



JJA *Mechanical and Electrical Engineering Consultants*

Engineering Since 1978

COMMISSIONING



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Texas Registered Engineering Firm # F-1290



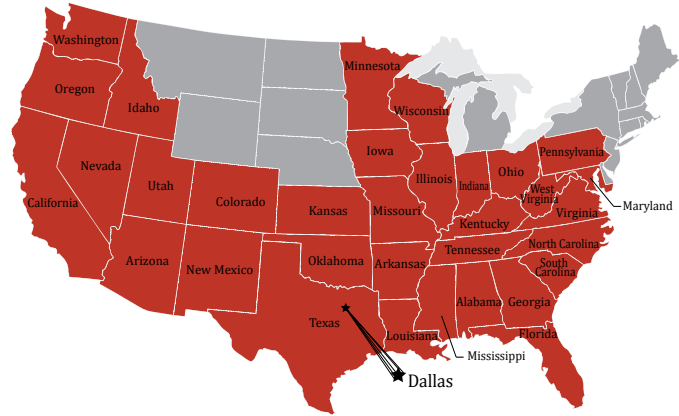
JJA, Inc. Company Profile

JJA, Inc. is a leading Mechanical and Electrical Engineering Consulting firm established in 1978 in Dallas, Texas providing engineering design of HVAC, Plumbing Fire Suppression, Electrical Distribution and Critical Power Systems, Lighting systems, Life Safety systems, Sustainable Designs, Energy Modeling and MEP System Commissioning.

JJA holds Professional Engineering registrations in over 30 states, providing services locally, regionally, and nationally. JJA also performs national on-call MEP services for several corporate Clients.

JJA is committed to sustainable design solutions, utilizing innovative engineering design processes that focus on the life cycle performance for MEP Systems.

JJA is dedicated to servicing our clients with integrity and responsiveness, while providing a collaborative TEAM solution.



Market Services

MEP Engineering Commissioning Services



JJA is a leading consulting engineering firm established in 1978 in Dallas, Texas, and have been providing commissioning services to clients since 1992 beginning with mission critical facilities. Our commissioning experience has grown to cover mission critical facilities, commercial office buildings, corporate campuses, industrial, manufacturing, and corporate campus projects.

JJA is committed to providing our clients with the extra assurance and peace of mind that comes with having a new or existing facility properly commissioned by design professional who are active in the commissioning community through involvement in associations, certified by nationally recognized commissioning organizations, and are registered Professional Engineers (PE) who are extremely knowledgeable in design and operation of MEP Systems.

Purpose

Commissioning is a process which incorporates a risk-management strategy to ensure that the building owners are provided with a design and solution which meets their expectations, that building operates as efficiently as intended in the original design, and any errors and omissions are corrected more efficiently and cost-effectively.

JJA's commissioning team works with the design team, the construction team, and the Owner to ensure that the design and construction process flows as smoothly as possible, that issues are resolved quickly, and that the end result meets the Owner's requirements.

Why Use JJA, Inc?

JJA is registered with the AABC Commissioning Group (ACG) as a certified commissioning provider. We are also members of the Building Commissioning Association (BCA), and have a voting membership in ASHRAE's Technical Committee on Commissioning.

The commissioning services JJA provides integrate our knowledge from our involvement in numerous organizations and industry resources and go above and beyond the requirements as set forth by these agencies. In addition to those strict requirements, JJA's commissioning process involves tests scripts and documentation that tests these systems more rigorously than the minimum standards set by these agencies.



JJA, Inc.

MEP Engineering Commissioning Services

The Commissioning Process

Comprehensive commissioning incorporates the following five-step process:

During the *Pre-Design Phase* the owner selects the commissioning authority, and together they develop the scope of commissioning. The commissioning authority then reviews the Owner's Project Requirements for design intent.

In the *Design Phase* the commissioning authority reviews the design documents to ensure that the commissioning process can be accommodated. The commissioning authority prepares the initial commissioning plan. It is during this phase that the contractors' commissioning responsibilities are outlined in the commissioning specifications.

The *Construction Phase* includes the commissioning authority's review of submittals, updating of the commissioning plan as required, and coordinating commissioning meetings with the contractors. In addition, the commissioning authority develops and documents the Pre-Functional Performance Checklists.

During the *Acceptance Phase* the commissioning authority develops and witnesses Functional Performance Tests on all systems to be commissioned. The commissioning authority coordinates and documents training of building personnel on the commissioned systems, and provides all documentation to the owner.

Finally, the *Post-Acceptance Phase* allows the commissioning authority an opportunity to identify and correct any deficiencies, and to re-test systems as needed. Off-season testing may also be performed in this phase, and documentation updated as required.



Sustainable Design

JJA has significant Sustainable Design experience in energy efficient design projects starting with Sabre Corporate Campus in 2001, LEED® Project Number 10, which was the first LEED® Silver Rated project within Texas.

JJA was also one of the first mechanical and electrical engineering firms to receive training for implementing a design for submission as LEED® project in early 2001. JJA commissioning services included LEED® fundamental and enhanced commissioning necessary to obtain LEED® commissioning recognition.



JJA is registered with the AABC Commissioning Group (ACG) as a certified commissioning authority (CxA) and provider. We also are members of the Building Commissioning Association (BCA), and have had voting membership in ASHRAE's Technical Committee on Commissioning.

Benefits

JJA has provided commissioning services on multiple projects where owners have cited the following benefits as reasons for engaging the services of a Certified Commissioning Authority (CxA):

- Improved building performance and energy efficiency
- Reduced energy consumption
- Extended equipment life
- Proper training and documentation
- Increased occupant productivity
- Improved indoor air quality and occupant comfort
- LEED® Certification



In addition to our commissioning expertise, JJA strives to bring more to the project with our extensive engineering experience and knowledge of systems and how these systems interact. Our commissioning process is performed by an experienced team led by a Certified Commissioning Authority (CxA), as well as involvement by Professional Engineers (PE).



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Markets

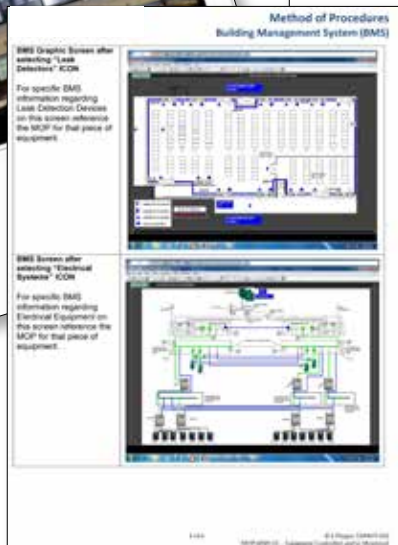
Corporate / Office
Interiors
Critical Systems
Education
Hospitality / Residential
Automotive
Power Studies
Commissioning
Healthcare
Retail / Mixed-Use
Government / Municipal
Manufacturing / Industrial

Consulting Services

Facility Assessments
Life Cycle Cost Analysis
Electrical Power Studies
System Commissioning
Document Reviews
LEED Consulting
Value Engineering

Design Services

HVAC Systems
Underfloor Air Systems
Thermal Storage Systems
Building Automation
Plumbing Systems
Electrical Power Distribution
Lighting Systems
Emergency Power Systems
Critical Systems
Coordination Studies
Energy Modeling
Fire Suppression
Life Safety Systems
Sustainable Design
BIM Production



Issue Number	Found By	Issue Description	Date Identified	Responsible Professional	Date Professionally Satisfied	Action Taken	Resolution	Item Satisfied
001	JJA	UPS-A was discovered to have two faulty capacitors.	5/26/10	Water Engineering	5/26/2010	Replacement capacitors were ordered and installed. The fan was replaced.	Y	5/22/2010
002	JJA	The transformer in Substation 5A had one of its cooling fan blades engaged on and bent. The equipment manufacturer recommends replacement of the fan blade.	5/26/10	Water Engineering	5/26/2010	The MRO-LCV modules were repaired and recommissioned.	Y	6/14/2010
003	JJA	ATS-A1 and ATS-B2 are not communicating with the UPS.	6/13/10	Water Engineering	6/13/2010	UPS-D engineering has installed a panel UPS unit each substation to maintain power during a transfer.	Y	6/14/2010
004	JJA	Substation 5A and 5B have all power during a transfer. There is no power to send a signal to start the generator.	6/13/10	Water Engineering	6/13/2010	The fan was replaced and the unit re-tested.	Y	6/14/2010
005	JJA	CRAC-1 has a faulty cooling condenser fan, causing noise in high-level pressure in the substation plant.	6/13/10	MRO-LCV	6/13/2010	Fan blades were replaced and the unit tested.	Y	6/13/2010
006	JJA	AVS fans for Substation 5A and 5B do not start.	6/14/10	Water Engineering	6/14/2010	Blowers were replaced and the units tested.	Y	6/13/2010
007	JJA	Blowers for RTU-1 and RTU-2 are not running and do not match the substation.	6/14/10	Water Engineering	6/14/2010	The fan blades were not sufficiently lubricated around the motor. The fan was lubricated and the fan started.	Y	6/13/2010
008	JJA	CRAC-11 broken sump and caused CRAC-11 to fail.	6/14/10	MRO-LCV	6/14/2010		Y	6/13/2010