



Commissioning is the systematic, quality-focused process of ensuring that facilities, systems and equipment perform according to their design intent, assuring owners their needs and expectations will be met.



Introduction to Commissioning

SSRCx, LLC is a total facility commissioning provider that offers client-centered, high-quality services that result in first class facilities and lasting relationships with owners and builders across the country.

From hospital and high-tech research labs to state-of-the-art sports facilities, SSRCx has the experience and proven track record to get your building systems operating as designed.

Our team includes Professional Engineers (P.E.), former contractors, building operators and construction administrators. We hold certifications in LEED™, CEM, CIAQP and NEBB and maintain memberships in leading industry-related professional organizations.

SSRCx is dedicated to commissioning your building to function as designed and to meet your operational needs. Our services range from end-of-project checkout to comprehensive engagements that begin during schematic design and encompass all building systems and components. The commissioning process ideally begins early in the design phase of new construction, renovation and expansion projects, but can also be performed on existing buildings.

Scope of Services

We provide commissioning on all types of building systems, including but not limited to:

- Mechanical, electrical, plumbing, fire protection
- Lighting, security, low voltage, life safety
- Telecommunications
- Elevators, roof, building envelope, structural

For healthcare projects, we also offer commissioning for:

- Medical communications – nurse call systems, paging, code blue

Commissioning can be of great value to an owner. The benefits of a properly commissioned building include:

- Reduced facility life cycle costs – operation, energy and maintenance
- Risk mitigation
- Reduced construction costs and change orders
- Increased operation and maintenance knowledge
- Improved operator training
- More accurate building documentation (record documents and O&M manuals)
- Easier detection of potential problems
- Reduced warranty callbacks by contractors
- Smoother building turnover from contractor to occupancy
- Increased owner satisfaction with fewer occupant complaints

Markets We Serve

- Healthcare – hospitals, medical centers
- High Tech – research labs, data centers, pharmaceutical
- Education – schools, colleges/universities
- Sports and Entertainment – performing arts, museums, libraries, arenas, stadiums
- Government – government buildings, correctional facilities

The Three Phases of Commissioning

Phase I – Planning and Design

Commissionability Reviews
Commissioning Specifications
Commissioning Plan

Phase II – Construction

Schedule Integration
Meetings and Site Visits
Submittal Review
Systems Installation Verification
Intermediate Commissioning Reports
Acceptance
Final Commissioning Report

Phase III – Operational

Opposed Season Report
Preventive Maintenance Plan
Warranty Reviews
Benchmarking
Re-Commissioning Plan

“SSRCx is astute in its pursuit of excellence as it relates to building commissioning and our very large, complicated laboratory project. Their team took control of the process, was diligent in seeking resolution and provided leadership required to deliver a successful project.”

David Struck,
Manager of Architecture
and Engineering
The University of Alabama
at Birmingham

“For us to be a successful builder, the construction process must go smoothly for the owner. The commissioning process assisted us in meeting this goal and is critical to the success of any project where the performance of the building systems cannot be compromised.”

Harold E. Brewer,
Vice President
American Constructors, Inc.

Planning and Design Phase

The planning and design phase brings together the owner, design team, pre-construction manager and commissioning authority to define design intent, owner's project requirements, project goals and commissioning expectations.

Commissionability Reviews

SSRCx reviews the contract documents for compliance with the facility's design standards and the owner's project requirements. We also evaluate construction documents for commissionability, constructability, serviceability and maintainability of the designed systems and components.

Commissioning Specifications

Commissioning specifications are prepared for inclusion in the contract documents. These specifications are project-specific, list the equipment and systems to be commissioned and the activities to be performed, and identify the commissioning team members' responsibilities for your project.

Commissioning Plan

We work with clients to prepare a commissioning plan tailored specifically for your project that:

- Describes the testing of equipment and systems to be commissioned
- Describes roles in the commissioning process for the design team, contractors, owner and commissioning authority
- Prepares checklists and performance tests for equipment and systems
- Defines acceptable results of the tests to be performed, quantifying what is expected for each system and piece of equipment
- Details a training program as required by the contract documents, including when it will be administered, the instructors and attendance
- Documents the records that are required, determines when they are to be submitted and verifies that they are turned over to the operator
- Defines the O&M manuals to be provided, what information is to be included and when manuals are to be completed

"We have found SSRCx to be thorough in developing an appropriate commissioning plan that fits our budget constraints, professional in addressing design and construction problems, proactive in pursuing solutions for problems and diplomatic in presenting solutions that build up the project team. Thanks to their willingness to listen to our needs and develop appropriate project-specific commissioning plans, the return on our investment has been immediate."

Michael R. Gable, P.E.
Vanderbilt University
Medical Center



Since the most critical decisions are made during the beginning of the design process, it is beneficial to include the commissioning authority as part of your team from your project's inception.

Construction Phase

During the construction phase, SSRCx reviews installation of equipment and systems, executes functional performance tests and diagnostics, works with the contractor and owner to address deficiencies and completes and verifies training.

“I was particularly impressed with SSRCx’s communication, both before and after commissioning performance tests. They provided contractors with clear and concise functional checklists prior to performance testing. They followed up with clearly written reports, including overview, specific performance test results and photographic illustrations within two to three days of each commissioning exercise. Most importantly, they worked diligently with designers and contractors to diagnose functional problems.”

Tony Fort,
Architectural
Project Manager
Blair School of Music,
Vanderbilt University

Schedule Integration

SSRCx works closely with the contractor to integrate commissioning activities into the construction schedule so work is not duplicated or added.

Meetings and Site Visits

SSRCx participates in meetings to assist the construction team in scheduling commissioning activities. During site visits, we document completed activities, identify incomplete or deficient work and track the status of resolution of previously noted issues.

Submittal Review

We review submittals after they are approved by the engineer of record (EOR) and contractor. Any submittal modifications made during the EOR review are evaluated to determine if changes in pre-functional checks (PFCs) and functional performance tests (FPTs) are required. The revised PFCs and FPTs reflect the exact equipment, components and accessories installed in the project.

Systems Installation Verification

SSRCx verifies engineered systems and components are installed as designed. This process includes a full range of checks and tests to verify that components, subsystems, systems and interfaces between systems operate in accordance with the contract documents.

Intermediate Commissioning Reports

Intermediate reports are provided to the construction team and owner after each site visit to document both completed and non-conforming work.

Acceptance

Acceptance includes functional performance testing, troubleshooting, training, O&M manuals, record documents and the final commissioning report.

Functional performance testing documents system performance. The degree of detail to which components, equipment, subsystems, systems and inter-related systems are reviewed impacts the commissioning scope and may vary based on the owner’s defined requirements.

SSRCx troubleshoots issues that arise and provides active participation in deficiency resolution. The commissioning reports we provide document all commissioning activities performed. We chronicle documents to ensure they are complete and transferred to the owner. We also close out documents and collect preventive maintenance and O&M materials for the commissioned equipment and systems. Assembling training materials and overseeing training instruction are also services SSRCx can provide during project acceptance.

Final Commissioning Report

The final commissioning report documents the activities of the commissioning process in a final summary.

Operational Phase

The commissioning authority develops a plan to monitor building performance over time and implements other ongoing commissioning activities as needed to help keep the systems operating at their peak efficiencies.



SSRCx provided commissioning services for mechanical, plumbing, fire protection and electrical systems for Vanderbilt University's Blair School of Music, a state-of-the-art musical instruction facility. Return on investment for this project resulted in \$7 for every \$1 spent.

“The normal design, bid and build system does not always identify all building systems problems or optimize the way energy is used to operate a space. I was impressed with the retro-commissioning services SSRCx provided. Their identification of problems and opportunities for improvement and professional reports were appreciated.”

**John Curran,
Director, Department of
Design & Construction
St. Jude Children's
Research Hospital**

Opposed Season Report

SSRCx performs a review to determine that systems operate as designed in the opposed season of original building occupancy and addresses any issues that may have arisen since occupancy.

Preventive Maintenance Plan

We can develop an effective maintenance plan consisting of a variety of inspections, measurements, calibrations and preventive actions that increases system and equipment reliability and longevity.

Warranty Reviews

Prior to the end of the warranty period, SSRCx works with the owner to identify issues that may have arisen during the first year of operation and resolves those issues with the contractor.

Benchmarking

We can compare your building's utility consumption with similar facilities in the same geographical region, in addition to measuring energy conservation on a yearly basis.

Re-Commissioning Plan

To ensure the building operates according to its original design, SSRCx can develop a strategy to re-apply the original commissioning process. Most systems can perform within five percent of their original benchmarks upon re-commissioning.



More building owners are turning to commissioning to save money and energy and to ensure that building systems are working properly and efficiently. The commissioning process assures owners that their buildings are built right the first time and that systems perform in accordance with the design intent and their operational needs.



HealthSouth Medical Center has benefited from SSRCx's commissioning activities. In addition to healthcare, SSRCx serves the high tech, education, sports and entertainment and government markets.



Nashville

**2995 Sidco Drive
Nashville, TN 37204
Phone 615.383.1113
Toll Free 1.800.757.2777
Fax 615.386.8469
www.ssrcx.com**

Houston

**10205 Westheimer Road
Suite 300
Houston, TX 77042
Phone 713.784.8211
Toll Free 1.800.856.8211
Fax 713.952.8655**

Office Locations

**Dallas, Texas
Fort Lauderdale, Florida
Houston, Texas
Memphis, Tennessee
Nashville, Tennessee
New Orleans, Louisiana
Phoenix, Arizona
Sarasota, Florida**

Smith Seckman Reid is a full member of:

**American Society for Healthcare
Engineering (ASHE)**

**American Society of Heating,
Refrigerating and Air Conditioning
Engineers (ASHRAE)**

**Association of Higher Education
Facility Officers (APPA)**

**Building Commissioning
Association (BCA)**

**International Facility Management
Association (IFMA)**

**National Environmental Balancing
Bureau (NEBB)**

**Southeast Regional Building
Commissioning Association
(SERBCA)**

**US Green Building Council
(USGBC)**