

BLANKET SERVICES AGREEMENT FOR COMMISSIONING AND LEED RELATED SERVICES

THIS AGREEMENT is made and entered into this _____ day of _____, _____, by and between the CITY OF LAS VEGAS, a municipal corporation within the State of Nevada (herein the "City") whose address is 400 Stewart Avenue, Las Vegas, Nevada 89101, and fax number is (702) 464-2560, and LAS VEGAS BUILDING COMMISSIONING, LLC. (LVBCX), (the "Consultant"), a A Limited Liability Company, whose address is P.O. Box 60954, Boulder City, Nevada 89006, and fax number is (702) 294-0039.

WITNESSETH:

WHEREAS, the City intends to construct VARIOUS PROJECTS RELATED TO THE CITY'S CAPITAL IMPROVEMENT PROGRAM (herein individually and collectively the "Project" and "Projects," respectively) which may be known or unknown to the City at the time of the execution of this Agreement; and

WHEREAS, with respect to each Project, the City desires to retain the Consultant who will be responsible for providing the professional services more fully described below and in the exhibits attached hereto; and

WHEREAS, the Consultant is properly licensed pursuant to NRS Chapter 623, 623A, or 625, whichever is legally required for the services to be provided within the State of Nevada, and possesses the special knowledge, skills and expertise to perform the services hereinafter set forth within the time required under this Agreement; and

WHEREAS, the parties hereto intend with the execution of this Agreement to give to the City the flexibility and ability to determine what services are to be provided by the Consultant on a project by project basis through the issuance of a Project Task Order (herein defined in Section 1.01) thereby eliminating the need of executing separate agreements with the Consultant for each Project.

NOW, THEREFORE, in consideration of the above premises, the parties hereto agree to the following terms, conditions and covenants set forth in Sections One through Ten hereof:

SECTION ONE CONSULTANT RESPONSIBILITIES

1.01 *Description of Consultant's Services.*

A. **Definition.** A "Project Task Order" refers to that document which sets forth the specific services to be provided by the Consultant in connection with a particular Project.

B. **Issuance.** If so requested by the City, the Consultant shall assist the City in preparing a Project Task Order setting further the services to be provided in connection with a particular Project. The Project Task Order shall be prepared substantially in conformance with the form attached hereto as Exhibit "H." Each executed Project Task Order shall be attached hereto as Exhibit "H" with the appropriate numerical sequence (e.g., H-1, H-2, H-3, etc.) and shall become a part of this Agreement.

C. **Services.** For each Project Task Order approved and executed by the City, the Consultant hereby agrees to provide the services set forth therein subject to the terms and conditions of this Agreement. For the compensation set forth in Section Seven, the Consultant hereby agrees to perform the basic services set forth in the Scope of Services, **Exhibit "A"** attached thereto and incorporated therein as a part of this Agreement and, if so requested, the additional services set forth in the Additional Compensation, **Exhibit "E"** attached thereto and incorporated therein as a part of this Agreement and to provide the submittals described in the Required Submittals **Exhibit "B,"** attached thereto.

1.02 **Performance Standards.** In performing the services set forth in this Agreement, the Consultant shall follow the practices consistent with the generally accepted standards in the profession of the services being provided to the City pursuant to this Agreement.

1.03 **Document Review.** The Consultant shall be responsible for reviewing each document prepared by the Consultant and its subconsultants including, without limitation, the plans, drawings and specifications for the purpose of ensuring that such documents are technically sound, in conformance with applicable federal, state and local laws and other regulations, and do not violate or infringe upon any patent rights.

1.04 **Waiver.** The City's approval of any documents or services furnished by the Consultant shall not in any way relieve the Consultant of responsibility for the professional and technical accuracy of its documents or services. The City's review, approval, acceptance or payment for any of the Consultant's services shall not be construed to operate as a waiver of any rights enjoyed by the City under this Agreement or of any cause of action arising out of the performance of this Agreement. The Consultant shall remain liable for any damages to the City caused by the Consultant's negligent act or omission committed in the performance of this Agreement.

1.05 **Designation of Consultant's Representative.** The Consultant's representative is the individual identified in the Key Personnel List, **Exhibit "F"** attached hereto (the "Consultant Representative") to act in that capacity, who shall be responsible for the services required under this Agreement. The services specified by this Agreement and each Project Task Order shall be performed by the personnel identified in the Key Personnel List and by the personnel identified in each Project Task Order provided that such associates and employees perform under the personal supervision of the Consultant Representative.

If any person or subconsultant who is expected to provide any of the services required under this Agreement is objectionable to the City for any reason, the Consultant shall, without additional compensation, replace such person or subconsultant with someone acceptable to the City.

If the Consultant's personnel are unable to complete their responsibilities for any reason under this Agreement, or the Consultant desires for any reason to substitute personnel assigned to the Project, the Consultant agrees to obtain the approval of the City for the substitution. The City shall not unreasonably deny approval unless the City adjudges the substitution not be in the interest of the City or the Project.

If the Consultant fails to make an acceptable replacement within thirty (30) days, the City may terminate this Agreement for default as provided in Section 10.03 of this Agreement.

1.06 **Correspondence Review.** The Consultant shall furnish the City Representative copies of each correspondence, if any, sent to any contractor involved with the Project, and to any regulatory agencies, for approval and review prior to mailing such correspondence.

1.07 **Cooperation with the City.** The Consultant agrees that its officers, associates, employees and subconsultants will cooperate with the City in providing the services under this Agreement and will be, with advance notice, available for consultation with the City at such reasonable times as to not conflict with the City's other responsibilities.

1.08 **Responsibility for Construction Document Revisions.**

A. Applicability. The Consultant's responsibility described in this Section applies only if the Consultant is responsible for providing a construction cost estimate and preparing construction documents for the Project.

B. Responsibility for Revisions. The Consultant does not warrant or represent that the bids or proposed price received by the City to construct the Project will come within the Construction Cost Budget set forth in the Scope of Services or as may be otherwise agreed upon in writing by parties. If the bids or proposed price received by the City exceeds the Construction Cost Budget, the Consultant agrees to cooperate with the City in revising the requirements of the Project as required to lower the cost to within the Construction Cost Budget and to modify the construction documents without additional compensation. In order to meet the Construction Cost Budget, the Consultant may, with the approval of the City, segregate portions of the work as separate alternate bid items so that bids received by the City to construct the Project will come within the Construction Cost Budget.

"Construction Cost Budget" as used herein means the monetary limit established by the City for construction of the Project which limit includes the cost of the contractor's labor, materials, equipment, expenses, overhead and profit, but excludes the Project's soft costs, cost of change orders and other cost impacts encountered after award of the construction contract.

SECTION TWO CITY RESPONSIBILITIES

2.01 **City Representative.** The Director of Public Works or his authorized representative identified in the Key Personnel List is hereby designated as the City's representative (the "City Representative") with respect to this Agreement. The City Representative shall have complete authority to transmit instructions, receive information, interpret and define the City's policies and decisions with respect to the services of the Consultant. The City Representative is not authorized to change or waive any of the provisions set forth in Sections 1.01 through 10.24 of this Agreement.

2.02 **Review of Consultant's Services and Documents.** The services to be performed by the Consultant shall be subject to periodic review by the City Representative. To prevent an unreasonable delay in the Project, the City Representative will endeavor to examine and comment in writing on the documents furnished by the Consultant including, without limitation, the plans, drawings, specifications, test results, evaluations, and reports within twenty-one (21) days of receipt of such documents, unless the Contract provides for a different review time with respect to the document.

2.03 **Access to Records.** The City shall, without charge, furnish a copy to, or make available for examination or use by, the Consultant, as it may request, any documents and data which the City has available including, without limitation, reports, maps, plans, specifications, surveys, records, ordinances, codes, regulations, and other documents related to the services required under this Agreement. The City shall assist the Consultant in obtaining data and documents from public agencies and from private citizens and business firms whenever the City determines that such material is necessary for the completion of the services required by this Agreement.

2.04 **Cooperation with Consultant.** The City agrees that its officers and employees will cooperate with the Consultant in the performance of this Agreement and will be, with advance notice, available for consultation with the Consultant at such reasonable times as to not conflict with the Consultant's other responsibilities. The City shall provide access to the Consultant on to the Project site as may be required to perform the services under this Agreement.

SECTION THREE CHANGES TO CONSULTANT'S SERVICES

3.01 **Requested Changes.** The City may at any time, by written order, make a change in the services to be performed by the Consultant under this Agreement.

3.02 **Adjustment of Compensation.** If the change requested by the City causes an increase or decrease in the cost or time required to perform any of the services required under this Agreement, an equitable adjustment shall be made in the compensation to be paid to the Consultant under Section Seven, or in the performance schedule under Section Eight, or both, and this Agreement shall be modified in writing accordingly. Each claim for adjustment under this Section must be asserted in writing within thirty (30) days from the date of receipt by the Consultant of written notification of the change, unless the City grants in writing an extension. Provided proper notice has been given to the City as required herein, the claim for an adjustment shall be handled pursuant to the provisions of 10.20B and 10.20C of this Agreement. The failure to provide notification of the claim within the time required herein shall constitute a waiver of the right to seek any equitable or legal adjustment in compensation with respect to that change.

SECTION FOUR ADDITIONAL SERVICES OF CONSULTANT

4.01 **Additional Services.** The Consultant shall provide the additional services described in the Additional Compensation if, and only if, so requested in writing by the City. Payment for the additional services will be made to the Consultant in accordance with Section Seven of this Agreement.

4.02 **Attendance at Meetings or Public Hearings.** The Consultant shall notify the City in advance of any additional costs which may be incurred prior to attending any meetings or public hearings as may be necessary in connection with the services performed by the Consultant under this Agreement.

SECTION FIVE SUBCONSULTANT AGREEMENT

5.01 **Subconsultant Provisions.** If, with the approval of the City as required pursuant to Section 10.07, the Consultant enters into an agreement with a subconsultant for the performance of any of its obligations under this Agreement, the Consultant agrees to include in each subconsultant agreement a provision that:

(i) the Consultant agrees to pay the subconsultant when paid by the City for that portion of the services provided to the City and that no liability arises on the part of the Consultant for payment of the subconsultant services until payment has been made by the City. If the City has paid the Consultant for the subconsultant services, the subconsultant's only recourse is against the Consultant and not against the City, either through the institution of legal or equitable action or the attachment of any lien,

(ii) the subconsultant shall have no more rights against the City than that of the Consultant,

(iii) the subconsultant agrees to be bound by the terms, conditions and obligation of this Agreement unless the City has approved any deviation, change or modification in writing, and

(iv) unless otherwise approved in writing by the City Representative, the subconsultant shall obtain and maintain professional liability insurance (Errors and Omissions coverage) in connection with the subconsultant services in an amount equal to that required of the Consultant in this Agreement.

SECTION SIX TERM OF AGREEMENT

6.01 *Term.* This Agreement shall commence on the day it is approved by the City (which date shall be inserted in the introductory paragraph of this Agreement) and shall remain in force and effect until the Project is completed unless terminated earlier pursuant to Section 10.02 or 10.03 of this Agreement. Such termination shall not release either party from any of its continuing obligations under this Agreement.

6.02 *Disputes.* This Section shall not be construed to preclude the filing of any dispute arising out of the performance of this Agreement or in connection with the subject matter hereof, nor shall this Section be construed to change the date or the time on which a cause of action arising out of the performance of this Agreement or in connection with the subject matter hereof, would otherwise accrue under the statutes of limitation or doctrines of law.

SECTION SEVEN COMPENSATION AND TERMS OF PAYMENT

7.01 *Compensation: Basic Services.* For the services to be performed by the Consultant under this Agreement and set forth in the Scope of Services, the City agrees to pay the Consultant the fee in the amount identified in the Fee Breakdown, **Exhibit "D"** attached hereto, pursuant to invoices submitted in accordance with Section 7.04 of this Agreement.

7.02 *Compensation: Additional Services.* For any services not set forth in the Scope of Services, the City shall pay to the Consultant either a lump sum fee, or an hourly fee based on the hourly labor rate schedule set forth in the Additional Compensation, whichever is agreed to by the parties, provided prior written approval for such services is given by the City Representative.

7.03 *Compensation: Reimbursable Expenses.* The Consultant agrees that all of its direct and indirect expenses are included in the fee for Basic Services and the agreed upon compensation for any Additional Services, except as may be specifically allowed for reimbursable expenses as part of the Additional Compensation.

7.04 *Payment Invoicing.* The Consultant may submit an invoice for payment for the services provided by the Consultant based on the manner or method of payment set forth in the Fee Breakdown. The City Representative will notify the Consultant of any problems regarding the invoice within fourteen (14) days from receipt thereof. If no response is received from the City Representative within the aforementioned period of time, the Consultant may expect payment within a period of (60) days from the date of receipt by the City. If payment has not been received within the sixty (60) days, the Consultant agrees to contact the City Representative to resolve the problem causing the delay. If resolution of the delay is not satisfactory to the Consultant, the Consultant may submit a claim pursuant to Section 10.20A of this Agreement.

7.05 *Right to Off-Set.* The City Representative may subtract or offset from any unpaid invoice from the Consultant any claims which the City may have for failure of the Consultant to comply with the terms, conditions or covenants of this Agreement, or any damages, costs and expenses caused by, resulting from, or arising out of the negligent act or omission of the Consultant in the performance of the services under this Agreement including, without limitation, any error or deficiency in the report or other documents prepared by the Consultant. The City Representative shall provide a written statement to the Consultant of the off-set which has been subtracted from any payment to the Consultant along with appropriate documentation and receipts, if any, and a description of the failure, error or deficiency attributed to the Consultant. If the Consultant disputes the right or amount of the off-set made by the City, the Consultant may file a claim pursuant to Section 10.20 of this Agreement.

7.06 *Final Payment.* Upon completion of the services required under this Agreement, and acceptance thereof by the City (which acceptance will not be unreasonably withheld), the Consultant will, within sixty (60) days of the City's acceptance, be paid the balance of any money due for such services.

SECTION EIGHT PERFORMANCE SCHEDULE

8.01 **Performance Schedule.** The Consultant shall perform and complete the services required under this Agreement according to the schedule (the "Performance Schedule") set forth in the Schedule of Performance, **Exhibit "C"** attached hereto. If the performance of services is delayed or submittals are not delivered in the time period as outlined in the Performance Schedule, the Consultant shall notify the City Representative in writing of the reasons for the delay and include a plan which brings the Consultant's performance into compliance with the Performance Schedule.

SECTION NINE AUDIT: ACCESS TO RECORDS

9.01 **Records.** The City shall have the right to audit the Consultant's books, records and other documents directly pertinent to the performance of this Agreement. The Consultant agrees to maintain books, records and other documents directly pertinent to performance of this Agreement in accordance with generally accepted accounting principles and practices. The Consultant shall also maintain the financial information and data used to prepare or support the invoices submitted to the City. Audits conducted pursuant to this provision shall be in accordance with generally accepted auditing standards, procedures and guidelines of the City, or its designated representative. The City, or its duly authorized representatives, shall have access to such books, records, and documents for the purpose of inspection, audit and copying. The Consultant will provide proper facilities for such access and inspection.

9.02 **Disclosure.** The Consultant shall be afforded the opportunity for an audit entrance and exit conference and an opportunity to comment and submit any supporting documentation on the pertinent portions of the draft audit report, and that the final audit report will include the written comments, if any, of the Consultant.

9.03 **Period of Maintenance.** The books, records and other documents under Sections 9.01 and 9.02 of this Agreement shall be maintained for three (3) years after the date of the final payment for the services under this Agreement. In addition, those records and other documents which relate to any arbitration, litigation or the settlement of any claim arising out of this Agreement, or to which an audit exception has been taken, shall be maintained and made available until three (3) years after the date that the arbitration, litigation or exception has been resolved.

9.04 **Subcontract Provisions.** The Consultant agrees to include Sections 9.01 through 9.03 of this Agreement in all its subcontracts directly related to performance of services specified in this Agreement which are in excess of \$10,000.

SECTION TEN MISCELLANEOUS PROVISIONS

10.01 **Suspension.** The City may suspend, without cause, the performance by the Consultant under this Agreement for such period of time as the City, in its sole discretion, may prescribe by providing written notice to the Consultant. The suspension shall be effective as of the date set forth in the written notice. With such suspension, the City agrees to pay to the Consultant the amount of compensation, based on percentage of completion of the Project, earned as of the effective date of suspension less all previous payments. The Consultant shall not provide any further services under this Agreement after the effective date of suspension until otherwise notified in writing by the City. In no event shall the City be liable to the Consultant for services in excess of the percentage of the Project completed at the time of suspension.

If, after notice to resume performance has been given by the City, the suspension was for a period in excess of ninety (90) days, which has resulted in an increase in the performance of the Agreement to the Consultant and:

- (i) the Consultant was not a contributing cause for the suspension,
- (ii) the Consultant has not received an equitable adjustment under another provision of this Agreement, and
- (iii) the Consultant could not mitigate the increase in the performance cost,

then the Consultant's fee shall be reviewed by the City and, if justified, equitably adjusted to provide for any additional expenses resulting from the suspension.

10.02. Termination for Convenience. The City reserves the right to terminate this Agreement without cause or default on the part of the Consultant with ten (10) days' prior written notification to the Consultant served pursuant to Section 10.18 of this Agreement. In the event of termination, without cause or default, the City agrees to pay to the Consultant the reasonable value for the services performed as of the date that notification of termination is received by the Consultant. In no event shall the City be liable to the Consultant for services in excess of the percentage completed at the time of termination.

10.03 Termination for Cause or Other Resolution.

A. Default. The occurrence of any of the following events shall constitute a default by the Consultant hereunder (herein "Event of Default"). If, during the term of this Agreement, the Consultant:

(i) defaults in the due observance and performance of any term, condition or covenant contained in this Agreement,

(ii) (a) voluntarily terminates operations or consent to the appointment of a receiver, trustee or liquidator of the Consultant for all or a substantial portion of its assets, (b) is adjudicated bankrupt or insolvent or files a voluntary petition in bankruptcy, or admits in writing to the inability to pay its debts as they become due, (c) make a general assignment for the benefit of creditors, (d) file a petition or answer seeking reorganization or an arrangement with creditors or take advantage of any insolvency law, or (e) if action shall be taken by the Consultant for the purpose of effecting any of the foregoing,

(iii) allows any warrant, execution or other writ to be issued or levied upon any property or assets of the Consultant which continues unvacated and in effect for a period of thirty (30) days, or

(iv) fails, in the judgment of the City, to provide the services hereunder properly and with proper dispatch in accordance with the time schedule set forth in this Agreement,

and the default continues five (5) days after written notice is given to the Consultant pursuant to Section 10.18.

B. City's Rights. Upon the occurrence of an Event of Default, and without prejudice to any other right or remedy it may have at law or equity, the City may:

(i) terminate this Agreement, suspend payment of all pending invoices otherwise due to the Consultant hereunder, and finish this Agreement by such means as deemed appropriate by the City, reserving the right to deduct from any balance due Consultant the cost of completing this Agreement. In the event the cost of finishing the Consultant's performance of this Agreement exceeds the balance due the Consultant, the excess shall be paid by the Consultant to the City within five (5) days of invoicing by the City,

(ii) terminate this Agreement, and the obligations imposed hereunder, including the obligation of any further payment for the services of the Consultant except for the reasonable value for the services performed to the date of termination, or

(iii) Continue with the performance of the Agreement by the Consultant and treat the Event of Default as a claim or dispute subject to the arbitration provisions set forth in Section 10.20 of this Agreement.

In the event that the City elects to implement (i) above, the costs and expenses of completing this Agreement shall be computed and audited by the City's designated representative. The audit shall be conducted in accordance with generally accepted accounting principles and the cost thereof shall be paid by the Consultant.

10.04 Ownership of Documents.

A. Architectural Works. To the extent that the Consultant's services involves the design of an architectural work as defined herein, the Consultant shall retain all common law and statutory rights of ownership, including copyrights, to the drawings and specifications prepared by the Consultant for this Project. The Consultant is deemed to be the author of the drawings and specifications as instruments of service to the City. Notwithstanding the foregoing, the Consultant hereby grants to the City the right to use (including the right of reproduction and use in the creation of new documents) the drawings and specifications for the purpose of completing the Project or for any subsequent maintenance, repair, renovation, remodeling or addition thereto. The rights granted herein to the City shall extend and include any new consultant which the City may retain for the aforementioned purposes. The Consultant hereby releases the City, and any new consultant retained by the City for the aforementioned purposes, from any and all claims in connection with the use or reproduction of the drawings and specifications. The Consultant agrees to execute such documents reasonably deemed necessary by the City to implement the rights granted to the City pursuant to this subsection.

B. Other Works. To the extent that the Consultant's services does not involve the design of an architectural work, the City shall have all common law and statutory rights of ownership, including copyrights, to the plans, drawings, specifications and other documents (including, without limitation, design concepts and sketches, test results, evaluations, reports and studies, excepting any proprietary forms, templates, and checklists specifically listed for City ownership exclusion elsewhere in this Agreement) (collectively herein the "Documents") prepared or assembled by the Consultant, or any of its subconsultants, for this Project. The Consultant hereby releases the City, and any new consultant retained by the City from any and all claims in connection with the use or reproduction of the Documents. The Consultant agrees to execute such documents reasonably deemed necessary by the City to implement the rights granted to the City pursuant to this subsection. The Consultant shall be entitled to retain a reproducible copy of the documents furnished to the City.

C. Definition of Architectural Work. For purposes of this Agreement, "architectural work" shall have the same definition as set forth in Architectural Works Copyright Protection Act of 1990, P. L. 101-650, Title VII, Section 70 et. seq.

D. Delivery of Documents. In the event of the completion, suspension or termination of this Agreement, the City shall have the right to require delivery of any and all of the plans, drawings, specifications, and all other documents (including, without limitation, design concepts and sketches, test results, evaluations, reports and studies), including the magnetic or electronic media of the aforementioned documents, not in the possession of the City.

E. Confidentiality. The plans, drawings, specifications and other documents (including, without limitation, design concepts and sketches, test results, evaluations, reports and studies) (including the magnetic or electronic media of the aforementioned documents) which are prepared or assembled by the Consultant, or its subconsultants, under this Agreement shall not be made available to any individual or organization without the prior written consent of the City. Except for marketing pamphlets and submittals to clients, the Consultant shall not publish, submit for publication, or publicly display the Project without the written consent of the City. The obligations of confidentiality shall survive the termination of this Agreement.

F. Contractual Rights. Notwithstanding the provisions of 10.04 A above, the City is hereby licensed to use all design concepts developed by the Consultant and subconsultants under this Agreement, including the right to construct derivative works of the Project, and to use the design concepts for other projects of the City. The design concepts include, but are not limited to, the form, aesthetic appeal, site layout, the arrangement and composition of spaces and elements, the use of colors and materials, system designs, construction methods and interior design.

10.05 Insurance. The Consultant shall procure and maintain, at its own expense, during the entire term of the Agreement, the following insurances:

A. Workmen's Compensation Insurance. This insurance shall protect the Consultant and the City from employee claims based on job-related sickness, disease, or accident.

B. Comprehensive General Liability Insurance. This insurance shall protect the Consultant, its agents and vehicles used to provide the services required under this Agreement from claims of personal injury (including death) and property damage. Such coverage shall be in a minimum amount of \$1,000,000 for the period of time covered by this Agreement. The Consultant's general liability insurance policies shall be endorsed to include the City as an additional insured.

C. Professional Liability Insurance (Errors and Omissions Coverage). This insurance shall protect the Consultant from claims arising out of performance of professional services caused by a negligent act, error, or omission for which the insured is legally liable. Such coverage shall be in a minimum amount of \$1,000,000 for the period of time covered by this Agreement.

D. Cancellation or Modification of Coverage. The Consultant's Comprehensive General Liability and Professional Liability Insurance Policies shall automatically include or be endorsed to cover the Consultant's contractual liability to the City under this Agreement, and with respect to its Comprehensive General Liability Policy, to waive subrogation against the City, its officers, agents, servants and employees. The policies shall provide that the City will be given thirty (30) days' notice in writing of any cancellation of, or material change in, the policies.

E. Certificates and Endorsements. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer and licensed by the State of Nevada. All deductibles and self-insured retentions shall be fully disclosed in the Certificate of Insurance. No deductible or self-insured retention may exceed \$25,000 without the written approval of the City. Certificates indicating that such insurance is in effect shall be delivered to the City before any services are provided under this Agreement.

F. Period of Coverage. If the insurance coverage is underwritten on a "claims made" basis, the retroactive date shall be prior to or coincident with the date of this Agreement and the Certificate of Insurance shall state that coverage is "claims made" and the retroactive date. Upon availability, the Consultant shall maintain coverage for the duration of this Agreement and for two years following completion of this Agreement. The Consultant shall provide the City annually a Certificate of Insurance as evidence of such insurance.

G. Commercial Automobile Liability Insurance of limits no less than \$1,000,000 combined single limit per occurrence for bodily injury and property damage to include, but not be limited to, coverage against all insurance claims for injuries to persons or damages to property which may arise from services rendered by Company and any auto used to the performance of services under this Contract. The policy must insure all vehicles **owned** by the Company and include coverage for **hired** and **non-owned** vehicles.

10.06 Indemnity. Notwithstanding any of the insurance requirements set forth in Section 10.05, and not in lieu thereof, the Consultant shall defend, indemnify and hold the City, its officers, employees and agents (herein the "Indemnitees"), harmless from any and all claims (including, without limitation, patent infringement and copyrights claims), damages, losses, expenses, suits, actions, decrees, judgments, arbitration awards or any other form of liability (including, without limitation, reasonable attorney fees and court costs) (collectively herein the "Claims") which the Indemnitees may suffer as a result of, by reason of, or as a consequence of, the negligent errors, omissions, recklessness, intentional misconduct of the Consultant, its subcontractors, agents or anyone employed by the Consultant, its subcontractors or agents, in the performance of this Agreement.

As part of its obligation hereunder, the Consultant shall, at its own expense, defend the Indemnitees against the Claims which may be brought against them, or any of them, as a result of, by reason of, or as a consequence of, the negligent act or omission of the Consultant, its subcontractors or agents, for and against which the Consultant is obligated to indemnify the Indemnitees, unless the Indemnitees, or any of them elect to conduct their own defense which, in such case, shall not relieve the Consultant of its obligation of indemnification set forth herein. If the Consultant fails to do so, the Indemnitees shall have the right, but not the obligation, to defend the same and charge the direct and incidental costs of such defense (including attorney fees and court costs) against the Consultant which is proportionate to the liability of the Consultant.

If the professional liability insurer of the Consultant does not so defend the Indemnitees and the Consultant is adjudicated to be liable by a trier of fact, the trier of fact shall award reasonable attorney's fees to be paid to the Indemnitees by the Consultant in an amount which is proportionate to the liability of the Consultant. As used in this Section, "agents" means those persons who are directly involved in and acting on behalf of the City in furtherance of this Agreement or the public work to which this Agreement pertains.

10.07 Assignment. The City and the Consultant each bind itself and its partners, successors, administrators and assigns to the other party of this Agreement and to the partners, successors, executors, administrators and assigns of such other party in respect to all covenants of this Agreement, except the Consultant shall not assign, sublet or transfer any obligation or benefit under this Agreement without the written consent of the City. Nothing contained herein shall be construed as creating any personal liability on the part of any officer or agent of the City.

10.08 Waiver. No consent or waiver, express or implied, by either party to this Agreement, or of any breach or default by the other in the performance of any obligations hereunder, shall be deemed or construed to be a consent or waiver of any other breach or default by such party hereunder. Failure on the part of any party hereto to complain of any act, or failure to act of the other party, or to declare that other party in default hereunder, irrespective of how long such failure continues, shall not constitute a waiver of the rights of such party hereunder. Inspection, payment, or tentative approval or acceptance by the City or the failure of the City to perform any inspection hereunder, shall not constitute a final acceptance of the work or any part thereof and shall not release the Consultant of any of its obligations hereunder.

10.09 Consultant Warranties. The Consultant hereby represents and warrants that:

- (i) it is financially solvent, able to pay its debts as they mature, and is possessed of sufficient working capital to complete this Agreement; that it is experienced, competent, qualified and able to furnish the plant, tools, materials, supplies, equipment and labor which is used to perform the services contemplated by this Agreement, and that it is authorized to do business in the City of Las Vegas and the State of Nevada,
- (ii) it holds a license, permit or other special license to perform the services included in this Agreement, as required by law, or employs or works under the general supervision of the holder of such license, permit or special license,
- (iii) its computer hardware, software, and firmware will continue functioning without interruption, and will continue to accurately process date, time, and data necessary to the performance of this Agreement, and
- (iv) it has, pursuant to the requirements of Resolution 79-99 adopted by the City Council on August 4, 1999, (effective October 1, 1999), as amended by resolution 105-99 (adopted by the City Council on November 17, 1999), disclosed on the form attached hereto as **Exhibit "G"** (Disclosure of Ownership/Principals) all of the principals, including partners, of the Consultant, as well as all persons and entities holding more than a one percent (1%) interest in the Consultant or any principals of the Consultant. If the Consultant, or its principals or partners, are required to provide disclosure under federal law (such as Securities and Exchange Commission or the Employee Retirement Income Act) and current copies of such federal disclosures are attached to **Exhibit "G,"** the requirements of this Section shall be deemed satisfied. During the term of this Agreement, the Consultant shall notify the City in writing of any material change in the above disclosure on **Exhibit "G"** within fifteen (15) days of such change.

10.10 Consultant's Employees. The Consultant shall be responsible for maintaining satisfactory standards of competency, conduct and integrity, of personnel assigned to the Project, and shall be responsible for taking such disciplinary action with respect to such personnel as may be necessary. In the event the Consultant fails to remove any employee from the work of this Agreement whom the City deems incompetent, careless or insubordinate, or whose continued employment on the work is deemed by the City to be contrary to the public interest, the City reserves the right to require such removal as a condition for the continuation of this Agreement.

10.11 Independent Contractor. It is hereby expressly agreed and understood that in the performance of the services required herein, the Consultant and any other person employed by him hereunder shall be deemed to be an independent contractor and not an agent or employee of the City.

10.12 Applicable Law. This Agreement shall be construed and interpreted in accordance with the laws of the State of Nevada.

10.13 Compliance with Laws. The Consultant shall in the performance of its obligations hereunder comply with all applicable laws, rules and regulations of all governmental authorities having jurisdiction over the performance of this Agreement including, without limitation, the Federal Occupational Health and Safety Act and all state and federal laws prohibiting and/or related to discrimination by reason of race, sex, age, religion or national origin.

10.14 Severability. In the event that any provisions of this Agreement shall be held to be invalid or unenforceable, the remaining provisions of this Agreement shall remain valid and binding on the parties hereto.

10.15 Confidentiality. The Consultant shall treat the information relating to the Project, which has been produced by the Consultant or provided by the City, as confidential and proprietary information of the City and shall not permit its release to other parties or make any public announcement or publicity release without the City's written authorization. The Consultant shall also require each subconsultant to comply with this requirement. The submission or distribution of documents to meet official regulatory requirements or for similar purposes in connection with the Project is not to be construed as publication relieving the Consultant of its confidentiality obligation imposed herein.

10.16 Site Inspection. The Consultant represents that, prior to executing each Project Task Order, it has visited the location of the Project and has satisfied itself as to the general condition thereof and that the Consultant's compensation as provided for in the Agreement is just and reasonable compensation for performance hereunder including reasonably foreseen and foreseeable risks, hazards and difficulties in connection therewith based on such above-ground observations.

10.17 Modification. All modification or amendments to this Agreement are null and void unless reduced in writing and signed by the parties hereto.

10.18 Notice. Any written notice required to be given under Sections 1.01 through 10.24 of this Agreement shall be deemed to have been given when the written notice is (i) received by the party to whom it is directed by personal service (ii) telephonically faxed to the telephone number set forth in the introductory paragraph to this Agreement, provided confirmation of the transmission is received by the sender, or (iii) deposited with the United States Postal Service, postage prepaid, addressed to the City Representative or the Consultant Representative, whomever is the proper recipient, and mailed to the address set forth in the introductory paragraph to this Agreement.

10.19 Prohibition Against Contingent Fees. The Consultant warrants that no person or entity has been employed or retained to solicit or secure this Agreement with the Agreement or understanding that a commission, percentage, brokerage or contingent fee would be paid to that person. For breach or violation of this provision, the City shall have the right to annul this Agreement without liability or, in its discretion, to deduct from the compensation to be paid to the Consultant, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

10.20 Claim or Dispute Resolution.

A. Notice of Claim or Dispute. For each claim or dispute which the Consultant has against or with the City (except for any claim for an equitable adjustment under Section 3.02 which is subject to the 30-day limitation set forth therein), notice thereof must be submitted in writing to the City Representative within a reasonable time after the claim or dispute arises, but no later than thirty (30) days after final payment is made to the Consultant. The purpose of written notification is to place the City on notice so that proper measures can be taken to properly defend against the claim or dispute, and the failure to give such notice shall preclude the Consultant from subsequently arbitrating that particular claim or dispute pursuant to Section 10.20C of this Agreement, and the Consultant shall have no further recourse against the City. Pending a final decision on the claim or dispute under Sections 10.20B or 10.20C, the Consultant shall proceed diligently with the performance of this Agreement.

B. Resolution by Management. The City Representative and the Consultant Representative shall meet within a reasonable time after receipt of the written notice received pursuant to Section 10.20A in an attempt to resolve the claim or dispute to the mutual satisfaction of the parties. If the matter is not disposed of by mutual agreement between the City Representative and the Consultant Representative, the claim or dispute shall be decided by the Director of Public Works, whose decision shall be reduced to writing and mailed or otherwise furnished to the Consultant. The decision of the Director of Public Works shall be final and conclusive unless, within thirty (30) days after the date on which the Consultant receives its copy of such decision, the Consultant mails or otherwise furnishes to the Director of Public Works a written request to arbitrate the claim or dispute, in which event the parties shall proceed with the arbitration pursuant to provisions of Section 10.20B. The failure to make such request shall preclude the Consultant from proceeding any further on the claim or dispute, and the Consultant shall have no further recourse against the City.

C. Resolution by Arbitration. Upon receipt of a request to arbitrate pursuant to 10.20B, the parties shall come to an agreement as to the appointment of an arbitrator for purposes of hearing the appeal. If the parties cannot agree on this appointment, then a request shall be submitted to the American Arbitration Association, or some other association agreed to by the parties, for such appointment. Each party shall be offered the opportunity to be heard and present evidence in support of or against the claim or dispute between the parties.

D. Right of Consolidation. Any arbitration arising out of or relating to this Agreement may include, by consolidation, joinder or in any other manner, any additional party or parties who are not a party to this Agreement if so requested by the City or the Consultant. Any consent to arbitration involving an additional party or parties shall not constitute consent to arbitrate any claim or dispute not described as a part of the original arbitration unless otherwise agreed to by the parties.

E. Right of Joinder. In the event the City is named as a party to any arbitration, or the City commences an arbitration against a party other than the Consultant, which arbitration is related to, or connected with, the construction of the Project or the performance of the Consultant's services hereunder (such as, without limitation, any arbitration between the City and the contractor awarded the contract to construct the Project), the Consultant agrees and irrevocably consents to be joined as a party in the arbitration proceeding and to be bound by any decision resulting therefrom. The decision of the arbitrator or arbitrators, as the case may be, in the arbitration to which the Consultant has been joined as a party, shall be binding and enforceable against the parties thereto under the laws of the State of Nevada.

If the Consultant is named as an additional party by the City, the Consultant shall not be entitled to any additional compensation from the City as a result of preparing for, and participating in, the arbitration.

F. Discovery. In the event of arbitration, the parties agree that all means of discovery including, but not limited to, depositions and interrogatories, will be afforded to the parties involved in the arbitration, and the appointed arbitrator shall have all authority to impose sanctions against either party for failing to comply with the rules of discovery provided under the Nevada Rules of Civil Procedure.

G. Award Final. The award rendered by the arbitrator shall be final, and judgment may be entered upon its accordance with applicable law in any court having jurisdiction thereof.

H. Mediation. Subsequent to the commencement of any arbitration pursuant to Section 10.20C, and prior to any decision arising therefrom, the parties may endeavor with written mutual consent to settle disputes by mediation in accordance with the mediation rules of the mediation service agreed by the parties. The cost of the mediation shall be shared equally by the parties.

10.21 Attorney Fees. The prevailing party in any litigation or arbitration brought to enforce the provisions of this Agreement shall be entitled to reasonable attorney fees and court costs.

10.22 Calendar Day. All references in this Agreement to days are to calendar days unless otherwise indicated.

10.23 Exhibits. All exhibits referenced in this Agreement are hereby incorporated by this reference as a part of this Agreement. Any conflict between the provisions of this Agreement and the Exhibits incorporated herein shall be governed by the provisions of this Agreement.

10.24 Counterparts; Electronic Delivery. This Agreement may be executed in counterparts, all such counterparts will constitute the same contract and the signature of any party to any counterpart will be deemed a signature to, and may be appended to, any other counterpart. Executed copies hereof may be delivered by facsimile or e-mail and upon receipt will be deemed originals and binding upon the parties hereto, regardless of whether originals are delivered thereafter.

10.25 Agreement Version. This document incorporates the standard provisions for the City's Professional Services Agreement updated as of April 8, 2008.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed the day and year first above written.

CITY OF LAS VEGAS

By _____
Kathleen C. Rainey, Manager, Purchasing & Contracts

ATTEST

Beverly K. Bridges, CMC Date
City Clerk

CONSULTANT

By _____
Tracy Floyd, Las Vegas Building Commissioning, LLC.
(LVBCX)

APPROVED AS TO FORM

John S. Richella 11/24/09

Deputy City Attorney Date

LIST OF EXHIBITS

Any conflicts between the proceeding Agreement and the following Exhibits shall be governed by the Agreement.

EXHIBIT “ A ” SCOPE OF SERVICES

EXHIBIT “ B ” REQUIRED SUBMITTALS

EXHIBIT “ C ” PERFORMANCE SCHEDULE

EXHIBIT “ D ” FEE BREAKDOWN

EXHIBIT “ E ” ADDITIONAL COMPENSATION

EXHIBIT “ F ” KEY PERSONNEL LIST

EXHIBIT “ G ”

EXHIBIT “ H ” PROJECT TASK ORDER

EXHIBIT "A"

SCOPE OF SERVICES

The Scope of Services for this Agreement shall be as set forth as stated below:

I. SYSTEMS TO BE COMMISSIONED

- A. General: The systems to be commissioned shall generically include:
 - 1. Division 15 Systems
 - 2. Division 16 Systems
- B. Provide functional performance testing for all modes of operation only for the mechanical, electrical, plumbing, and/or process equipment included in the design. With all listed systems, there is an assumed "as applicable" caveat that is intended to exclude any generically listed pieces of equipment that are not included in the design.
- C. Mechanical Systems: Provide functional performance testing for all modes of operation
 - 1. Chilled Water Systems including (100%):
 - a. Chillers
 - b. Cooling Towers
 - c. Pumps
 - d. Heat exchangers
 - e. VFD's
 - f. Makeup systems & expansion tanks
 - g. Miscellaneous piping components
 - 2. Heating Hot Water Systems including (100%):
 - a. Boilers,
 - b. Pumps,
 - c. Heat exchangers
 - d. VFD's
 - e. Makeup systems & expansion tanks
 - f. Miscellaneous piping components
 - 3. Hydronic Flushing (100%):
 - a. Provide on-site attendance and witnessing of all flushing procedures by the mechanical contractor.
 - b. Provide sufficient time for witnessing up to three (3) complete catastrophic dumps, pre-flushing, cleaning and final flushing.
 - c. Provide digital photo documentation of each phase of flushing.
 - d. Assist and advise the contractor in completion of the flushing according to the specified and the Owner required flushing procedures
 - 4. Air Handling Systems including (100%):
 - a. Fans
 - b. VFD's
 - c. Mixing dampers
 - d. Heating coils
 - e. Cooling coils
 - f. Ventilation
 - g. Humidification
 - h. Air Quality
 - 5. Terminal Units (10% statically based)
 - a. Variable Air Volume Boxes
 - b. Constant Volume Boxes
 - c. Fan coil units
 - d. Unit heaters, radiation, heating coils and evaporative cooling units.
 - e. Pkg'd DX and split system A/C units
 - f. Heat pump units
 - g. Computer room air conditioning units (CRAC)

6. Exhaust and Supply Systems including: (100%)
 - a. General
 - b. Critical Area Pressurization
 - c. Toilet
 - d. Process
 - e. Smoke and Pressurization
7. Facility Control System (Building Automation) including
 - a. Point to point verification and calibration verification (10% statistical)
 - b. Sequence of operation testing for all modes of operation for all seasons including review of software. (100%)
 - c. Verification of graphics, point display, point command, and alarming. (100%)
 - d. Testing of the FCS shall occur in a timely manner to meet the construction schedule.
- D. Plumbing Systems: (100%)
 1. Domestic H/C Water (Primary equipment only)
 2. Booster System (Primary equipment only)
 3. Vacuum System (Primary equipment only)
 4. Compressed Air System (Primary equipment only)
- E. Electrical Systems:
 1. Lighting:
 - a. Automatic Lighting – Interior & Exterior
 - b. Occupancy control
 - c. Emergency Lighting
 2. Emergency power system
 - a. Emergency generator
 - b. Transfer
- F. Life Safety Systems:
 1. Fire Alarm System: (10% statistical)
 - a. Review test documentation; verify installation and operation of all required devices.
 - b. Coordinate the verification walkthrough of the local Authority Having Jurisdiction.
 - c. Observe initiation of each typical initiation device.
 2. Fire Protection System: (100% of flow switches)
 3. Smoke Control System: Verify that all scenarios and components for the smoke control including:
 - a. Duct Detectors:
 - ◆ Test and certify the duct smoke detectors are installed and performing within the manufacturers requirements.
 - ◆ Provide testing sheets for each detector.
 - ◆ Provide all detector manufacturers performance data and verification that the location provides sufficient air velocities under all modes of operation to meet this data. In addition, verify the detector operation to verify appropriate shut down sequences.
 - ◆ Submit the testing certification to the Owner's Inspection Services Department (and AHJ if required).
 - b. Fire Smoke Dampers:
 - ◆ Test and certify the fire/smoke dampers are installed and performing according to the design intent.
 - ◆ Each damper shall be individually testing for proper close and open operation when the fire alarm system command requires this action.
 - ◆ Submit the testing certification to the Owner Inspection Services Department (and AHJ if required).
 - c. Zone Boundary:
 - ◆ Sprinkler Flow Switches
 - ◆ Zone Boundary Doors
 - ◆ Fully sealed Zone Boundaries
 - ◆ Zone pressure testing
 - ◆ Stairwell and vestibule pressure testing
 - d. Smoke Control Initiation and Control Devices including
 - ◆ Area detectors (10%)
 - ◆ Fans (100%)
 - ◆ Control Dampers (100%)
 - ◆ Magnetic door release (10%)

II. EXCLUSIONS

- A. The Commissioning Provider shall not be responsible for construction means, methods, job safety, or any management function related to commissioning on the job site.
- B. The Contractor shall provide all technician services requiring tools or the use of tools to test, adjust, or otherwise bring equipment into a full operational state.
- C. The CxPF shall not be responsible for any Civil or Structural testing.
- D. The CxPF shall not be responsible for Division 15 Test and Balance contractor tasks
- E. The CxPF shall not be responsible Division 16 Electrical Acceptance Testing contractor tasks.

ATTACHMENT A BUILDING COMMISSIONING TECHNICAL REQUIREMENTS

SUMMARY

- A. The Commissioning Provider shall be contracted directly to the Owner. The process of commissioning as defined here-in goes well beyond typical HVAC system start-up both in detail of testing and in detail of documentation. The director of the commissioning process is the Commissioning Provider (CxPF).
- B. Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent, basis of design, construction documents and Owner's system operational needs. This is achieved by beginning in the design phase, reviewing design intent/basis of design documentation and continuing through construction, building acceptance and the warranty period with actual verification of performance. The commissioning process shall coordinate what have traditionally been separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and Owner training.
- C. Provide the services of a qualified Commissioning Provider (CxPF) with commissioning expertise as described in this section with the following general requirements:
 - 1. Furnish labor and material to accomplish building commissioning as specified herein.
 - 2. Requirements of this specification and associated specific commissioning procedures shall be accomplished by a qualified CxPF, as specified in this document.
 - 3. Unless noted otherwise, functional performance tests (FPT's) apply to all equipment and systems identified in **Commissioning Provider Scope & Request for Proposal** under "Systems to Be Commissioned".
 - 4. Develop and perform functional performance testing and troubleshooting of equipment and systems.
 - 5. Manage the quality, coordination, scheduling, and execution of commissioning activities.

DEFINITIONS:

- A. Definition of Terms:
 - 1. Adjustment: To change the speed, flow, position, signal, or level of any piece of mechanical equipment.
 - 2. Calibration: To check or adjust the graduations of a quantitative measuring instrument against a known standard.
 - 3. Datalogging - monitoring flows, currents, status, pressures, etc. of equipment using stand-alone dataloggers separate from the control system.
 - 4. Deficiency - a condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents (that is, does not comply with the design intent).
 - 5. Design Intent - a dynamic document that provides the explanation of the ideas, concepts and criteria that are considered to be very important to the owner. It is initially the outcome of the programming and conceptual design phases.
 - 6. Facility Control System (FCS): Other common acronyms are DDC (Direct Digital Controls), BAS (Building Automation System), BMS (Building Management System) or FMS (Facility Management System). This is the system providing automation functions for control of the HVAC and mechanical systems as well as alarming, monitoring, trending and interface/integration to related building systems such as fire alarm, security, card access, electrical switchgear, and stand-alone controls for major equipment such as chillers.
 - 7. Functional Performance Testing (FPT): This portion of the Commissioning Process involves dynamic tests that ensure that all mechanical systems function in accordance with design intent. The tests are dynamic and on-line and test the systems through all possible modes of operation.

8. Installation Verification: This initial portion of the Commissioning Process includes observations and punch-lists recorded and performed by the Engineer to ensure that all equipment is installed in accordance with the Specifications and Drawings. The Commissioning Provider shall overview this process.
9. LS: Life Safety Systems including Fire Alarm, Fire Protection and Smoke Control.
10. MEP: Mechanical, Electrical and Plumbing systems
11. Minor Adjustment: To add, subtract, or change various parameters included in the operation logic of a mechanical system or systems in order to improve or optimize operational performance. This refers only to the specified performance logic. Difficulties encountered in accomplishing a minor adjustment shall not be used to define a minor versus a major adjustment.
12. Major Adjustment: To fully change the specified operation logic of a mechanical system or systems. This refers only to the specified performance logic. Difficulties encountered in accomplishing a minor adjustment shall not be used to define a minor versus a major adjustment.
13. Pre-functional checklists (PFC): This portion of the Commissioning Process involves primarily the test and balance and startup personnel to ensure that individual pieces of equipment are capable of performing in accordance with the Specifications, Drawings, and manufacturers' requirements. This is documented with a pre-functional checklist provided and completed by the contractor. The Commissioning Provider shall overview this testing.
14. Statistical Sampling: - Functionally testing a statistically representative quantity (i.e. 15%) of identical or near identical pieces of equipment. Subject to 3% failure threshold whereby if there are greater than 3% testing failures of randomly chosen equipment, the testing shall be noted as failed and the Contractor shall re-verify the startup of 100% of the equipment. An additional identical statistically representative quantity of equipment shall again be tested which shall include a retest of 25% of the failed equipment and 75% randomly chosen untested equipment. This shall be repeated until the testing is noted as passing. Any proposed statistical sampling shall be identified in the construction phase commissioning plan and approved by the CxPF.
15. System Component or System Element: A single piece of mechanical equipment such as a pump, fan, chiller, boiler, coil, etc. that when combined together through piping or ductwork will comprise a "System".
16. System: A combination of system components that allow the manufacture or distribution of conditioned air or water from one location to another.
17. Tuning: To adjust for maximum performance.

COMMISSIONING TEAM

- A. Coordination and management: The Commissioning Provider Firm (CxPF) shall provide overall coordination and management of the commissioning program as specified herein.
- B. The commissioning process will require cooperation of the Contractor, subcontractors, vendors, Architectural Engineering firm, Commissioning Provider and Owner.
- C. The commissioning team shall be comprised of the following:
 1. Contractor: Project manager and MEP coordinator.
 2. Subcontractors: As required by the prime contractor.
 3. Manufacturers' factory engineers: As specified elsewhere.
 4. Commissioning Provider
 5. Construction Management Engineer
 6. Owner Construction Observers
 7. Architectural/Engineering Representatives

DESIGN PHASE COMMISSIONING RESPONSIBILITIES

- A. Commissioning Provider Firm (CxPF): The CxPF Responsibilities include, but are not limited to:
 1. Coordinate, schedule and manage the commissioning activities.
 2. Finalize design phase commissioning plan
 3. Perform a review of Design Development Documents
 4. Assist in the development of the design intent documentation
 5. Develop the draft commissioning plan for the construction phase
 6. Develop commissioning specifications for the construction bid documents
 7. Perform a final review of the drawings and specifications
 8. Review sequences of operation.
- B. Owner:
 1. Review and comment on design phase & construction phase draft Cx plan.
 2. Review and approve design intent document.

- C. Architect Engineering Firm (A/E)
1. Attend the commissioning scope meeting and selected commissioning team meetings.
 2. Plan & schedule meetings.
 3. Write design intent for systems included for commissioning.
 4. Adapt commissioning guide specifications and include in Division 1.

DESIGN PHASE COMMISSIONING TASKS:

- A. Review Design – Design Development Phase:
1. Commissioning facilitation: Input regarding making the building easier to commission.
 2. Operation and Maintenance (O&M): Review how building O&M can be made easier (accessibility and system control, etc.)
 3. Review Basis of Design:
 4. Review Design Intent Document: Identify flaws, oversights, or insufficient detail in the design, relevant to being able to reasonably meet the design intent.
- B. Review Design – Construction Document Phase (90%)
1. General Review:
 - a. Determine if the design documents are sufficiently complete to warrant a full design review, A quick review to confirm that the Design Intent is met via the Basis of Design requirements, Review Continuation of Items; Labeling; legibility; general level of completion
 2. Plan Review:
 - a. Look for accessibility, consistent terminology, physical space continuity and placement of multiple pieces of equipment.
 - b. Clear and rigorous design documentation, including detailed and complete sequences of operation.
 - c. Access for reading gages, entering doors and panels, observing and replacing filters, coils, etc.
 - d. Required isolation valves, dampers, interlocks, piping, etc. to allow for manual overrides, simulating failures, seasons and other testing conditions.
 - e. Pressure and temperature (P/T) plugs close to controlling sensors for verifying their calibration.
 - f. Pressure gages, thermometers and flow meters in strategic areas for verifying system performance and ongoing O&M. Pressure and temperature (P/T) plugs at less critical areas or on smaller equipment where gages and thermometers would be over-kill.
 - g. Specification for the location and criteria for the location of critical sensors (i.e. VAV duct static pressure sensor and chilled water differential pressure sensor).
 - h. Adequate balancing valves, flow metering and control stations and control system functions to facilitate and verify reliable test and balance.
 - i. Uniform inlet connection requirements to VAV terminal boxes.
 - j. Review entire document and building information management plan from design through construction and turnover to ensure adequacy and compliance with the owner's program.
 3. Specification Review:
 - a. General Review: Identify unnecessary sections; manufacturer basis of design verified; no use of "or equal"; specification directions are clear and concise
 - b. Control Systems and Strategies Documentation:
 - 1) Clear and concise sequences of operations, Sufficient monitoring points in the building automation system (BAS) , even beyond that necessary to control the systems, to facilitate performance verification and O&M, Adequate trending and reporting features in the BAS.
 - c. Operation & Maintenance:
 - 1) Review maintenance requirements for effects of specified systems and layout toward facilitating O&M (equipment accessibility, system control, etc.).
 - 2) Review operation and maintenance documentation to verify that building O&M plan and documentation requirements specified are adequate.
 - d. Training Documentation:
 - 1) Review training requirements to verify that operator training requirements specified are adequate.
 - e. Commissioning Facilitation:
 - 1) Verify that bid documents adequately specify building commissioning and that there are adequate monitoring and control points specified to facilitate commissioning and O&M (trending capabilities, test ports, control points, gages and thermometers).
 - 2) Input regarding making the building easier to commission

CONSTRUCTION PHASE COMMISSIONING RESPONSIBILITIES

- A. Commissioning Provider Firm (CxPF): The CxPF Responsibilities include, but are not limited to:
1. General Tasks:
 - a. Coordinate, schedule and manage the commissioning activities.
 - b. Assist the Contractor to coordinate all Sub Contractor commissioning activities.
 - c. Obtain, assemble and submit commissioning documentation.
 - d. Attend periodic on-site commissioning activities
 2. Commissioning Documentation Development Tasks:
 - a. Develop the commissioning plan and schedule.
 - b. Develop detailed pre-functional check lists
 - c. Develop detailed functional performance test procedures.
 - d. Coordinate locations of test ports required for Commissioning on P&ID's, shop drawings and during installation.
 - e. Conduct and coordinate the installation verification inspections with the Engineer, AE, CME and Owner Construction Observers.
 - f. Prepare and submit the Commissioning Reports.
 3. Pre-Functional Testing Tasks:
 - a. Assist and witness portions of the start-up activities and pre-functional testing.
 - b. Monitor the performance of a statistically representative portion of the Test, Adjust and Balance contractor activities.
 4. Functional Performance Testing Tasks:
 - a. Direct the functional performance testing. Provide testing of all systems to provide complete confidence in the systems. The tests will include the interaction between individual components, sub-systems and complete building systems under both normal and emergency power conditions.
 - b. Ensure that necessary test instrumentation is available during functional performance testing and instruments meet quality and calibration requirements and are in good working order.
 - c. Enforce system compliance and recommend modifications to the system design that will correct or enhance the system performance.
 - d. Coordinate witnessing of the tests.
 - e. Track commissioning deficiencies until correction and retesting are successfully completed. Assist the Commissioning Team in determining the cause of failure.
- B. Owner:
1. Commissioning procedures and results will be observed by the Owner's designated witnesses.
 2. The Contractor is expected to verify the functional readiness of systems to be tested prior to performing the tests in the presence of the witnesses.
- C. Architect Engineering Firm (A/E)
1. Attend the commissioning scope meeting and selected commissioning team meetings.
 2. Coordinate resolution of system deficiencies (which are related to possible design deficiencies) identified during commissioning, according to the contract documents.
 3. Provide any design narrative and sequences documentation requested by the CxPF. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
 4. The Design Engineer shall be responsible for the observations and checklists for the Installation Verification.
 5. Additional calculation and investigation of design adjustments needs by the Engineers as defined by the Commissioning Provider.
 6. Participate in the resolution of potential design concerns as discovered during the commissioning process.
- D. General Contractor (GC)
1. Facilitate the coordination of the commissioning work by the CxPF, and ensure that commissioning activities are being scheduled into the project's master CPM schedule.
 2. Include the cost of commissioning in the total contract price.
 3. In each purchase order or subcontract written, include requirements for submittal data, O&M data, commissioning tasks and training.
 4. Ensure that all Subcontractors execute their commissioning responsibilities according to the Contract Documents and commissioning plan and schedule.
 5. A representative shall attend a commissioning scope meeting scheduled by the CxPF and other necessary meetings scheduled by the CxPF to facilitate the Cx process.

6. Coordinate the activities of all contractor, subcontractor and vendor personnel, required to complete training of Owner personnel in accordance with the requirements of the Specifications and the Training Agenda.
 7. Prepare and submit the O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.
- E. Division 15 And Division 16 Contractors
1. Under the direction of the GC, the Division 15 and Division 16 Contractors shall provide the services outlined in this paragraph.
 - a. Cooperate with the CxPF to complete commissioning activities.
 - b. Include the cost of commissioning by the GC in the total subcontract price.
 - c. The Contractor shall be responsible for the Pre-functional Testing, a start-up procedure performed prior to balancing as defined in Part 2 of this specification.
 - d. The Contractor shall be responsible for providing any technical personnel required for physical operation, testing, and simulation of control sequences for each piece of controlled equipment as required by the Commissioning Provider during the Functional Performance Testing. This shall include chiller service personnel, boiler service personnel, the temperature control engineering and technical startup crew, mechanical contracting service personnel for miscellaneous mechanical equipment, and balancing contractor personnel. To the extent possible, these personnel will be scheduled.
 - e. Additional calibration and adjustment of the mechanical equipment included in each mechanical system for proper operation under actual operation as defined by the Commissioning Provider.
 - f. Additional testing, calibration, adjustment, tuning, and minor adjustments to the temperature controls system sequences for proper operation under actual operation as defined by the Commissioning Provider.
 - g. Additional testing, calibration and adjustment of the mechanical water and air flows of each mechanical system for proper operation under actual operation as defined by the Commissioning Provider.
 - h. Review final construction phase commissioning plan procedures for equipment installed, training and functional testing required under the particular subcontract.
 - i. Provide training services as required

CONSTRUCTION PHASE COMMISSIONING SUBMITTALS

- F. Commissioning Plan – Construction Phase: Within 60 calendar days of notice to proceed, submit a preliminary construction phase commissioning plan to identify how commissioning activities will be integrated into general construction and trade activities. The plan is the key means for the CxPF to inform all parties as to how each system functions, independently and with respect to other systems. The plan shall be updated regularly and redistributed to the commissioning team for review and comment. The intent of this plan is to evoke questions, expose issues, and resolve them with input from the entire commissioning team early in construction. The commissioning plan shall identify how commissioning responsibilities are distributed. Include the following sections:
1. Executive Summary: Provide a description of the Commissioning Manual
 2. Commissioning Team: Provide a listing of all commissioning team members including the names, addresses, and office/fax/cell phones number or the owner, Commissioning Provider, architect, mechanical engineer, electrical engineer, general contractor, mechanical contractor, electrical contractor, controls contractor, fire alarm system contractor and test & balance contractor.
 3. System Overview: Provide a listing of design weather data, design parameters and all mechanical and electrical systems equipment data for the commissioned systems.
 4. Overview of Testing Program Procedures: Provide a detailed description of the testing plan and procedures that will be implemented during the commissioning process.
 5. Record Document - Sequences of Operation: Provide a detailed sequence of operation that is utilized for testing purposes. The final commissioning report shall describe any modifications to the engineer specified sequences of operation.
 6. Pre-Functional Testing Checklists: Provide prefunctional testing checklist forms to the contracting team for each individual piece of mechanical equipment. The forms shall describe all events required to fully start-up a piece of equipment.
 7. Functional Testing Procedures & Data Forms: Provide complete and detailed functional performance testing procedures required to fully test the entire system including the following:
 - a. Operational description: This shall include, for example, the design criteria, design intent/basis of design, code requirements, specifics of the equipment to be provided, sequences of operation, operating priorities, protocols, etc. Some of these items will be provided to the CxPF with the construction package and may be copied or referenced.
 - b. Each procedure shall have a unique alphanumeric designator consisting of the applicable functional performance test procedure designator followed by a dash digit suffix to distinguish multiple repetitions of the same procedure.
 - c. The same procedure may be applied to multiple identical pieces of equipment or systems.

- d. Identify the value for all setpoints and inputs, positions of adjustable devices, valves, dampers, and switches.
 - e. FPT procedures shall be a series of detailed test events, written with sufficient step-by-step information to allow a test to be repeated under identical conditions with repeatable results.
 - f. For each event, identify the range of acceptable results.
 - g. Include space to record: Description of the procedure; whether the form is for a retest of a failed procedure; identification and location of the equipment being tested; identification of instrumentation used by serial number; observed conditions at each step of the procedure; acceptable results as specified elsewhere; date of the test; names of technicians performing the procedure; name and signature of the CxPF
8. Provide samples of commissioning forms including:
- a. Deficiencies and Issues Log: Provide a sample functional performance test deficiency report form. Include space to record: Associated functional performance test data form number; date of test; name of person reporting the deficiency; description of the observations associated with the failure of the test; cause of the failure, if apparent at the time of the test; date and description of corrective action taken; name and signature of person taking corrective action; and schedule for retest.
 - b. Daily Log: Provide a blank log as an example.
 - c. Meeting Minutes: Provide a blank log as an example.
9. Commissioning schedule: Submit within 90 calendar days of notice to proceed.

SCHEDULE

- A. Commissioning schedule: Integrate functional performance testing and commissioning requirements into the Critical Path Method (CPM) master construction schedule. Commissioning scheduling is the responsibility of the Contractor.
- 1. Prior to the beginning of start-up or functional performance testing activities, update the schedule of commissioning activities monthly.
 - 2. Two weeks prior to the beginning of start-up or functional performance testing activities, provide a detailed two-week look-ahead schedule. Thereafter, update the two-week look-ahead schedule weekly for the duration of commissioning for that construction phase. The two-week look-ahead schedule shall identify the date, time, beginning location, contractor personnel required, and anticipated duration for each startup or test activity.
- B. Commissioning of systems shall proceed per the criteria established in the specific sections that follow, with activities to be performed on a timely basis. Commissioning of systems may proceed prior to final completion of systems. The CxPF must be available to respond promptly to avoid delay to the CPM schedule.
- C. Problems observed shall be addressed immediately, in terms of notification to responsible parties and actions to correct deficiencies.

COMMISSIONING MEETINGS

- A. Scope Meeting: Early in the construction process, a commissioning scoping meeting involving all members of the commissioning team shall be held at a time and place designated by the Owner. The purpose of the meeting will be to familiarize all parties with the requirements of the commissioning process, and to ensure that the responsibilities of each party are clearly understood.
- B. Progress Meetings:
- 1. Prior to the beginning of start-up or functional performance testing activities, the CxPF will hold commissioning meetings at least monthly. These meetings may be held concurrently with the general construction meetings.
 - 2. Beginning two weeks prior to the commencement of start-up or functional performance testing activities, whichever is earlier, the CxPF will hold commissioning meetings at least weekly. Thereafter, and for the duration of commissioning for that construction phase, commissioning meetings will continue to be held at least weekly. These meetings may be held concurrently with the general construction meetings.
- C. The CxPF may require additional meetings if the commissioning process appears to be behind schedule or if there are coordination problems. If so, the CxPF shall advise the Owner who shall in turn, direct the Contractor compliance.

TEST EQUIPMENT

- A. The Division contractor for the equipment tested provides all standard or proprietary testing equipment required to perform startup and initial checkout and required functional performance testing. For example, the mechanical contractor of Division 15 is ultimately responsible for all standard or proprietary testing equipment for the Facility Controls System (FCS) in Division 15, except for equipment specific to and used by TAB in their commissioning responsibilities. The Division contractor provides two-way radios.

- B. Include special or proprietary equipment, tools, software and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents in the base bid price to the Contractor and left on site, except for stand-alone data logging equipment used by the CxPF.
- C. The CxPF will provide data logging equipment, sensors, and software required to test equipment that is not monitored or controlled by the FCS.
- D. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the Contract Documents. If not otherwise noted, the following minimum requirements apply:
 - 1. Temperature sensors and digital thermometers shall have a certified calibration within the past year to an accuracy of 0.5°F and a resolution of + or - 0.1°F.
 - 2. Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year.
- E. Calibrate all equipment according to the manufacturer's recommended intervals and when dropped or damaged. Affix calibration tags or have certificates readily available.

COMMISSIONING REPORTS

- A. Documentation - General:
 - 1. The Commissioning Provider shall record and maintain detailed testing data. The data record shall be comprehensive and concise.
 - 2. All data must be recorded as soon as possible during the course of the testing.
 - 3. All documentation shall have the date, time, and names of persons participating in the inspection and testing.
 - 4. All test instruments shall be documented for valid calibration.
 - 5. The recording work sheets, inspection check lists, and performance testing plans must all be approved by the Engineer and Commissioning Provider prior to the start of Functional Performance Testing.
- B. Daily Commissioning Report Logs:
 - 1. The Commissioning Provider shall provide daily report logs to be included in the final report.
 - 2. The daily logs shall record the Commissioning Provider personnel and event summaries of meetings, conversations, tests, failures, solutions, procedures and successes.
- C. Installation verification audit: Prior to start-up, the CxPF shall maintain a report of installation verification audit activities. Identify equipment and components verified, deficiencies noted, corrective action taken, and the dates and initials of the persons making the entries.
- D. Start-up deficiency report: Within five days following start-up of each system or equipment, the CxPF shall maintain start-up deficiency report forms. Identify systems and/or equipment started up, deficiencies noted, corrective action taken, and the dates and initials of the persons making the entries.
- E. Test, adjust and balance (TAB) progress reports: After TAB activities have begun, the TAB shall submit weekly TAB progress reports to the CxPF. Identify:
 - 1. Systems or subsystems for which preliminary balancing is complete.
 - 2. Systems or subsystems for which final balancing is complete.
 - 3. Status of deficiencies and balancing problems encountered, including corrective actions taken.
 - 4. Updated schedule of remaining TAB activities.
- F. Deficiencies and Issues Report: At the end of each day, in which functional performance tests are conducted, the CxPF shall maintain a deficiencies and Issues (D&I) log for tests for which acceptable results were not achieved during the day.
 - 1. Identify tests for which acceptable results were not obtained by test number and description, and equipment identification and location. Briefly describe observations about the performance that was associated with failure to achieve acceptable results. Identify the cause of failure if such is apparent.
 - 2. When corrections have been completed, the CxPF shall update the functional performance test deficiency report forms. Identify corrective action taken and the dates and initials of the persons making the entries.
 - 3. Identify the schedule for re-testing.
- G. Final Commissioning Report: The CxPF shall prepare and submit a final report with the closeout package. The binding format shall be 8 ½ x 11 bound documents with 11 x 17 fold out. This report shall contain:
 - 1. The report shall verify performance of HVAC equipment and systems.
 - 2. Document any field modifications to the testing process and why these modifications were made.
 - 3. The organization of the final commissioning report shall be as follows:
 - a. Executive Summary of each mechanical system and problems encountered and resolved.
 - b. System Overview summarizing the system design.
 - c. Commissioning Plan
 - d. Post Commissioned Controls Sequences and Points Lists.
 - e. Prefunctional Testing Checklists

- f. Functional Testing Procedures and Results
 - g. Deficiencies and Issues Logs
 - h. Daily report logs.
 - i. Appendix of letters, meeting minutes, memos, photos, and notes occurring during the commissioning process.
- H. Hardcopy and Electronic Versions:
 - 1. The Commissioning Plan provided prior to the on-site commissioning and the Final Commissioning Report provided at the conclusion shall be provided in hard copy (2 copies) and electronic on CD (6 copies).
 - 2. The Commissioning Plan CD shall include files developed in the most current MS Word format.
 - 3. The Final Commissioning Report CD shall contain scanned copies of all documentation developed and gathered during the Commissioning Process in Acrobat PDF format.

COMMISSIONING PROCEDURE

- A. Sequence of testing: Commissioning shall proceed from lower to higher levels of complexity. For each discrete subsystem or system, testing at the lower level shall be completed prior to starting the next higher level of tests. In general, the order of testing from lowest to highest is:
 - 1. Static tests (such as duct leakage tests).
 - 2. Component functional performance tests (of motors, actuators, sensors, etc.) and start-up.
 - 3. Balancing.
 - 4. System functional performance tests.
 - 5. Intersystem functional performance tests.
- B. Re-testing: The Contractor shall repeat, at no additional cost to Owner, the complete functional test procedure for each test for which acceptable results are not achieved. Repeat tests until acceptable results are achieved. The CxPF shall track commissioning deficiencies until correction. Within each system, the CxPF shall provide one re-commissioning for any deficiencies. For systems with large quantities of identical equipment, a statistical re-commissioning strategy shall be applied to retest 30% of the deficiencies. The tested systems will not be witnessed by the Owner until acceptable results are achieved, documented, reviewed and accepted. Additional testing beyond a single failure may be subject to back-charges by the CxPF.
- C. Correction of deficiencies:
 - 1. Correct functional performance test deficiencies promptly and schedule retest.
 - 2. Corrections during functional performance tests are generally prohibited to avoid consuming the time of personnel waiting for the test, but not involved in making the correction. Exceptions will be allowed if the cause of the failure is obvious and corrective action can be completed in less than five minutes. If corrections are made under this exception, the failure shall be noted on the functional performance test data form. A new functional performance test data form, marked "retest", shall be initiated after the correction has been made. The entire functional performance test procedure shall be repeated.
- D. Delegated witnesses: Witnesses may be designated by the Owner or A/E to observe the commissioning process. Witnesses shall provide no labor or materials in the commissioning process. The only function of the witnesses shall be to observe and comment on the progress and results of commissioning.

OPERATIONS AND MAINTENANCE (O&M) MANUALS

- A. Assist the Contractor in reviewing the O&M manuals prepared by other divisions of the work related to commissioning for compliance with the requirements of Division 1.
 - 1. Incorporate the standard technical literature into a systems-specific document: concise, to the point, and above all, tailored specifically to this facility.
 - 2. Obtain the equipment manufacturer's standard technical literature relevant to the operation and maintenance of the provided equipment. The literature shall be specifically oriented to the equipment provided, indicating all operation and maintenance procedures, parts lists, assembly/disassembly diagrams, and related information. Wiring diagrams must be complete and specific to the equipment provided.
- B. Have all of these materials available for the training sessions.

INSTALLATION VERIFICATION

- A. During construction, assist the Contractor and coordinate the AE's observation the work of the Contractor and subcontractors to ensure that all installations are being made in accordance with the intent of the contract documents.
- B. Before system start-up begins, coordinate and attend a final installation verification audit with the AE. The audit shall include, but not be limited to, a check of:

1. Piping specialties including balance, control, and isolation valves.
 2. Ductwork specialty items including turning devices; balance, fire, smoke, and control dampers; and access doors.
 3. Control sensor types and locations.
 4. Identification of piping, valves, starters, gauges, thermometers, etc.
 5. Documentation of pre-start-up tests performed, including manufacturers' factory tests.
 6. Accessibility to equipment in 1-3 above.
- C. If any work is found to be incomplete, inaccessible, incorrect, or non-functional, make note of deficiencies and correct the deficiencies before system start-up work proceeds.

SYSTEM START-UP

- A. Assist the Contractor in the development a start-up plan and deficiency list. Commence with system start-up after approval has been given to the start-up plan and the pre-functional checklists have been signed off by the Contractor and subcontractors. The CxPF and/or delegated representative shall witness system start-up and list all system and equipment deficiencies noted during start-up. The Contractor shall take corrective action on all system deficiencies noted and demonstrate suitable system operation to the CxPF.
- B. Prepare start-up deficiency list forms to report deficiencies discovered in conjunction with system start-up. Start-up deficiency forms shall indicate the system being started up; the location and identification of the deficient equipment/material; date of observation; initials of the observer; observed deficiency; date of correction; initials of person making the correction; and corrective action taken.
- C. Issue start-up deficiency report forms to the Contractor for corrective action. The Contractor shall advise the CxPF when all start-up deficiency list items have been corrected.

TEST, ADJUST, AND BALANCE (TAB)

- A. Assist the Contractor in the coordination the air and hydronic balancing. Advise the TAB firm when systems are complete and ready for balancing. Start TAB as early as possible following systems start-ups and component functional performance tests, in order to be essentially complete prior to system functional performance tests. Coordinate TAB activities with other construction schedule activities.
- B. Verify the accuracy of the TAB work prior to commencing any FPT activities that may be adversely affected by improper balancing.
- C. Spot check 10% (or as specified in the scope of work) of the TAB measured flows for all air and water flows. This may be accomplished by physically measuring those flows independently of the TAB or witnessing the TAB contractors measurement of the required quantity.

FUNCTIONAL PERFORMANCE TEST PROCEDURES

- A. The CxPF shall develop as a part of the construction phase commissioning plan submittal, the functional performance test (FPT) commissioning procedures and documentation to be used. Personnel experienced in the technical aspects of each system to be commissioned shall be enlarged if necessary to augment the expertise of the CxPF. Include functional performance test procedures and functional performance test data sheets for each system based upon actual system configuration. Emphasis shall be placed on testing procedures that will conclusively determine actual system performance and compliance with the design.
 1. The test procedures shall fully describe system configuration and steps required for each test, appropriately documented so that another party can repeat the tests with virtually identical results.
- B. The FPT procedures must confirm the performance of systems to the extent of the design intent/basis of design and applicable code under which the project was permitted. When a system is accepted, the Owner and A/E must be assured that the system is complete, works as intended, is correctly documented, and that the designated Owner staff is trained in the operation and maintenance of the system.
- C. The majority of mechanical equipment requires integral safety devices to stop/prevent equipment operation unless minimum safety standards or conditions are met. This could include adequate oil pressure, proof-of-flow, non-freezing conditions, maximum head pressure, etc. Functional performance test procedures shall demonstrate the actual performance of safety shutoffs in real or closely simulated conditions of failure.
- D. Systems may include safety devices and components that control a variety of equipment operating as a system. Interlocks may be hard-wired or installed via software. Functional performance test procedures shall demonstrate these interlocks.
- E. The CxPF shall inform appropriate subcontractors and vendors before commissioning is started as to what the test and expected results will be. Whereas some test results and interpretations may not become evident until the actual tests are performed, all participants should have a reasonable understanding of the requirements. The commissioning plan must address the requirements and be distributed to all participants involved with that particular system.

REVIEW SOFTWARE DOCUMENTATION

- A. The CxPF shall review vendor/contractor/Owner-provided detailed FCS software documentation. This includes obtaining FCS program documentation, a review of the programming approach, interface with other systems (such as lighting, fire alarm, security, clock, emergency generator monitoring, sump pumps, and utility metering), and a review of the specific software routines as applied to this project. Discrepancies in programming approaches shall be resolved to provide Owner with the most appropriate, simple, and straightforward approach to software routines.

TRAINING

- A. Assist the Contractor in the preparation and submission a training plan for approval. The training plan shall include for each training session:
 - 1. Dates, start and finish times, and locations.
 - 2. Outline of the information to be presented.
 - 3. Names and qualifications of presenters.
 - 4. List of texts and other materials required to support training.
- B. Obtain assistance from appropriate subcontractors and vendors to provide training for the delegated Owner operations staff as specified in Divisions 15, 16, and 17.
- C. Provide edited videotaped documentation of training of the Owner staff for each system on a DVD format. Training will be in a classroom setting with the appropriate schematics, handouts, and audio/visual training aids.
- D. Catalog training DVD's and deliver to the Owner with the O&M manuals as part of the closeout package.
- E. Host each training session:
 - 1. Provide program overview and curriculum guidance.
 - 2. Obtain signatures of attendees on a sign-in list.
- F. Equipment vendors provide training on the specifics of each system and philosophy, troubleshooting, maintenance recommendations and repair techniques as specified in the relevant sections of this specification.
- G. Installation subcontractors provide training on peculiarities specific to this project and job-specific experience as specified in the relevant sections of this specification.

SYSTEMS CONCEPTS MANUAL

- A. Organize and deliver a Systems Manual that includes O&M information that is organized by system rather than specification section.
- B. Systems included:
 - 1. Chilled Water System
 - 2. Heating Water System
 - 3. Air Handling Systems (broken out by area)
 - 4. Exhaust Systems
 - 5. Terminal Unit Systems
 - 6. Plumbing Systems
 - 7. Life Safety Systems
 - 8. Emergency Power Systems
 - 9. Lighting Control Systems
- C. Information to include for each system:
 - 1. Include only information and data that is pertinent to the installed and commissioned systems.
 - 2. O&M performance and submittal data.
 - 3. Final version of the owner's project requirements and basis of design.
 - 4. As-built sequences of operations for all equipment as provided by the design professionals and contractors including, point to point control diagrams, schematic diagrams, software code & flow diagrams, time-of-day schedules and schedule frequency, and detailed point listings with ranges, PID parameters, and initial setpoints.
 - 5. Ongoing operating instructions for all energy- and water-saving features and strategies.
 - 6. Functional performance tests results (benchmarks), blank test forms, and recommended schedule for ongoing benchmarking. Seasonal operational guidelines.
 - 7. Recommendations for recalibration frequency of sensors and actuators by type and use. Single line diagrams of each commissioned system.
 - 8. Troubleshooting table for ongoing achievement of the owner's project requirements.
 - 9. Guidelines for continuous maintenance of the owner's project requirements (operational requirements) and basis of design (basis of operation).

The Consultant agrees to include in all its subcontracts related to the Project, and require the same of all sub-subconsultant contracts at all tiers, the provisions of this Agreement related to the City's and Consultant's rights (including copyright), ownership and uses of the concepts, designs, documents, intellectual property, and tangible property.

Should any portions of the Project contain works provided protection under the Visual Artists Rights Act of 1990 ("VARA"), the Consultant and his subconsultants at all tiers agree to waive and do hereby waive voluntarily all rights to attribution and integrity with respect to any and all claims as may arise under VARA, Nevada Revised Statutes "Works of Art" NRS 597, or any other local, state, foreign, or international law, as currently drafted or as may be hereafter amended, that conveys the same or similar moral rights with respect to any or all portions of the Project, including but not limited to display, removal from display, exhibition, installation, restoration, conservation, storage, study, alteration, destruction, relocation, and any other activities conducted by the City, its officers, employees, agents, contractors, licensees, successors or assigns. The Consultant acknowledges that all such decisions concerning the Project shall be made in the sole discretion of the City, its officers, employees, agents, contractors, licensees, successors or assigns. In addition to the extent such rights may not be waived, Consultant and his subconsultants at all tiers covenant not to assert such rights against the City, its officers, employees, agents, contractors, licensees, successors or assigns.

END OF EXHIBIT "A"

EXHIBIT "B"

REQUIRED SUBMITTALS

The Required Submittals for this Agreement shall be as set forth in each subsequently executed Project Task Order, the format of which is attached hereto as Exhibit "H".

Throughout the course of each Project Task Order, the Consultant shall brief the City Representative on a regular and frequent basis about the progress of the Project. Unless specified otherwise in the Project Task Order, briefings shall occur no less frequently than monthly and shall accompany invoices for payment. The briefings shall be a written report and shall include the following as appropriate to the Project: the status of and impacts to the Project schedule, milestones, budget, land acquisitions, right of way dedications, easements, utility and regulatory agency review status, all Project activity since the last report, current issues, and a forecast of upcoming activity.

All reports shall be on acid-free white paper, 8-1/2 x 11 inches, suitable for photocopying and bound in booklet form.

It is understood that the City may make and distribute copies of the reports as necessary in connection with the Project without incurring obligation for additional compensation.

END OF EXHIBIT "B"

EXHIBIT "C"

PERFORMANCE SCHEDULE

The Performance Schedule for this Agreement shall be as set forth in each executed Project Task Order, the format of which is attached hereto as Exhibit "H".

END OF EXHIBIT "C"

EXHIBIT "D"

FEE BREAKDOWN

The Fee Breakdown for this Agreement shall be as set forth in each executed Project Task Order, the format of which is attached hereto as Exhibit "H".

END OF EXHIBIT "D"

EXHIBIT "E"

ADDITIONAL COMPENSATION

CONSULTANT HOURLY RATES

The following hourly rates are to be used as the basis for negotiation of added and reduced services. These hourly rates are valid for the duration of the Project and include salary costs, overhead, administration and profit. The overhead included in these rates covers all support personnel who normally work on non-specific project tasks including but not limited to receptionists, senior executives together with their assistants, financial accounting personnel, and facility, equipment, and IT maintenance personnel.

CLASSIFICATION	RATE	UNIT
Commissioning Professional	\$165.00	Per Hour
Operations Manager/Engineer	\$140.00	Per Hour
Project Manager	\$130.00	Per Hour
Commissioning Specialist	\$130.00	Per Hour
Commissioning Technician	\$125.00	Per Hour
Administrative/Clerical	\$75.00	Per Hour

ADDITIONAL SERVICES

The cost of the following potential future Additional Services have been negotiated as of the date of this Agreement.

ADDITIONAL SERVICE	SUBMITTALS	SCHEDULE IMPACT	FIXED FEE
None authorized or anticipated as of the date of this Agreement.			\$0
			\$0
			\$0

These fees are valid for the duration of the Project and include salary costs, equipment, overhead, administration and profit. For Additional Services of sub-consultants, the City shall compensate the Consultant a multiple of **one and one tenth (1.10)** times the amounts billed to the Consultant for such services, which multiple has been included in the Additional Services fees shown herein.

Any additional services defined in attachment Exhibit H, Project Task Order per project.

REIMBURSABLE EXPENSES

The following Reimbursable Expenses are allowed:

REIMBURSABLE EXPENSE
None authorized or anticipated as of the date of this Agreement.

For Reimbursable Expenses of the Consultant, the City shall compensate the Consultant a multiple of **one and one tenth (1.10)** times the actual direct costs incurred by the Consultant. The multiplier includes all compensation for overhead and profit.

Reimbursable Expenses are limited to specific pre-authorized items or services purchased from third parties to this Agreement, dedicated to only this Project. Additions to the above allowed Reimbursable Expenses may only be granted as a written amendment to this Agreement.

Any reimbursable expenses defined in attachment Exhibit H, Project Task Order per project.

END OF EXHIBIT "E"

EXHIBIT "F"

KEY PERSONNEL LIST

CITY PERSONNEL

CITY REPRESENTATIVE for this Blanket Agreement: **Samuel D. Tolman AIA Architectural Project Manager**

CITY REPRESENTATIVE for each subsequent Project Task Order: As stated in each Project Task Order.

CONSULTANT'S PROJECT STAFF

Unless stated otherwise in the Project Task Order, the following personnel will be assigned by the Consultant to work on the subsequent Project Task Order work. Any changes require City approval.

COMMISSIONING PROFESSIONAL:	Tracy Floyd, CBCP
OPERATIONS MANAGER/ENGINEER:	Joey Ficklen, Carl Salas, P.E.
PROJECT MANAGER:	Carl Martin, Syd Ervin
COMMISSIONING SPECIALIST:	Mike Winburn
COMMISSIONING TECHNICIAN:	Debora Martin, Catrina Grayson, Chris Grayson
ADMINISTRATIVE/CLERICAL:	Lorie Bartlett, Patsy Ervin

CONSULTANT'S SUBCONSULTANTS

Unless stated otherwise in the Project Task Order, the following subconsultants will be contracted with and utilized by the Consultant to work on the Project. Any changes require City approval.

None.

END OF EXHIBIT "F"

EXHIBIT "G"

CERTIFICATE DISCLOSURE NOT REQUIRED - FEE IS \$25,000 OR LESS

1. Definitions

"City" means the City of Las Vegas.

"City Council" means the governing body of the City of Las Vegas.

"Contracting Entity" means the individual, partnership, or corporation seeking to enter into a contract or agreement with the City of Las Vegas.

"Principal" means, for each type of business organization, the following: (a) sole proprietorship – the owner of the business; (b) corporation – the directors and officers of the corporation; but not any branch managers of offices which are a part of the corporation; (c) partnership – the general partner and limited partners; (d) limited liability company – the managing member as well as all the other members.

2. Policy

In accordance with Resolution 79-99 and 105-99 adopted by the City Council, Contracting Entities seeking to enter into certain contracts or agreements with the City of Las Vegas must disclose information regarding ownership interests and principals. Such disclosure generally is required in conjunction with a Request for Proposals (RFP). In other cases, such disclosure must be made prior to the execution of a contract or agreement.

3. Instructions

The disclosure required by the Resolutions referenced above shall be made through the completion and execution of this Certificate. The Contracting Entity shall complete Block 1, Block 2, and Block 3. The Contracting Entity shall complete either Block 4 or its alternate in Block 5. Specific information, which must be provided, is highlighted. An Officer or other official authorized to contractually bind the Contracting Entity shall sign and date the Certificate, and such signing shall be notarized.

4. Incorporation

This Certificate shall be incorporated into the resulting contract or agreement, if any, between the City and the Contracting Entity. Upon execution of such contract or agreement, the Contracting Entity is under a continuing obligation to notify the City in writing of any material changes to the information in this Certificate. This notification shall be made within fifteen (15) days of the change. Failure to notify the City of any material change may result, at the option of the City, in a default termination (in whole or in part) of the contract or agreement, and/or a withholding of payments due the Contracting Entity.

Block 1	<u>Contracting Entity</u>
Name	Las Vegas Building Commissioning, LLC
Address	P.O. Box 60954 Boulder City, NV 89006
Telephone	702-294-0036 Office 702-294-0039 Fax
EIN or DUNS	20-8606192

Block 2	<u>Description</u>
Subject Matter of Contract/Agreement:	Commissioning and LEED Services
RFP #:	

Block 3	<u>Type of Business</u>
☐ Individual	☐ Partnership
☒ Limited Liability Company	☐ Corporation

CERTIFICATE – DISCLOSURE OF OWNERSHIP/PRINCIPALS
(CONTINUED)

Block 4		Disclosure of Ownership and Principals	
In the space below, the Contracting Entity must disclose all principals (including partners) of the Contracting Entity, as well as persons or entities holding more than one-percent (1%) ownership interest in the Contracting Entity.			
	FULL NAME/TITLE	BUSINESS ADDRESS	BUSINESS PHONE
1.	Tracy Floyd	899 Adams Blvd Suite B Boulder City, NV P.O. Box 60954 Boulder City, NV 89006	702-294-0036
2.	Christine Grayson	899 Adams Blvd Suite B Boulder City, NV P.O. Box 60954 Boulder City, NV 89006	702-294-0036
3.	Catrina Grayson	899 Adams Blvd Suite B Boulder City, NV P.O. Box 60954 Boulder City, NV 89006	702-294-0036
4.	Syd Ervin	899 Adams Blvd Suite B Boulder City, NV P.O. Box 60954 Boulder City, NV 89006	702-294-0036
5.	Patsy Ervin	899 Adams Blvd Suite B Boulder City, NV P.O. Box 60954 Boulder City, NV 89006	702-294-0036
6.			
7.			
8.			
9.			
10.			

The Contracting Entity shall continue the above list on a sheet of paper entitled "Disclosure of Principals – Continuation" until full and complete disclosure is made. If continuation sheets are attached, please indicate the number of sheets: N/A

Block 5		Disclosure of Ownership and Principals - Alternate	
If the Contracting Entity, or its principals or partners, are required to provide disclosure (of persons or entities holding an ownership interest) under federal law (such as disclosure required by the Securities and Exchange Commission or the Employee Retirement Income Act), a copy of such disclosure may be attached to this Certificate in lieu of providing the information set forth in Block 4 above. A description of such disclosure documents must be included below.			
Name of Attached Document:		<u>N/A</u>	
Date of Attached Document:		Number of Pages: <u> </u>	

I certify, under penalty of perjury, that all the information provided in this Certificate is current, complete, and accurate. I further certify that I am an individual authorized to contractually bind the above named Contracting Entity.

State of Nevada
County of Clark

[Signature]
9-4-2009

Name

Date

Subscribed and sworn to before me this 4 day of

September, 2009.

[Signature]
Notary Public

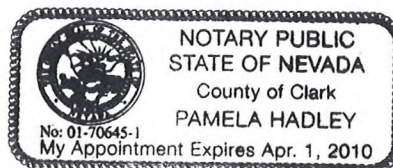


EXHIBIT "H"

PROJECT TASK ORDER

Number H- ____

Blanket Agreement Project Name:
Blanket Agreement Date:
Blanket Agreement Maximum Not-to-Exceed Fee:
Total Aggregate Fee Commitments prior to this Task Order:
Consultant's Business Name:

Whereas the City and Consultant have signed a Blanket Agreement for the Consultant to provide professional services described in the Agreement for the above named project(s), containing a not-to-exceed maximum aggregate fee that has not been fully utilized, and the City desires to utilize the Blanket Agreement to provide services for the following particular specific Project:

Project Name:
Location:
Description:
Construction Cost Budget:

The parties do hereby agree to the follow terms and conditions for this Project Task Order:

Section A - Scope of Services:

Section B – Required Submittals:

Section C – Performance Schedule:

Section D – Fee Breakdown:

Section E – Additional Compensation:

Section F – Key Personnel List:

Section G – Disclosure:

Upon execution hereof, this Project Task Order shall be attached to the Blanket Agreement.

Dated this _____ day of _____, _____.

By: _____
Consultant

By: _____
City