



Celebrating
52+ Years

Nearly 1,000 Professionals in
27 Offices Worldwide

General Rankings

Architectural Record (2019)

- #23 Top 300 Architects



We assess the structural, mechanical, electrical and plumbing systems in facilities with an emphasis on efficiency and quality.



Gresham Smith is a full-service design, commissioning and construction management firm specializing in solutions for life's most essential infrastructure and institutions. We are a certified Cx Authority by the AABC Cx Group. Our proposed team has worked extensively across the country, commissioning new buildings and retro-commissioning existing buildings for corporate and public clients. Our goal is to function as the owner's advocate, ensuring project requirements are fulfilled, the facility operates as designed, and that O+M staff are trained and informed.

With more than 50 years of experience spanning all major industries, our commissioning services support the design, construction and operation of high-performing buildings to meet your goals and needs from LEED fundamental and enhanced commissioning, to developing owner project requirements, to post occupancy assistance, to selective commissioning, which targets critical systems and focuses on operational needs.

New Construction Commissioning Services:

- Owner-directed Commissioning Services
- LEED Fundamental and Enhanced Commissioning
- Code Required Commissioning (FGI and International Energy Conservation Code)

Existing Building Commissioning:

- Ongoing Commissioning
- Retro-Commissioning
- Re-Commissioning

Commissioning Overview

What is Commissioning?

Building Commissioning at its core, is a quality assurance process. The commissioning process is not dissimilar to quality processes associated with any industry, from producing pharmaceuticals to making cars, to building and maintaining operating suites in hospitals. Commissioning at the very core is a quality assurance process that is used to validate a given design with construction, installation and equipment startup. Commissioning is used as a tool for an owner to verify their building and associated systems operate as designed and Commissioning Agents (CxAs) are advocates for building owners who are responsible for maintaining consistent quality every time. Building commissioning is the application of a consistent, repeatable, recognized quality assurance process to the built environment before and during construction. At its conclusion, the process yields a building that performs in a manner consistent with the design, as well as a final commissioning report, which serves as resource for building owners and maintenance personnel who are responsible for maintaining operation for the life of a facility.

Retro-Commissioning is the commissioning process applied to an existing building that has either never undergone the commissioning process, or is no longer operating at the designed capacity. Typically, this is the most challenging type of commissioning because of the age, documentation and condition of existing systems. This type of commissioning can be one of the most rewarding commissioning types in both occupant comfort and operational cost savings. Retro-commissioning begins with constructing as much existing documentation as possible, determining what changes have occurred, and reviewing this information with the maintenance staff and owners' representation along with the actual operational conditions and facility requirements. With these items in mind, the CxA then reviews and tests the systems identified to be commissioned. Upon completion of the commissioning activities, the testing and maintenance retraining (where determined necessary), the final retro-commissioning report contains the pertinent data and resources for the facility maintenance staff to ensure proper and efficient operation of the facility for years to come.

*Return on Investment (ROI): According to a 2004 study by Lawrence Berkley National Laboratory (LBNL), retro-commissioning can result in whole-building electricity savings up to 15% with a payback of 2 years or less. That equates to real dollars saved.

Building Systems to Focus On

Mechanical Systems

- Chiller Plants
- Boiler/Steam Plants
- Air handlers
- Air balance
- Terminal Devices
- Duct Systems
- Insulation Systems

Electrical Systems

- Generators
- Switchgear
- Lighting
- Conduit

Plumbing

- Hot water systems
- Fixture type
- Piping
- Insulation systems

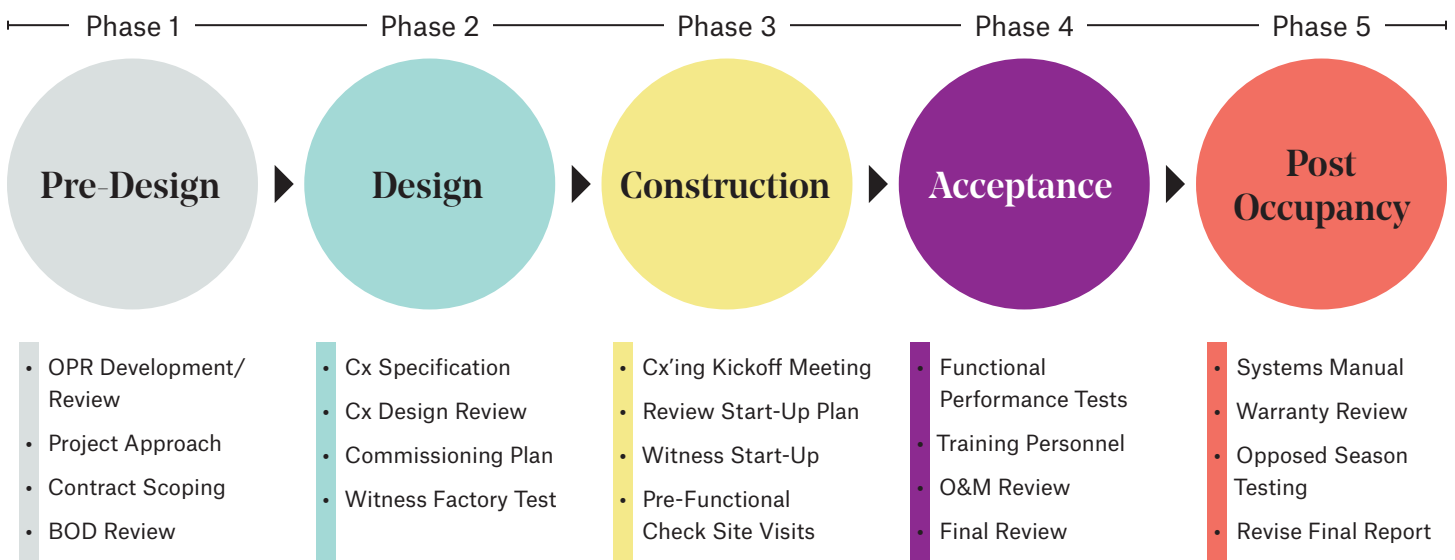
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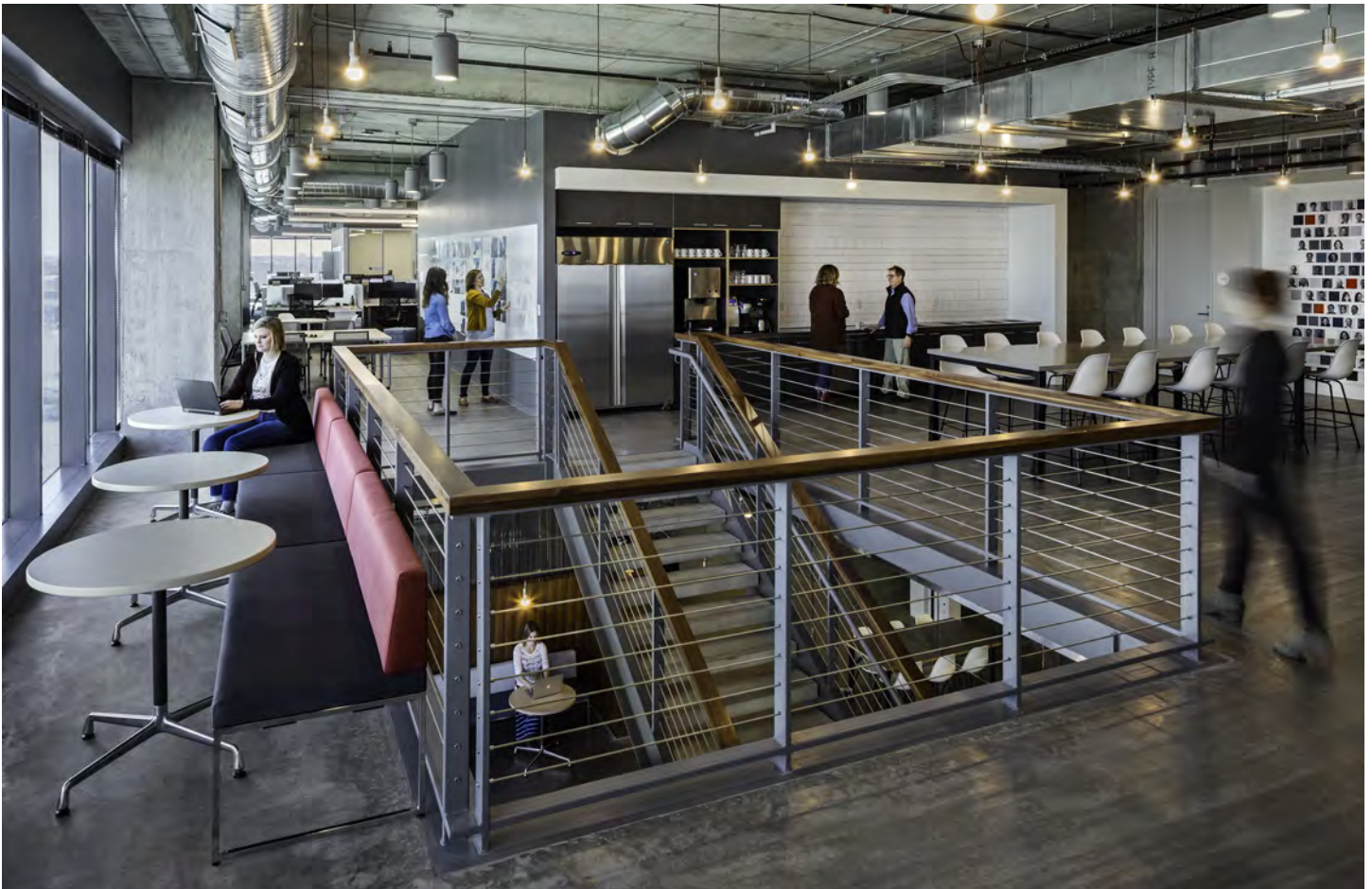
- Review of existing conditions
- Review of newly installed conditions
- WUFI modeling
- Design review and assistance

Re-Commissioning is the commissioning process applied to a building that has previously undergone the commissioning process. In a general sense, this could be described as a “commissioning tune-up.” Typically, the commissioning agent encounters buildings where energy-savings measures are thought to be causing operational problems. Due to overloaded maintenance staff and lack of training, the actual cause of the operational issue is never reviewed and as long as the operational issue does not occur again, frequently the root cause is never determined. Many times expensive and complex energy-savings measures are by-passed and the ownership is never aware. Recommissioning is the effort of going back to square one with the original commissioning process, and performing the commissioning tasks again.

Perpetual Commissioning (also known as monitor-based commissioning) is the commissioning process that is applied to a building’s system on a recurring basis. This type of commissioning incorporates monitoring the operation and performance of building systems in order to identify divergence for normal operational conditions. Perpetual commissioning also allows CxAs and building owners to quickly identify opportunities for performance improvement based on facility use or even to forecast or simulate the impact of a potential adjustment in use or operation. Perpetual commissioning leverages real time performance data, utility consumption, vigilant owners, and knowledgeable engineers/CxAs to continually identify opportunities for facility operation and performance.

Commissioning Process





CBRE

Commissioning Services Various Locations

We are currently commissioning a series of LEED v4 CI projects in different parts of the U.S. (Seattle, WA; Memphis, TN; Nashville, TN; Indianapolis, IN; F. Lauderdale, FL). All four projects are on schedule to complete commissioning scope for both LEED Fundamental and Enhanced Commissioning requirements. Commissioned systems include series fan-powered boxed, DX packaged A/C unit, domestic hot water heaters and lighting controls.

CBRE 222 - Nashville, TN

Project Size: 22,000 square feet, tenant fit-out

CBRE - Memphis, TN

Project Size: 10,000 square feet, renovation

CBRE - Seattle, WA

Project Size: 8,000 square feet, tenant fit-out

CBRE - Indianapolis, IN

Project Size: 17,000 square feet, tenant fit-out

CBRE - Ft. Lauderdale, FL

Project Size: 13,000 square feet, tenant fit-out

Tennessee Valley Authority

Retro-Commissioning Various Locations



Tennessee Valley Authority (TVA) selected Gresham Smith to assist with response to Executive Order 13123—Greening the Government through Efficient Energy Management and Executive Order 13514 Federal Leadership in Environmental, Energy and Economic Performance. The project included an evaluation of 49 TVA facilities in search of the most effective strategies to improve energy performance, protect and conserve water, enhance indoor environmental quality and reduce environmental impact of materials. This multi-phase project consisted of preliminary evaluations where Gresham Smith prioritized the buildings for application, taking into account practicality of the Sustainable Guiding Principles, the cost to apply the principles and the length of time needed to complete them. Gresham Smith then provided a more detailed evaluation that included descriptions of necessary modifications, estimated time it will take to implement the modifications as well as estimated cost, savings and payback.

This project used an integrated team to develop and implement policy regarding sustainable operations and maintenance. The project incorporated sustainable operations and maintenance practices within the appropriate Environmental Management System (EMS) and assessed existing conditions and operational procedures of the building and major building systems. Included in the building survey were HVAC and lighting systems condition and controls, hours of operation, and temperature setbacks/setups for identifying areas for improvement. The Gresham Smith team established operational performance goals for energy, water, material use and recycling, and indoor environmental quality, and ensured incorporation of these goals throughout the remaining life cycle of the building. As a result of this project, a building management plan was incorporated to ensure that operating decisions and tenant education were carried out with regard to integrated, sustainable building operations and maintenance.

The resulting product deliverable to TVA documented what changes needed to be made to operate and maintain the building in a sustainable way. The design team has impacted more than 700,000 square feet of building space for TVA and anticipates savings of more than 1.7 million BTU of energy and more than 1 million gallons of water each year. As part of the ongoing strategy to keep operational and energy costs down, the team has developed a plan to re-evaluate each site to ensure each is operating as intended and to analyze new opportunities for energy and water use reduction. Gresham Smith subsequently completed construction design, administration and recommissioning on the buildings that were selected by TVA for improvement.



Department of Veterans Affairs

LEED Commissioning Services Loma Linda, CA

The new Department of Veterans Affairs outpatient medical center in Loma Linda, California is a 3-story, 221,000 square foot facility that is leased by the VA, constructed and owned by the developer/owner. The VA required a LEED Silver Certification be attempted. To achieve the LEED certification, enhanced commissioning was required.

Our team proved the enhanced commissioning services for the project including engineering review of the design documents, review of the project submittals and commissioning services as required by LEED V 2009.

The peer review occurred for design development and construction documents. We developed project specific pre-functional checklists and functional performance tests as a part of commissioning services proved.

Enhanced commission services provided include field verification of the installation as well as all activities defined in ASHRAE Guideline 0 that are required by the Department of Veterans Affairs and to attain the LEED credit for enhanced commissioning.

Department of Veterans Affairs

Bay Pines Mental Health Addition - Retro-Commissioning Bay Pines, FL



New four-story, 150,000 square foot LEED Silver mental health addition on existing VA campus. Project includes security upgrades, careful planning and coordination with medical center during significant utility relocations, relocation of existing roadway, new pedestrian walkway, new warehouse and CEP expansion in multiple phases.

The precast covered pedestrian walkway connects numerous existing buildings together to allow for patients to be moved between buildings without exposure to inclement weather. A temporary pedway was provided during construction as well as access to existing services.

The project includes three 2.2-megawatt generators with 40,000-gallon fuel tanks, one heat recover chiller designed to LEED specifications, a domestic solar hot water designed to LEED specifications, a 200-kilowatt photovoltaic solar panel system, and four chillers and cooling towers totaling 4,400 tons. The addition also required the relocation of an existing water main, a new oxygen tank farm, more than 500 drilled caissons, a crash-rated perimeter fence and vehicle barriers, and a 10,000 square foot warehouse.



University of Texas Medical Branch

Building Commissioning Coordination Galveston, TX

After this, UTMB determined that not only would the facility be repaired, it would be hardened to help withstand the next hurricane. The scope of work that Gresham Smith has been involved with has totaled approximately 125 million dollars, and worked commissioning systems in 27 of 52 buildings on their campus, and systems associated with the co-generation/thermal storage system. The additional project requirement was that the campus could not fully shut-down during the project work. The campus heating and cooling supports numerous types of builds from libraries and typical academic class buildings to correctional mental health, a full-service medical research teaching hospital, and the Galveston National Research Laboratory, affiliated with the CDC, which is a BSL-4 laboratory.

The focus of this work has been the conversion from an open steam-type heating system to a hot water type system which is less susceptible to storm surge damage.

Most equipment and piping was moved to be a minimum of 20 feet above sea level. Where items could not be located at or above this point they were encapsulated or hardened to resist damage.

On top of thermal distribution and system hardening, the project has included the renovation of the west central plant. This renovation has included the addition of a 5mW cogeneration plant in the west central plant and a dedicated two-million gallon thermal storage tank. Additionally, this scope of work has included the integration of the west plant systems into the thermal distribution of the existing east plant that includes a similar storage tank and cogeneration system.

University of South Florida

**Eye Institute - LEED
Enhanced Commissioning**
Tampa, FL

University of South Florida's Eye Institute is a 27,000 square foot tenant renovation for USF's Morsani building. The Eye Institute combines research, examination, treatment and teaching. The project now under review for LEED certification under LEEDv4 CI.

We provided fundamental and enhanced commissioning for the project. The project consisted of commissioning mechanical systems including air terminal units with electric heat, domestic water heating systems as well as building lighting control systems. A particularly challenging aspect of the project was maintaining operation of an existing pressure sensitive teaching laboratory during construction and completing functional performance testing and startup.





Athens Regional Medical Center

Retro-Commissioning Services Athens, GA

Piedmont Athens Medical Center (PAR) is currently planning for a major expansion and renovation project to be constructed in the next three years. In preparation of the planned work, PAR has retained Gresham Smith to provide retro-commissioning services for critical areas of the existing Medical Center HVAC systems. The current facility is approximately 980,000 square feet, constructed in may phases over the past 80 years. Gresham Smith designed and/or renovated much of the facility beginning in 1992 and has continued active A/E services involvement on the campus since that time.

Erlanger Health System

Commissioning Services
Chattanooga, TN

Erlanger is one of the premier healthcare facilities in Tennessee, and includes a level 1 trauma center. The project consisted of commissioning domestic water systems, building mechanical systems, lighting controls, and fire protection systems for approximately 20,000 square feet of renovation inside of approximately 150,000 square feet of hospital space connected to the main hospital building. The building includes EP labs, 12 ICU spaces, a cardio vascular OR, hybrid OR, and two orthopedic ORs along with support space and recovery areas. A challenge encountered by the commissioning team was that the main MEP services serving the building also served existing portions of the building that had to remain operational and could not be shut-down. In order to maintain operation, construction and commissioning activities had to be scheduled such that they did not affect normal operation and system shutdowns had to be coordinated to avoid impacting sensitive systems. Due to the nature of the critical services rendered by the facility and fast paced schedule, communication with the team was paramount along with project coordination to avoid disrupting service to the existing facility, while meeting the project schedule.





Sherman Replacement Hospital

Commissioning Services
Elgin, IL

The Sherman Replacement Hospital is a 650,000-square-foot facility that includes a six-story patient tower, a diagnostic and treatment center, a cancer center and an emergency department. Located only approximately four miles from the original campus, the new hospital campus holds 255 beds on a campus of 154 acres. In addition to the main facility, a 15-acre geothermal lake was excavated and was meant to serve as the energy source for the campus' geothermal heating/cooling system. It is estimated that the lake will generate savings of approximately \$1 million per year.

Gresham Smith served as a sub-consultant to the Walsh Group providing assistance to the general contractor with mechanical, electrical and plumbing systems verification, minimizing noise and reducing electrical cost at this large medical campus.

HCA, Inc. Reston Hospital Center

**Office Building - LEED
Commissioning**
Reston, VA



The Reston Hospital Center, located in Reston, VA, is a highly developed 15-acre site situated between a residential neighborhood and the Fairfax County Parkway. The new 150,000-square-foot, six-story medical office building is the latest addition to the robust and lively campus. From the outset, the local zoning officials established a requirement for LEED certification. To meet the established goal of LEED Silver certification, Gresham Smith set out to design a building that blended with the existing architectural landscape while also achieving an energy performance not yet seen on campus.

As the LEED commissioning agents for the project, Gresham Smith worked with the owner and campus maintenance personnel to develop the owner's project requirements (ORP) and integrate the basis of design into the overall commissioning plan. Meeting regularly with all parties involved, Gresham Smith established open lines of communication and clearly defined the roles and responsibilities for each team member in order to deliver the highest performing building on campus.

Commissioned systems included domestic water heating, cool tower, chilled water pumps, self-contained watercooled air handlers, cooling tower, energy recovery units, lighting controls, building automation system, HVAC, and fire alarm system interface.

Through the commissioning process, the CxA uncovered numerous issues which threatened the building's operation and ability to achieve LEED certification. Specifically, testing of the energy recovery units revealed that the CAV boxes were not operating per the original design, making the box controls and duct work susceptible to damage. Gresham Smith's CxA worked with the subcontractors to develop a testing procedure which ultimately resulted in finding a solution with minimal impact to the project schedule and budget. The project successfully achieved LEED Silver certification as a result.

Key Team Members



Johnathan C. Woodside, P.E., LEED AP O+M, GBE, GGP

Project Executive

As commissioning market project executive, Johnathan is responsible for managing the overall quality of your project, maintaining the firm's standards of excellence and ensuring your expectations are not only met, but exceeded. Johnathan is an experienced leader with the ability to deliver project solutions that fulfill the client's vision while effectively balancing function, operation and budget. Johnathan is recognized by clients for his responsiveness and commitment to each project.



Justin Hethcote, P.E., CxA, LEED BD+C

Senior Commissioning Authority

Justin brings 12 years of experience in engineering design, commissioning and has worked on various design teams as well as in the field on commissioning teams. His expertise is in building modeling, system layouts and site work. Justin's experience encompasses a variety of projects ranging from cooling water system change-outs at hydropower electrical plants and to education, retail, industrial, call center and restaurant build-outs.



Joseph P. Crowe, P.E., CxA, LEED AP

Senior Commissioning Authority

As an experienced commissioning authority and field agent, Joe leads the firm's practice in the verification and quality assurance process of building commissioning. He has served clients across the Southeast in the capacity of Commissioning Authority (CxA) for over a decade. His involvement extends from the schematic/design phase throughout construction and into the warranty/acceptance period to ensure that the client is provided with building systems that meet the rigorous design requirements and performance expectations of the design professionals and owner.



Gabe Peer, EPA

Commissioning Authority

With over 19 years of experience, Gabe is an experienced electrical commissioning agent and electrical engineer. His expertise includes electrical engineering commissioning and design for a variety of building types. Highly skilled service technician with experience troubleshooting a wide range of systems including electrical, power quality, HVAC and data. Continuously analyzes complex problems and creates solutions by developing efficient, cost effective, and high quality repair and installation strategies. Additionally, Gabe is a Level III Certified Infrared Thermographer.







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& Wayfinding
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Landscape Architecture
Planning
Program Management /
Construction Management /
EPCM / Alternative
Project Delivery
Site Development

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