your organization. Our focus is the relationship, not simply the project.

DEDC is fortunate to have long-standing relationships with a number of clients who are leaders in their industries. The quality of our offering is exemplified by the quality of our clients. Our success has come from listening, understanding and responding to the needs of our clients. Success is measured by their desire to work with us again.
Engineering and Design Services
- Mechanical HVAC
- Plumbing
- Electrical
- Chemical/Process
- Structural
- Instrumentation

Engineering Evaluations
- Feasibility Analysis
- Cost Estimating
- Front-End Loading

Sustainable Design
- LEED Energy Modeling
- LEED Design
- Energy Star

Commissioning Services (DEDC-Cx)

Energy Audits and Modeling
- On-Demand Utility Production Evaluations
- Energy Consumption Evaluations
- Life Cycle Cost Analysis
- Building Optimization Programming Analysis

Utility Master Planning
- Campus
- Building

On-Site Resources
- Project Management
- Engineering and Design
- Renewable Energy Design
- CAD/Revit
Commissioning Services (DEDC-Cx)

Commissioning is a systematic process of quality control and assurance. Commissioning provides documented confirmation that a facility fulfills the functional and performance requirements of the building owner, occupants and operators. The commissioning process establishes and documents the criteria for system function, performance and maintainability. It verifies and documents compliance throughout design, construction, start-up and the initial period of operation.

As mechanical, HVAC and building automation control systems have become more sophisticated, building owners, operators and contractors determined there is a need for formal commissioning of building systems. The commissioning process helps to alleviate start-up and operational issues.

DEDC-Cx has been providing commissioning services for more than 10 years. We recognize the need for highly skilled, certified and experienced commissioning professionals. We have on staff professionals who are certified by three separate commissioning certification organizations.
Typical Systems

- Central Heating and Cooling Plants
- Pumping Systems
- Air Handling Systems
- Heating, Ventilation, Air Conditioning Terminal Systems, such as Variable Air Volume, Water Source Heat Pump, etc.
- Lighting Controls
- Domestic Hot Water Systems
- Exhaust Systems
- Test and Balance Verification
- Building Automation System Controls
- Main Electric Service Switchboards, Panels, Switchgear, etc.
- Electrical Distribution Systems
- Emergency Generator and Automatic Transfer Switch(es)
- Central UPS System and Batteries
- Computer Room Air Conditioning Units

DEDC-Cx Professional Certifications

Certified Building Commissioning Professional (CBCP®) Program

CBCP Program certifications are recognized by governmental agencies, including the U.S. Department of Energy and the U.S. Agency for International Development, as well as by utilities, end users, and energy service companies. DEDC’s CBCPs are experienced providers of commissioning services.

Certified Commissioning Authority (CxA)

DEDC’s Certified CxA staff have a complete understanding of the commissioning process as outlined in the ACG Commissioning Guideline. They possess the organizational, documentation, communications, and team-building skills that are necessary to lead and coordinate an effective commissioning team and to ensure that the commissioning intent is achieved.

ASHRAE Commissioning Process Management Professional (CPMP)

DEDC’s ASHRAE Commissioning Process Management Professionals (CPMPs) meet ASHRAE certification requirements to lead the commissioning process. This certification assures that DEDC-Cx has the expertise to manage and execute commission activities.
What Are Commissioning Services?

In a new building, professional commissioning services provide a systematic quality assurance process to verify that building systems are fully operational and perform interactively according to the design intent and owners’ requirements. Retro-commissioning services provide a process that identifies improvements in existing buildings to optimize systems performance and energy usage.

### New Building Commissioning Services

**Pre/Design Phase Services**
- Review Design Development Drawings
- Develop Full Commissioning Specifications
- Commissioning Specifications Approved by the Project Team
- Develop Project-Specific Commissioning Plan
- Review Construction Documents and Specifications

**Construction Phase Services**
- Prefunctional Installation Verification
- Start-Up and Checkout
- Sampling
- Functional Performance Testing
- Training
- Air Balancing Review
- Operations and Maintenance Manuals
- Commissioning Report

**Occupancy Period Services**
- Provide a Single Manual Containing all Information Required for Re-Commissioning Building Systems
- Return to Site at Specified Intervals to Ensure Staff that the Building Is Operating as Required
- At Each Interval, Conduct Staff Review of all Conditions of Outstanding Issues Related to the Original Commissioning

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**PREDESIGN**
- Owner's Project Requirements
- Basis of Design Review

**DESIGN**
- Design Document Reviews
- Commissioning Plan

**CONSTRUCTION**
- O&M Document Review
- Construction Checklists
- Start-up
- Functional Tests
- O&M Training

**OCCUPANCY**
- Cx Report and Systems Manual
- Seasonal Testing
- Warranty Review
Retro-Commissioning Services

- Perform an Initial Site Walk-Through to Generate General Information about the Building
- Interview Maintenance Staff and Building Leadership to Identify Specific Problems
- Review Existing Building Documentation
- Perform a Detailed On-Site Assessment of the Current Operation and Maintenance (O&M) Practices
- Develop a Scope of Commissioning Work Based on Information from the Site Walk-Through
- Develop a Retro-Commissioning Plan Based on Specific Project Requirements and Findings
- Develop Continuous Monitoring and Testing Plans
- Perform Short-Term Diagnostic Monitoring Using Metering and Building Management System (BMS)
- Perform Historical Data and Trend Logging where Appropriate
CASE STUDY
Subaru Headquarters
Camden, New Jersey

Project Facts
- This new, 250,000-square-foot facility provides a new home for Subaru’s U.S. operations, bringing together four offices.
- The Subaru of America campus will be the first new corporate headquarters in Knights Crossing, a master plan urban town center community being developed by Brandywine Realty Trust.
- DEDC-Cx was selected to provide fundamental and LEED commissioning services for the project.
Discover Card operates a 140,000-square-foot customer fulfillment center in New Castle, Delaware. The project objective was to completely renovate existing spaces to create a more efficient, functional and pleasant work environment, and also expand into an adjacent building. The building’s mechanical and electrical systems were completely upgraded and reconfigured. DEDC was responsible for all aspects of mechanical and electrical engineering and design for this $15 million, LEED Certified project, including commissioning (DEDC-Cx).
Project Facts

- The Berkley Renovation Project consisted of a major renovation to a 120,000-square-foot facility. Part of the renovation included constructing a new, expanded data center. The data center is conditioned by multiple chilled-water-supplied Liebert units supported by multiple air-cooled chillers. The electrical systems include an automatic data center backup power system with a UPS and emergency generators. The data center mechanical and electrical systems are designed to provide the required redundancy to this critical area.

- DEDC-Cx provided Third-Party Commissioning Services for the mechanical and electrical systems associated with the data center.
Project Facts

- This 60,000-square-foot, freestanding building houses an emergency care and treatment facility, medical offices and collaborative areas, laboratory and diagnostic facilities.
- DEDC-Cx was selected as the Certified Third-Party Commissioning Agent.
- This project is LEED Certified.

CASE STUDY

Christiana Care Emergency Center
Middletown, Delaware
CASE STUDY
Christiana Care, Concord Health Center
Glen Mills, Pennsylvania

Project Facts

- This project involved the complete renovation and expansion of an existing 70,000-square-foot building.
- This new, mixed-use medical facility includes laboratories, procedural and medical diagnostic spaces including CT scans, Radiology & MRI rooms and a Linear Accelerator.
- The building’s MEP systems were completely replaced with new, state-of-the-art, high-efficiency equipment.
- DEDC-Cx was selected as the Certified Commissioning Authority.
Project Facts

- DEDC-Cx provided full building commissioning services including mechanical, electrical, plumbing, and lighting control systems.
- Our services included testing, measurement and verification of system performance to ensure functionality of equipment controls, daylight harvesting, and overall compliance with minimum energy efficiency requirements.
- Services also included full commissioning documentation and write-up of the commissioning process for LEED Silver Certification.

CASE STUDY

Solid Waste Authority

Wilmington, Delaware
Project Facts

- A new, 37,000-square-foot, three-story School of Nursing replaced the existing, single-story building.
- The new facility includes open-space teaching classrooms, skills labs, faculty offices, large conference areas and shelled space for future expansion.
- The building’s MEP systems consist of custom rooftop units with duct-mounted hot water VAVs for zone control.
- DEDC-Cx was selected as the Certified Third-Party Commissioning Agent to verify that all Mechanical and Electrical systems are operating as per the drawings and specifications.
CASE STUDY
E.I. DuPont de Nemours (Axalta Coatings) Technology Center
Wilmington, Delaware

Project Facts
- Performance Coatings completed a new, $30 million research and development facility dedicated to automotive, protective and marine coatings.
- DEDC’s commissioning effort resulted in a smooth start-up and turnaround.
- One unique aspect of this project is the commissioning procedure and documentation needed to comply with OSHA's Process Safety Management (PSM) standards. PSM requires a comprehensive management program that integrates technologies, procedures and management practices. PSM impacted all aspects of the project including DEDC's commissioning and document management efforts.