

**FIRST AMENDMENT
COMMISSIONING AUTHORITY SERVICES
FOR VARIOUS SITES
AGREEMENT NUMBER PS1719D**

THIS FIRST AMENDMENT AGREEMENT is made and entered into as of the 8th day of January, 2013, and shall be deemed and taken as forming a part of the Agreement for Commissioning Authority Services for Various Sites ("Agreement") by and between the **PUBLIC BUILDING COMMISSION OF CHICAGO**, a municipal corporation of the State of Illinois ("Commission") and **JACOBS ENGINEERING GROUP, INC.** ("Consultant") dated April 9, 2010 with the like operation and effect as if the same were incorporated therein.

WITNESSETH:

WHEREAS, the Commission and Consultant have heretofore entered into an Agreement dated April 9, 2010, wherein the Consultant is to provide Commissioning Authority Services for Various Sites for the Commission; and

WHEREAS, the Commission and Consultant now desire to amend the Agreement to exercise its option to extend the Agreement terms;

WHEREAS, the Commission and Consultant now desire to amend the Agreement to include modify basic services to the Scope of Services;

NOW THEREFORE, in consideration of the provisions and conditions set forth in the Agreement and herein, the parties hereto mutually agree to amend the Agreement as hereinafter set forth.

It is agreed by and between the parties hereto that the sole modification of, changes in and amendments to the Agreement pursuant to this Amendment are as follows:

TERMS

1. Recitals

THE ABOVE RECITALS ARE EXPRESSLY INCORPORATED IN AND MADE A PART OF THE AMENDMENT CONTRACT AS THOUGH FULLY SET FORTH HEREIN.

2. Article VI. Terms, is revised to extend the term of the Agreement to January 7, 2014.

3. Schedule B - Scope of Services

3.1 Schedule B – Scope of Services pages 1 to 7 is replaced in its entirety with **Attachment 1**.

Execution of this Amendment by the Consultant is duly authorized by the Consultant, and the signature(s) of each person signing on behalf of the Consultant have been made with the complete and full authority to commit the Consultant to all terms and conditions of this Amendment.

All capitalized terms not defined herein shall have the meaning ascribed to them in the Agreement. Except as and to the extent that the terms of the Agreement are amended and modified herein, all terms of the Agreement shall remain in full force and effect.

(Signature Page follows)

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IN WITNESS WHEREOF, the parties hereto have agreed and executed this Amendment No. 1.

PUBLIC BUILDING COMMISSION
OF CHICAGO

BY: Ral Emanuel Date: _____
Chairman

ATTEST:
BY: [Signature] Date: 5/13/13
Secretary

JACOBS ENGINEERING GROUP, INC.

By: [Signature] Date: 3/25/13
Vice President

AFFIX CORPORATE

SEAL, IF ANY, HERE

City of: St. Louis

State of: Missouri

Attested: [Signature]
Assistant Secretary

Subscribed and sworn to before me by John M. Limbaugh, Assistant Secretary
on behalf of Contractor this 10TH day of April, 20 13.

[Signature]
Notary Public

My Commission expires: 5/18/2013

(SEAL OF NOTARY)

JANIS L. SHRABLE
Notary Public - Notary Seal
State of Missouri
Commissioned for Jefferson County
My Commission Expires: May 18, 2013
Commission Number: 09791925

Approved as to form and legality

Anne L. Zredd
Neal & Leroy, LLC

Date: April 16, 2013

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**ATTACHMENT A
SCOPE OF SERVICES**

(SCOPE OF SERVICES FOLLOWS THIS PAGE)

**SCOPE OF WORK
COMMISSIONING AUTHORITY SERVICES – PS1719
FOR
VARIOUS SITES**

I. General Scope of Services-Commissioning Authority Services

The Consultant will enter into Task Order with the PBC. The Task Order will be executed in a Lump Sum, format on a project-by-project basis. The PBC will be pursuing LEED™ certification on all capital building projects, which necessitates commissioning to be executed in compliance with LEED as well as PBC guidelines.

The services to be provided by the Consultant are expected to include pre-design, design, construction, closeout, post-occupancy, warranty and systems evaluation services associated with the Project. The Consultant shall perform Services as necessary to achieve the targeted level of LEED certification in the version of LEED indicated by the PBC, currently Silver or Gold in accordance with LEED 2009, Commissioning services required by the PBC that exceed current LEED requirements but fall within standard commissioning scope and practice, per recognized Commissioning methodologies of the Portland Energy Conservation Inc. (PECI), and the American Society of Heating Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE). The PBC requirements for the Consultant's services will typically exceed those of LEED with respect to minimum systems to be commissioned. Therefore, the Respondent must be qualified in all aspects of Commissioning of energy using systems including, but not limited to mechanical, electrical, plumbing and building automation and controls systems, in all project phases. In addition, Respondents should be qualified or have resources qualified to perform services that fall beyond the typical energy using systems commissioning services.

The Consultant must develop a comprehensive understanding of the project relative to the current PBC program, Owner's Project Requirements (OPR), project assumptions, constraints, and budget. The PBC in many cases works from an evolving building prototype. The Consultant will be required to develop an understanding of the prototype and its recent evolution even where a prototype is not utilized. Consultant may be asked for work product to include efforts specifically to inform and further develop the prototype. During all phases, the Consultant will be expected to participate and communicate with the PBC, the Architect and Engineers, other design consultants, the General Contractor and subcontractors, and the User Agency representatives, as identified by PBC. Format of written communication may be stipulated by the PBC. The Consultant must provide a dedicated commissioning leader and team as required to meet the demands of the project.

The Specific Services that the Consultant may be requested to perform, on a Task Order basis, may include, but are not limited to the following.

A. Pre-Design and Design Phase

- (1) Identify a scope and budget for the commissioning process as part of the Task Order Service Request Process.

- (2) Develop Commissioning Plan. Include Design, Construction, Occupancy and Operations Phases.
 - (i) Revise the Plan throughout the course of the project as needed.
 - (ii) Provide a draft Commissioning Plan for inclusion in the Contract Documents.
 - (iii) Distribute to the Project Team.
- (3) Review the Owner's Project Requirements Document for clarity and completeness, including language pertaining to all of the systems that are to be commissioned.
 - (i) Review updates to the Owner's Project Requirements. Coordinate the development of this document with the PBC. Request the Owner's Project Requirements if not provided with Design Development Phase.
 - (ii) In some instances, the Consultant may be asked to facilitate the development of the Owner's Project Requirements.
- (4) Review the Basis of Design Document for clarity and completeness. Verify that the Basis of Design Documents meets Owner's Project Requirements and PBC stated program requirements. Basis of Design Documents may take the form of design narrative.
 - (i) Review updates to Basis of Design Documents at design milestones throughout the course of the project.
- (5) Modify PBC-supplied boiler plate (or "Standard") Commissioning specifications to be included in the contract documents for specified equipment to be commissioned. These specifications shall include all instructions to contractors and subcontractors, detailing their role in the commissioning scope of work to be performed. Coordinate the content of these specifications with the Architect and Mechanical, Electrical, Plumbing design firm and the PBC Project Manager.
 - (i) Develop Commissioning Specifications in some instances, where specifically directed by PBC.
- (6) Review Design Documents, including Drawings, Specifications, Narratives, for systems to be commissioned, and as directed by PBC.

- (i) Perform a minimum of two (2) Commissioning Reviews; at Design Development and at 90% of Construction Document submittal. More than 2 Commissioning Reviews may be required.
 - (ii) Submit comments in writing to PBC, Architect of Record, and as directed by PBC.
 - (iii) Review for incorporation and coordination of commissioning requirements.
 - (iv) Review for all systems' compliance with Owner's Project Requirements, Basis of Design Documents, and for adequacy and efficiency.
 - (v) Review strategies, sequence of operations; ease of operation and maintenance; commissionable; adequate Operation and Maintenance documentation and training requirements, aligned with Owner's Project Requirements.
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- (vi) Review Indoor Environmental Quality afforded by HVAC system design is in accordance with Owner's Project Requirements.
 - (vii) For scope changes issued during design, review proposed change and provide comments.
 - (viii) The Building Automation System will integrate with all mechanical equipment. Consultant is to conduct design reviews and construction efforts and provide comments with this in mind.
- (7) Coordinate a control, General Building Management System integration meeting for the Consultant, electrical and mechanical engineers and PBC to discuss integration issues between equipment, systems and disciplines to ensure that integration issues and responsibilities are clearly described in the specifications. Document meeting.
 - (8) Evaluate alternative strategies or technologies intended to improve energy efficiency of the building and/or to meet LEED certification targets or requirements, and/or to improve ease of maintenance;
 - (i) Review mechanical and electrical concepts, design, for enhancements with intent to improve energy efficiency while fully meeting Owner's Project Requirements. Discussion to include, but is not limited to lighting and HVAC systems, and may include envelope / systems interconnections.

- (ii) Consultant may be requested to participate in meetings/discussion and/or provide written comments. Engineering studies would not be included.
9. Review design milestone submittals to assure system controls and inter-functionality are included within the design and construction. Perform this review concurrently with other reviews to be assured within the project schedule.

B. Construction and Post Construction Phase

- (1) Provide a commissioning leader to communicate deficiencies to the PBC, manage the Commissioning process, and provide responses to checklists in a timely manner.
- (2) Back-check to Owner's Project Requirements and Basis of Design Documents to ensure any construction phase changes to commissioned equipment do not compromise the intent of the Owner's Project Requirements and Basis of Design Documents.
- (3) Attend and participate in a pre-bid technical review and a pre-construction meeting where the commissioning process or requirements are reviewed.
- (4) Organize the commissioning process components.
- (5) For scope changes during construction, review and provide comments as directed by PBC Project Manager.
- (6) Coordinate and direct commissioning activities. Do so in a logical, sequential and efficient manner using consistent protocols and forms, clear and regular communications and consultations with all necessary parties, as directed by PBC.
- (7) Organize, conduct and document Commissioning meetings with appropriate parties to implement the Commissioning Plan and resolve problems. Attend selected job-site meetings to coordinate information on construction progress with PBC.
- (8) Conduct site visits to observe installations, and confirm the process adequately evaluates the constructed project in accordance with the construction documents and the Owner's Project Requirements.
- (9) Update project-specific Commissioning Plan. Include Construction, Occupancy and Operations Phases. Distribute to project team.

- (10) Review General Contractor submittals for components of systems to be commissioned, concurrent with the AOR team/design professionals' review. Provide comments as directed by PBC Project Manager.
- (11) Include review of subcontractor coordination drawings.
- (12) Coordinate or participate in, as directed by PBC, a controls, GBMS system integration meeting for the Commissioning Agent, General Contractor controls, and MEP coordinator, MEP and controls subcontractors or EOR during submittals phase to ensure MEP/GBMS systems compatibility for systems integration check.
- (13) Develop Pre-Functional Checklists to verify systems installed per Owner's intent, designer's basis, and manufacturing requirements.
 - (i) Consultant may be tasked to complete Pre-Functional Checklists or to statistically sample completion by others.
 - (ii) Sampling plan for Pre Functional Checklist verification is subject to PBC approval.
 - (iii) Document this verification and notify the Owner of any discrepancies through the use of a Deficiency Log.
 - (iv) Provide a log documenting the status of completeness of the Pre Functional Checklists.
- (14) Develop Functional Performance Tests and procedures. Work with General Contractor. Submit to Architect of Record and PBC for review. Provide a log of Functional Performance Tests.
- (15) Assist in direction of the General Contractor, witness and document the Functional Performance Tests performed by installing contractors, and recommend approval. Coordinate retesting as necessary until satisfactory performance is achieved. Document deficiencies and report progress to the PBC. The Consultant must be capable of providing assistance in troubleshooting system failure.
- (16) Review HVAC air and water systems Testing, Adjusting and Balancing reports. Provide comments as directed by PBC Project Manager.
- (17) Maintain a master issues log and a separate testing record. Provide to the PBC, Architect of Record and General Contractor a written progress reports and test results with recommended actions.

- (18) Identify and assist in resolving any discrepancies or nonconforming work; coordinate with PBC project manager and quality control team in this matter. Document the correction and retesting of non-compliance items.
- (19) Approve systems startup by reviewing start-up reports and by selected site observation.
- (20) Develop the Systems Manual.
- (21) Review the Operation and Maintenance Manual for Commissioned systems, provided by the General Contractor, for completeness in achieving requirements established in the Contract Documents and Owner's Project Requirements
- (22) Review; recommend for approval proposed training plan; and verify the training provided by the General Contractor, in conjunction with Architect of Record team.
- (23) Documentation for Commissioning prerequisite and credit(s) to support the PBC in achieving the targeted LEED level.
- (24) Review current and final as-built and record documents at the job site for completeness and accuracy. Document deficiencies.
- (25) Complete and submit the final Commissioning Report. Complete and submit initial Commissioning report promptly at the end of the construction phase. Submit to the PBC, Architect of Record and General Contractor and as directed by PBC Project Manager.
- (26) Schedule and verify deferred, offseason and warranty (10-12 months post occupancy, per PBC direction) functional performance testing by the contractor. Identify and assist in resolving non-compliances, and with documentation for warranty claims.
 - (i) Review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning.
 - (ii) Interview facility staff; identify problems or concerns they have with operating the building as originally intended. Make suggestions for improvements and for recording these changes in the Operation and Maintenance Manuals. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports and documents and requests for services to remedy outstanding problems.

C. Systems and Components to be Commissioned

Energy using systems as required by current version of LEED will always be commissioned. Additional systems and components may be commissioned at PBC's direction, as identified in Project Task Order Service Request.

Consultant may be required to provide personnel with experience in specific systems and technologies, including geothermal and renewable energy such as photovoltaic, solar thermal and wind systems.

Building systems within the commissioning scope of services may include but are not limited to:

1. Air conditioning, refrigeration systems, all components
2. Heating systems
3. Hydronic systems
4. Air handling systems
5. Energy recovery system
6. Heat pumps
7. Pumps and motors associated with the MEP systems to be commissioned
8. HVAC controls. Tie-ins to Building Automation System or General Building Management System
9. Domestic hot water and process water systems
10. Life safety systems including fire alarm systems
11. Fire protection systems
12. Electrical systems
13. Lighting controls
14. Emergency power systems; uninterruptible power supply systems, and automatic transfer switching
15. Security systems
16. Central Building Automation System associated with commissioned equipment
17. Laboratory, clean room, hoods, pressurization, exhaust vent
18. Equipment sound control systems and testing
19. Data and communication
20. Paging systems
21. Irrigation
22. Vertical transport - Elevators
23. Building envelope
24. Process instrumentation and controls
25. Renewable energy systems i.e.: photovoltaic, wind
26. Geothermal / ground source systems
27. Solar thermal water heating systems
28. Radiant systems, including slab

D. Services Which Exceed Typical Commissioning Scope

The PBC may require that the Consultant provide services beyond those typically required for Commissioning, as delineated in a Task Order Service Request. The Consultant may be required to perform include the following:

- Provide peer/design/constructability review of documents, Plans and Specifications, at each design milestone: Schematic Design; Design Development; 60% Construction Documents submittal, 90% Construction Documents submittal; 100% Construction Documents submittal. (This is in addition to LEED requirements).
- Energy efficiency reviews.
- Develop/provide a project specific Measurement and Verification Plan, to meet LEED requirements, for integration into the contract documents.
- Implement Measurement and Verification Plan where required, including post-occupancy visits to project site.
- Participate in a lessons-learned workshop. Assisting in documenting lessons for commissioned systems. The workshop is facilitated by a member of the PBC.