GLENDALE
COMMUNITY COLLEGE

Request for Qualifications & Proposals (RFQ-P)

GCC-007 Commissioning Agent (CxA)

INSTRUCTIONAL BUILDING & CONFERENCE CENTER (IBCC)

Issue Date: **Friday, June 5, 2026**

Due Date: Wednesday, June 24, 2026

Measure GCC Program Management Office

1500 North Verdugo Road
Glendale, CA 91208

gafcon
A GISI Consulting Group Company

GLENDALE COMMUNITY COLLEGE DISTRICT ("District"), acting through its Governing Board, is seeking Proposals from Building Commissioning firms (Consultant) to provide COMMISSIONING SERVICES for the **INSTRUCTIONAL BUILDING & CONFERENCE CENTER.**

Project Address: 1500 N Verdugo Road, Glendale, CA 91208

1. Request for Qualifications/Proposals.

1.1. General.

1.1.1. Purpose of RFQ/P. This RFQ/P is a part of the process for the District's selection and retention of a Commissioning Agent (CxA) to perform commissioning services for the Project: **INSTRUCTIONAL BUILDING & CONFERENCE CENTER**. Timely submitted RFQ/P Responses will be evaluated by the District in accordance with the criteria established in this RFQ/P. One or more Respondents may be requested to interview with the District as part of the process for the District's selection and retention of a CxA for the Project.

1.1.2. Obtaining RFQ/P. This RFQ/P may be obtained from the District **Current Bids & RFPs** website or by contacting the District's Business Services Director whose contact information is noted herein. The RFQ/P is also available on the District website.

1.1.3. District RFQ/P Contacts. Questions or other communications relating to this RFQ/P shall be directed to the District's Program Management Office at:

Silva Sorkazian
Contracts & Risk Manager
Gafcon Program Management Office
Glendale Community College District
1500 North Verdugo Road, Glendale, California 91208
Phone: (818) 561-0456
SSorkazian-cp@glendale.edu
Subject: "GCC-007 IBCC CxA"

1.2. District Modifications to RFQ/P. The District expressly reserves the right to modify any portion of this RFQ/P prior to the latest date/time for submission of RFQ/P Responses, including without limitation, the cancellation of this RFQ/P. Modifications, if any, made by the District to the RFQ/P will be in writing; potential Respondents who have obtained this RFQ/P from the District prior to any such modifications will be issued modifications to the RFQ/P by written addenda.

1.3. No Oral Clarifications/Modifications. The District will not provide any oral clarifications or modifications to the RFQ/P or the requirements hereof; no employee, officer, agent or representative of the District is authorized to provide oral clarifications or modifications to the RFQ/P. No Respondent shall rely on any oral clarification or modification to the RFQ

1.4. Public Records. Except for materials deemed Trade Secrets (as defined in California Civil Code §3426.1) and materials specifically marked "Confidential" or "Proprietary" all materials submitted in response to this RFQ/P are deemed property of the District and public records upon submission to the District. The foregoing notwithstanding, the District may reject for non-responsiveness the RFQ/P Response of a Respondent who indiscriminately notes that its RFQ/P Response or portions thereof are "Trade Secret" "Confidential" or "Proprietary" and exempt from disclosure as a public record. The District is not liable or responsible for the disclosure of RFQ/P Responses, or portions thereof, deemed to be public records, including those exempt from disclosure if disclosure is required by operation of law, or by an order of a court of competent jurisdiction, or which occurs through inadvertence, mistake or negligence on the part of the District or its agents or representatives. If the District is required to defend or otherwise respond to any action or proceeding wherein request is made for the disclosure of the contents of any portion of a RFQ/P Response deemed exempt from disclosure hereunder, by submitting a response to this RFQ/P, each Respondent agrees to defend, indemnify and hold harmless the District in any action or

proceeding from and against any liability, including without limitation attorneys' fees arising therefrom. The party submitting materials sought by any other party shall be solely responsible for the cost and defense of the District in any action or proceeding seeking to compel disclosure of such materials; the District's sole involvement in any such action shall be that of a stakeholder, retaining the requested materials until otherwise ordered by a court of competent jurisdiction.

1.5. Errors/Discrepancies/Clarifications to RFQ/P. If a Respondent encounters errors or discrepancies in this RFQ/P or portions hereof, the Respondent shall immediately notify the District of such error or discrepancy. Any Respondent seeking clarification of any portion of this RFQ/P shall submit the requested clarification in writing to the District. Responses of the District to any requested clarification will be in writing; if in the sole judgment of the District, any clarification response affects the RFQ/P or other Respondents, the District will issue the clarification response by a written addendum distributed to all potential Respondents who have theretofore obtained this RFQ/P from the District. All requests for clarification of this RFQ/P must be submitted and actually received by the District no later than 2:00 PM three (3) days prior to the latest date for submission of RFQ/P Responses; the District will not respond to clarification requests submitted thereafter. All communications to the District shall be as set forth in Paragraph 1.1.3 above.

1.6. RFQ/P Response Costs. All costs and expenses incurred by a Respondent to prepare and submit a response to this RFQ/P shall be borne solely and exclusively by the Respondent.

1.7. RFQ/P Documents. In addition to this RFQ/P, the following form a part of the RFQ/P:

Attachment A	Agreement for Commissioning Services
Attachment B	Qualifications Statement
Attachment C	Pricing Proposal
Attachment D	01 91 13 GENERAL COMMISSIONING REQUIREMENTS

1.8. RFQ/P Activities; Timeline. The District anticipates that the following activities relating to the RFQ/P will be completed at the times noted below. The foregoing notwithstanding, the District reserves the right to modify RFQ/P activities and/or the time for completion of an RFQ/P activity.

REQUEST FOR QUALIFICATIONS/PROPOSALS (RFQ/P):

RFQ/P TIMELINE	GCCD
RFQ/P RELEASE	6/5/2026
REQUESTS FOR CLARIFICATION (RFC) DUE BY 2:00 PM PST	6/12/2026
FINAL ADDENDA ISSUED	6/17/2026
SOQ'S & FEE PROPOSALS DUE BY 2:00 PM PST Email to: SSORKAZIAN-CP@glendale.edu	**6/24/2026**
INVITATION TO FIRMS FOR INTERVIEWS	6/24/2026
INTERVIEWS DATES/TIMES, IF HELD **09:00 AM – 12:00 PM**	6/25-6/26
CONTRACT NEGOTIATION, AS NEEDED	6/30-7/1/2026
BOARD OF TRUSTEES MEETING AND APPROVAL	7/14/2026
ANTICIPATED NOTICE TO PROCEED DATE	7/24/2026

2. The District and the Project.

2.1. Glendale Community College District. Glendale Community College was founded in 1927 to serve the needs of the people in the Glendale Union High School District which included La Crescenta, Glendale, and Tujunga. The school was founded as Glendale Junior College and from 1927 to 1929 conducted classes in the buildings of Glendale Union High School at Broadway and Verdugo in the City of Glendale. In 1929 the junior college moved to the Harvard School plant of the Glendale Union High School District where it remained until 1937. In this year a new plant, part of the present one, was completed and occupied. The year before, in 1936, the Glendale Junior College District was dissolved as such and became a part of the new Glendale Unified School District. The name of the school was changed to Glendale College in 1944. On July 1, 1970 Glendale College became a part of the Glendale Junior College District. On April 20, 1971 the Board of Education adopted a resolution changing the District name to Glendale Community College District.

On November 3, 1980, Glendale voters approved a measure to establish separate Boards. In April 1981, the new members were added to the Board. The separation resulted in the creation of a Board of Trustees solely responsible for the governance of the Glendale Community College District. In 1936 twenty-five acres were acquired for the present site of the college. The campus now consists of 100 acres and 18 permanent buildings. It is beautifully located on the slopes of the San Rafael Mountains overlooking the valleys in the Glendale area.

2.2. The Project(s) **INSTRUCTIONAL BUILDING & CONFERENCE CENTER** projects consists of demolition and new building construction. The INSTRUCTIONAL BUILDING & CONFERENCE CENTER project has been Division of State Architect (DSA) **A# 03-121939 approved on April 25, 2023**. Project plans and specifications may be retrieved in their entirety here IBCC DSA A03-121939 Approved Plans and Specifications.

2.3. Project Description:

Glendale Community College's strong programs in the performing arts and as such the new IBCC will accommodate the current and projected need for music, dance, and electronic media instructional space in modern facilities that are equipped to support current modes of instruction.

The facility is envisioned to be a collaborative and cross-disciplinary environment that will house classrooms; laboratories and studio space for music, dance, film, television, and electronic media; performance space; and media arts. In addition, the IBCC will house a conference center that would accommodate flexible spaces for functions and events of many sizes and types. It will also provide storage space for equipment and fixtures that support College events.

The IBCC will be 74,000 GSF, located on the designated Site, achieving the programming requirements and affording the flexibility that addresses both current and future learning environmental needs.

The new IBCC will be located south of the center of campus, north of Mountain Blvd. and east of Verdugo Road. The Site currently houses the San Fernando complex of modular structures and the existing Sierra Nevada building, all of which are to be demolished as part of the project scope. Existing facilities to remain that surround the Site include the San Rafael, Vaquero Athletic Complex, Auditorium Buildings.

Authorities having jurisdiction are DSA, State Fire Marshal, and Glendale City Fire Department. The Project will consist of the demolition of the existing San Fernado Complex and Sierra Nevada buildings located on the Verdugo campus.

2.4. Delivery Method:

The project is currently soliciting a replacement design-builder to complete the work in two phases. The selected Design-Build Entity will retain the design Architect of Record, Steinberg Hart.

Phase I – Preconstruction / Validation (GMP Development Phase): This phase includes, but is not limited to, mobilization; logistics planning; temporary paths of travel; SWPPP development; program validation; constructability review; and implementation of Building Information Modeling (BIM). Phase I will also include demolition of existing structures and certification of the building pad, preparing the site for construction in Phase II. Phase I is anticipated to begin on June 15, 2026.

Phase II – Construction, Commissioning, and Closeout: This phase includes all remaining construction activities, system commissioning, and project closeout. Phase II is targeted to begin in October 2026.

The selected Commissioning Agent is expected to participate in both phases. The final construction schedule and duration will depend on the selected design-builder. For purposes of this RFP, proposers should assume a total project duration of 28 months for all phases.

3. Commissioning Services.

3.1. Commissioning Services Agreement. Attached as Attachment A to this RFQ/P is a form of Project Commissioning Services Agreement ("the CxA Agreement") which the District anticipates executing with the individual or firm selected to provide Commissioning services for the Project through this RFQ/P. The scope of Commissioning Services and other terms and conditions are set forth in the Commissioning Agreement.

3.2. Respondents' Review of Professional Services Agreement. Each Respondent shall thoroughly review the Professional Services Agreement and indicate in the Respondent's RFQ/P Response acceptance of all terms and conditions of the Agreement or requested modifications to portions of the Agreement. If a Respondent requests modification to any portion of the Agreement, the Respondent must set forth, in its RFQ/P Response, the specific modification requested. No modification to the Agreement requested by a Respondent is binding on or enforceable against the District unless the District has accepted the requested modification and such modification is incorporated into the Agreement as awarded by the District's Board of Trustees.

4. RFQ/P Response.

4.1. Submission of RFQ/P Response.

4.1.1. Latest Date/Time for Submission of RFQ/P Response. The latest date/time for submission of RFQ/P Responses is 2:00 PM, **Wednesday, June 24, 2026**. Refer to Section 1.8 "RFQ/P Activities; Timeline"

4.1.2. Location for Submission of RFQ/P Response. RFQ/P Responses shall be submitted electronically as instructed below:

Silva Sorkazian
Contracts & Risk Manager
Gafcon Program Management Office
Glendale Community College District
1500 North Verdugo Road, Glendale, California 91208
Phone: (818) 561-0456
SSorkazian-cp@glendale.edu
Subject: "GCC-007 IBCC CxA RFP"

RFQ/P Responses which are not received at the above-stated location at or prior to the latest date/time for submission of RFQ/P Responses will be rejected by the District for non-responsiveness. Respondents are solely responsible for the timely submission of RFQ/P Responses.

4.2. RFQ/P Response Format and Organization. Each RFQ/P Response must conform to the following described organizational format and must include the contents described below. Failure of a Respondent to submit its RFQ/P Response in a format and with contents conforming to the following requirements will be a basis for the District's rejection of such RFQ/P Response for non-responsiveness. This RFP has no page limit.

4.2.1. Cover Sheet. Identify the submittal as the RFQ/P Response to this RFQ/P and an identification of the firm submitting the RFQ/P Response along with the firm's address, telephone/fax numbers and email addresses of the firm's principal contacts in connection with this RFQ/P or the RFQ/P Response.

Must include the following statement: "[INSERT BUILDING COMMISIONING SERVICES COMPANY'S NAME] received a copy of the District's sample AGREEMENT FOR COMMISSIONING SERVICES ("Agreement"). [INSERT COMPANY'S NAME] has reviewed the indemnification provisions and professional liability insurance provisions contained in the Agreement. If given the opportunity to contract with the District, [INSERT COMPANY'S NAME] has no objections to the use of the Agreement."

Respondent shall certify that no official or employee of the District, nor any business entity in which an official of the District has an interest, has been employed or retained to solicit or assist in the procuring of the resulting contract(s), nor that any such person will be employed in the performance of any/all contract(s) without immediate divulgence of this fact to the District.

Respondent shall certify that no official or employee of the firm has ever been convicted of an ethics violation.

4.2.2. Letter of Interest. Include a brief letter expressing the interest of the Respondent in providing Project Commissioning Services for the Project and a brief statement of the qualifications of the Respondent to provide Project Commissioning services, including projects that have undergone DSA oversight of similar size, scope, use and complexity. Provide contact information, including the telephone number, fax number and email address for the personnel of the Respondent who will be receiving notices and other communications from the District regarding the RFQ/P. The letter of interest should be bound with other materials responding to this RFQ/P. Provide additional information such as Federal Tax I.D. Number; License or Registration Number; Type of organization/business structure (ownership, legal form, i.e. corporation, partnership, etc., and senior officials of company). A brief description and history of the firm, including number of years the firm has been in business and date firm was established under its given name. Total number of employees (licensed professionals, technical support, etc.). Location of office from which the bulk of services solicited will be managed.

4.2.3. Table of Contents. Include a Table of Contents reflecting the Respondent's responses to each of the items set forth below.

4.2.4. Statement of Qualifications. Complete the Statement of Qualifications attached as Exhibit B to this RFQ/P for the Respondent.

4.2.5. Relevant Project Experience. Provide additional details of the Projects identified in the Statement of Qualifications which reflect the skills, experience and other qualifications of the Respondent to successfully complete necessary Project Commissioning Services for the Project, including projects that have undergone DSA oversight of similar size, scope, use and complexity.

4.2.6. Insurance Certificates. Provide copies of Certificates of Insurance for the Respondent; required Certificates of Insurance and minimum coverage amounts for each policy of insurance are as set forth below.

Policy of Insurance	Minimum Coverage Amount
Workers Compensation	In accordance with law
Employers Liability	Two Million Dollars ($2,000,000)
Professional Liability	One Million Dollars ($1,000,000) per occurrence and Two Million Dollars ($2,000,000) in the aggregate
Commercial General Liability	Two Million Dollars ($2,000,000) per occurrence and Four Million Dollars ($4,000,000) in the aggregate

4.2.7. Project Personnel Resumes. Provide current resume(s) for all team members.

4.2.8. Commissioning Agreement Comments. Included with this RFQ/P, as Attachment A, is the Commissioning Services Agreement. Respondents must indicate acceptance of all terms and conditions of the Commissioning Agreement, without conditions, qualifications or reservations or identify any term or condition of the Commissioning Agreement which the Respondent requests modification, by amendment to existing provisions, additional provisions or deletion of existing provisions. Where any requested modification consists of amendments to existing provisions or additional provisions, the RFQ/P Response must set forth the complete text of the requested amendment or addition. Any Respondent whose RFQ/P Response does not identify modifications to terms or conditions of the attached Commissioning Agreement will be deemed to have agreed to and accepted all terms and conditions set forth therein, if the Respondent is awarded the Commissioning Agreement.

4.2.9. Price Proposal. Provide a fee proposal for Project Commissioning services for the Project on the form of Price Proposal included with this RFQ/P as Attachment C. A completed and signed **Form W-9** must also be submitted with the Price Proposal.

4.2.10. Acknowledgment of Addenda.

If the District issued Addenda to the RFQ/P, respondent must include the following statement on their cover letter:

> The Respondent submitting this RFQ/P Response acknowledges receipt of Addenda Nos. _____. The Respondent confirms that requirements noted in the foregoing Addenda are incorporated into the RFQ/P Response.

If the District did not issue Addenda to the RFQ/P, respondent must include the following statement: "No Addenda issued."

4.3. Selection Criteria.

4.3.1. General. Each timely submitted RFQ/P Response will be independently reviewed by each member of the selection committee. Any RFQ/P Response which does not comply with the requirements of this RFQ/P will be subject to rejection for non-responsiveness.

4.3.2. District Policy. It is the policy of the District that the selection of firms to provide professional services in connection with construction projects of the District be based on the demonstrated competence and qualifications to complete the required professional services at a fair and reasonable price to the District. Accordingly, award of the Commissioning Services Agreement is not based solely on proposed pricing for completion of Project Commissioning Services.

4.3.3. Evaluation Criteria. The following set forth the criteria by which each RFQ/P Response will be evaluated. The District and the selection committee reserve the right to exercise discretion in the weight and priority of the evaluation criteria. **100 Total possible points.**

4.3.3.1. Relevant Experience and Ability. The Respondent and its proposed Project CxA will be evaluated based on their experience providing Commissioning services on recent projects subject to DSA jurisdiction that are similar in size, scope, use, and complexity to the Project. For purposes of this evaluation, "successful completion" is defined as projects that have achieved certification by the Division of the State Architect (DSA). **25 Total possible points.**

4.3.3.2. Proposal Quality. The District will evaluate the overall quality, completeness, organization, and clarity of the Respondent's Proposal, including the Respondent's demonstrated understanding of the Project's objectives, constraints, and commissioning requirements. Particular consideration will be given to the Respondent's ability to accurately portray the size, scope, technical complexity, stakeholder coordination requirements, and unique challenges of the Project, as well as its proposed approach to addressing those complexities and delivering successful Commissioning Services. **25 Total possible points.**

4.3.3.3. Client Responsiveness. The District will evaluate the prior experience and success of the Respondent and its proposed Project CxA to establish effective working relationships within the setting of a higher education institution, including the relationships with management, administrative, technical and end-user staff of prior clients, relationships with other project consultants and participants on prior projects. **20 Total possible points.**

4.3.3.4. Proposed Pricing. The District will evaluate the pricing proposed for completion of Commissioning Services. **15 Total possible points.**

4.3.3.5. Proposed Schedule. Provide a proposed schedule for completing obligations under the Consultant Agreement as outlined in **EXHIBIT "A" Scope of Services** of the Sample Agreement to this RFP. The proposed schedule shall be in such detail as necessary to incorporate all actions necessary to complete the scope. For activities which require consideration or action of the District Board of Trustees, incorporate the Board of Trustees meeting dates in the proposed schedule. The current Board of Trustees 2026 meeting schedule is: July 14, 2026. **15 Total possible points.**

Item	4.3.3. Evaluation Criteria	Points
1	Relevant Experience and Ability	25
2	Proposal Quality	25
3	Client Responsiveness / References	20
4	Pricing Proposal	15
5	Proposed Schedule	15
	100 Total Possible Points	100

4.4. Interviews. At the sole discretion of the selection committee, one or more of the Respondents deemed qualified for the Project by the selection committee may be invited to participate in an interview with the selection committee. Interviews, if conducted by the selection committee, will generally consist of no more than thirty (30) minutes with questions posed by the selection committee. If requested by the selection committee, any Respondent invited to participate in the interview process shall have present at the interview its proposed Project CxA.

4.5. Selection Committee Recommendation. Based upon evaluation of RFQ/P Responses in accordance with the selection criteria described above, the selection committee will make a recommendation to the District's Board of Trustees for award of the Commissioning Services Agreement. The foregoing notwithstanding authority to award the Commissioning Services Agreement is vested solely in the District's Board of Trustees.

4.6. Rejection of RFQ/P Responses; Waiver of Irregularities. The District reserves the right to reject all RFQ/P Responses or to waive any immaterial irregularities or informalities in any RFP Response. A RFQ/P Response which does not conform to requirements set forth herein is subject to rejection by the District for non-responsiveness.

4.7. Award of Contract. The Commissioning Services Agreement, if awarded, will be by action of the District's Board of Trustees.

[END OF SECTION]

Attachment A

AGREEMENT FOR
COMMISSIONING SERVICES
BETWEEN
GLENDALE COMMUNITY COLLEGE DISTRICT
AND
[INSERT NAME OF CONSULTANT]

1. **Parties and Date.**

This Agreement ("Agreement") is made and entered into this ___ day of _____, 2026 ("Effective Date"), by and between the **GLENDALE COMMUNITY COLLEGE DISTRICT** ("District") and **[INSERT NAME OF CONSULTANT]** ("Consultant"), (collectively referred to as the "Parties" and each individually as "Party").

2. **Recitals.**

2.1 **Consultant.** Consultant is a professional consultant, experienced and properly certified/licensed to provide construction commissioning services to public clients and is familiar with the plans of the District.

2.2 **Project.** The District desires to engage Consultant to render Commissioning services for the Instructional Building & Conference Center.

3. **Terms.**

3.1 **Scope of Services, Qualifications and Term**.

1. Provide Consulting services in accordance with **COMMISSIONING REQUIREMENTS, Section 019113**
2. Prepare a commissioning plan for the project overall. Include as responsibilities of the commissioning agent the following:
    a. Owner's Project Requirements (OPR);
    b. Lead commissioning meetings with design and construction teams;
    c. Prepare a schedule of commissioning activities in accordance with contractor's master schedule of construction activities;
    d. Provide an issues log to track and sign off on issues affecting the commissioning of systems and equipment during preconstruction activities and construction;
    e. Provide constructability review comments for DSA Approved plans, submittals, and construction documents);
    f. Provide periodic on-site observations for quality control, specific to systems and equipment to be commissioned during the project construction duration;
    g. Provide equipment and materials submittal reviews for specification compliance;
    h. Provide pre-functional test scripts for systems and equipment installation and operation and provide verification with field activities;

i. Provide functional performance test scripts for equipment and systems operational and observe all verification in compliance with all project documentation;
j. Provide verification of compliance with California Building Standard Codes (Title 24): Part 6 Energy code, and Part 11 CalGreen code requirements;
k. Provide project close out documentation including a final commissioning report.

3. The commissioning requirements which will include, but is not limited to, the following systems:
1. Mechanical Systems
a. Air Handling Unit
b. Air Valve + Heating Coil
c. Boiler
d. Building Automation System (including submetering)
e. Fan (Exhaust)
f. Fan (Lab Exhaust)
g. Pumps
h. Split System (VRF System)
i. Terminal Unit – VAV (Cooling + Heating)

2. Electrical System
a. Automatic Transfer Switches (ATS)
b. Generator
c. Generator Switchgear
d. Lighting (Exterior)
e. Lighting (Interior)

3. Plumbing Systems
a. Booster Pump
b. Circulation Pump
c. Water Heater (HX)

4. Landscape Irrigation
a. Landscape Irrigation

3.2 **Term**. The term of this Agreement shall be from **[July 15, 2026]** until **[Dec 30, 2028]**, unless earlier terminated as provided herein. The Parties may mutually agree to extend this term by written amendment.

3.3 **Responsibilities of Consultant.**

(a) Control and Payment of Consultants and its Subordinates. The District retains Consultant on an independent contractor basis, and Consultant is not an employee of the District. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall at all times be under Consultant's exclusive direction and control. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law including, but not limited to, the payment of prevailing wage, as applicable, and in accordance with Labor Code sections 1720 et seq. and 1770 et seq. Consultant shall obtain a copy of the prevailing rates of per diem

wages applicable to the work to be performed under this Agreement from the website of the Division of Labor Statistics and Research of the Department of Industrial Relations located at www.dir.ca.gov/dlsr/. In the alternative, the District shall provide Consultant with a copy of the prevailing rates of per diem wages. Consultant shall be responsible for all reports and obligations respecting such employees, including, but not limited to, social security taxes, income tax withholding, unemployment insurance, and workers' compensation insurance.

If the District is utilizing state funding subject to oversight by the Department of Industrial Relations Compliance Monitoring Unit ("CMU"), Consultant shall abide by the CMU requirements, including the submission of certified payroll records, as required by the CMU at no additional cost to District.

(b) Conformance to Applicable Requirements. All work prepared by Consultant is subject to the approval of the District, DSA and any and all applicable regulatory State agencies, and shall be the property of the District.

(c) Reports. Consultant shall provide the District with copies of all reports required to be submitted to applicable regulatory State agencies to the District, including but not limited to, all required DSA reports, whether or not such reports must be submitted to the District.

(d) Work Authorization. Consultant shall obtain from the District a work authorization for the Project. Such work authorization shall reiterate Consultant's duties outlined herein. The work authorization shall be written in the amount set forth in **Exhibit "B."**

(e) Maintenance of Construction Records. Consultant shall maintain complete and accurate construction records with respect to DSA-required records and all records related to the Project. These records shall be maintained by Consultant and made available at all reasonable times during any period which services are provided for the Project and for five (5) years from the date of the Notice of Completion for the Project.

(f) Coordination of Services. Consultant agrees to work closely with the District staff in the performance of Services and shall be available to the District's staff, consultants and other staff at all reasonable times.

(g) Standard of Care. Consultant shall perform all Services under this Agreement in a skillful, competent and timely manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all of Consultant's employees and subcontractors shall have sufficient skill and experience to perform the Services assigned to them. Consultant further represents that it, its employees and subcontractors or subconsultants have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement. Any of Consultant's employees who are determined by the District to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project, a threat to the safety of persons or property, or any of Consultant's employees who fail or refuse to perform the Services in a manner acceptable to the District, shall be promptly removed from the Project by Consultant and shall not be re-employed to perform any of the Services or to work on the Project.

(h) Laws and Regulations. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting

the performance of the Project or the Services, including all California Code of Regulations, Title 24 and Cal/OSHA requirements, and shall give all notices required by law. Consultant shall be liable for all violations of such laws and regulations in connection with Services.

(i) Insurance.

(i) Time for Compliance. Consultant shall not commence Services under this Agreement until it has provided evidence satisfactory to the District that it has secured all insurance required under this Section. In addition, Consultant shall not allow any subcontractor to commence work on any subcontract until it has provided evidence satisfactory to the District that the subcontractor has secured all insurance required under this Section.

(ii) Minimum Requirements and Limits. Consultant shall, at its expense, procure and maintain for the duration of this Agreement, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Consultant, its agents, representatives, employees or subcontractors. Consultant shall also require all of its subcontractors to procure and maintain the same insurance for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

(1) Minimum Scope of Insurance. Coverage shall be at least as broad as the latest version of the following: (1) *General Liability:* Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001); (2) *Automobile Liability*: Insurance Services Office Business Auto Coverage form number CA 0001, code 1 (any auto); (3) *Workers' Compensation and Employers' Liability:* Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance; and (4) *Professional Liability:* Coverage which is appropriate to the Consultant's profession, or that of its consultants or subcontractors.

(2) Minimum Limits of Insurance. Consultant shall maintain limits no less than: (1) *General Liability:* $2,000,000 per occurrence and $4,000,000 aggregate for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit; (2) *Automobile Liability:* $1,000,000 per accident for bodily injury and property damage; (3) *Workers' Compensation and Employer's Liability:* Workers' compensation limits as required by the California Labor Code. Employer's Liability limits of $2,000,000 per accident for bodily injury or disease; and (4) *Professional Liability:* Not less than $1,000,000 per claim/ $2,000,000 aggregate.

(3) Insurance Endorsements. The insurance policies shall contain the following provisions, or Consultant shall provide endorsements on forms supplied or approved by the District to add the following provisions to the insurance policies:

a. General Liability. The general liability policy shall be endorsed to state that: (1) the District, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insured with respect to the Work or operations performed by or on behalf of the Consultant, including materials, parts or equipment furnished in connection with such work; and (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers,

employees, agents and volunteers shall be excess of Consultant's insurance and shall not be called upon to contribute with it in any way.

b. Automobile Liability. The automobile liability policy shall be endorsed to state that: (1) the District, its directors, officials, officers, employees, agents and volunteers shall be covered as additional insureds with respect to the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by Consultant or for which Consultant is responsible; and (2) the insurance coverage shall be primary insurance as respects the District, its directors, officials, officers, employees, agents and volunteers, or if excess, shall stand in an unbroken chain of coverage excess of Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the District, its directors, officials, officers, employees, agents and volunteers shall be excess of Consultant's insurance and shall not be called upon to contribute with it in any way.

c. Workers' Compensation and Employers Liability Coverage. The insurer waives all rights of subrogation against the District, its governing board, officials, officers, employees, agents and volunteers for losses paid under the terms of the insurance policy which arise from work performed by Consultant.

d. Professional Liability. Consultant and its sub-consultants and subcontractors shall procure and maintain, for a period of five (5) years following completion of the Project, errors and omissions liability insurance with limits discussed in this Section. This insurance shall be endorsed to include contractual liability.

(4) All Coverages. Each insurance policy required by this Agreement shall be endorsed to state that: (A) coverage shall not be suspended, voided, reduced or canceled except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the District; and (B) any failure to comply with reporting or other provisions of the policies, including breaches of warranties, shall not affect coverage provided to the District, its directors, officials, officers, employees, agents and volunteers.

(iii) Separation of Insureds; No Special Limitations. All insurance required by this Section shall contain standard separation of insureds provisions. In addition, such insurance shall not contain any special limitations on the scope of protection afforded to the District, its directors, officials, officers, employees, agents and volunteers.

(iv) Acceptability of Insurers. With the exception of Workers' Compensation Insurance, all insurance required hereunder is to be placed with insurers with a current A.M. Best's rating no less than A-: VII, which are licensed to do business in California, and which maintain an agent for process within the state. Workers' Compensation insurance required under this Agreement must be offered by an insurer meeting the above standards with the exception that the A.M. Best's rating condition is waived at the discretion of the District.

(v) Verification of Coverage. Consultant shall furnish the District with original certificates of insurance and endorsements effecting coverage required by this Agreement on forms satisfactory to the District. The certificates and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf, and shall be on forms provided by the District if requested. The District reserves the right to require complete, certified copies of all required insurance policies, at any time.

(j) Safety. Consultant shall execute and maintain its work so as to avoid injury or damage to any person or property. In carrying out its Services, Consultant shall at all times be

in compliance with all applicable local, state and federal laws, rules and regulations, and shall exercise all necessary precautions for the safety of its employees and subcontractors appropriate to the nature of the Services and the conditions under which the Services are to be performed. Safety precautions as applicable shall include, but shall not be limited to: (1) adequate life protection and lifesaving equipment and procedures; (2) instructions in accident prevention for all employees and subcontractors, such as safe walkways, scaffolds, fall protection ladders, bridges, gang planks, confined space procedures, trenching and shoring, equipment and other safety devices, equipment and wearing apparel as are necessary or lawfully required to prevent accidents or injuries; and (3) adequate facilities for the proper commissioning and maintenance of all safety measures.

(k) Project Staffing. Consultant shall provide adequate staff and resources to facilitate all contractor's activity. Should Consultant fail to adequately staff a project, the District may, at its sole discretion, retain third-party commissioning services and back charge Consultant for all third party fees.

3.4 **Fees and Payments.**

(a) Compensation. Consultant shall receive compensation, including reimbursements, for all Services rendered under this Agreement at the rates set forth in **Exhibit "B"** attached hereto and incorporated herein by reference. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.

(b) Reimbursement of Expenses. Consultant shall not be reimbursed for any expenses unless authorized in writing by the District.

(c) Payment of Compensation. Consultant shall submit to the District an itemized monthly statement which indicates work completed and hours of Services rendered by Consultant. The District shall pay Consultant within a reasonable time and in accordance with this Agreement.

(d) Withholding of Payments. If any required reports are not received within fifteen (15) days of due dates described below, the District retains the express contractual right to withhold monthly payments to the Consultant until all outstanding reports are submitted to the District.

(e) Extra Work. At any time during the term of this Agreement, the District may request that Consultant perform Extra Work. As used herein, "Extra Work" means any Services which are determined by the District to be necessary, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written supplemental work authorization from the District.

3.5 **Maintenance of Accounting Records.** Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of the District during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of five (5) years from the date of final payment under this Agreement.

3.6 **General Provisions**.

(a) Suspension of Services. The District may, in its sole discretion, suspend all or any part of Services provided hereunder without cost; provided, however, that if the District shall suspend Services for a period of ninety (90) consecutive days or more and in addition such suspension is not caused by Consultant or the acts or omissions of Consultant, upon recession of such suspension, the compensation will be subject to adjustment to provide for actual costs and expenses incurred by Consultant as a direct result of the suspension and resumption of Services under this Agreement. Consultant may not suspend its service without the District's express written consent.

(b) Termination of Agreement. The District may, by written notice to Consultant, terminate the whole or any part of this Agreement at any time and without cause by giving written notice to Consultant of such termination, and specifying the effective date thereof, at least seven (7) days before the effective date of such termination. Upon termination, Consultant shall be compensated only for those services which have been adequately rendered to District, and Consultant shall be entitled to no further compensation. Consultant may not terminate this Agreement except for cause.

(i) Effect of Termination. If this Agreement is terminated as provided in this Section, the District may require Consultant to provide all finished or unfinished documents, data, programming source code, reports or any other items prepared by Consultant in connection with the performance of Services under this Agreement. Consultant shall be required to provide such documents and other information within fifteen (15) days of the request.

(ii) Additional Services. In the event this Agreement is terminated in whole or in part as provided herein, the District may procure, upon such terms and in such manner as it may determine appropriate, services similar or identical to those terminated.

(c) Delivery of Notices. All notices permitted or required under this Agreement shall be given to the respective Parties at the following address, or at such other address as the respective Parties may provide in writing for this purpose:

CONSULTANT:

Gafcon Program Management Office (PMO)
Attn: Joe Jackson, Program Manager
JJackson-cp@glendale.edu

DISTRICT:

GLENDALE COMMUNITY COLLEGE DISTRICT
1500 N. Verdugo Road
Glendale, CA 91208

Attn: Sharlene Coleal, Vice President of Administrative Services

---

CONSULTANT:

_____
_____
_____

Such notice shall be deemed made when personally delivered or when mailed, forty-eight (48) hours after deposit in the U.S. Mail, first class postage prepaid and addressed to the party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

(d) Mediation. Disputes arising from this Agreement may be submitted to mediation if mutually agreeable to the Parties hereto. The type and process of mediation to be utilized shall be subject to the mutual agreement of the Parties.

(e) Ownership of Materials and Confidentiality.

(i) All materials and data, including but not limited to, data on magnetic media and any materials and data required to be made or kept pursuant to federal, state or local laws, rules or regulations, prepared or collected by Consultant pursuant to this Agreement, shall be the sole property of the District, except that Consultant shall have the right to retain copies of all such documents and data for its records. The District shall not be limited in any way in its use of such materials and data at any time, provided that any such use not within the purposes intended by this Agreement shall be at the District's sole risk and provided that Consultant shall be indemnified against any damages resulting from such use, including the release of this material to third parties for a use not intended by this Agreement.

(ii) All such materials and data shall be provided to the District, or such other agency or entity as directed by the District or required by law, rule or regulation, immediately upon completion of the term of this Agreement as directed by the District. Should the District wish to obtain possession of any such materials or data during the term of this Agreement, it shall make its request in writing. Such information shall be provided to the District within forty-eight (48) hours of its request.

(f) Attorney's Fees. If either party commences an action against the other party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorney's fees and all other costs of such action.

(g) Indemnification. To the fullest extent permitted by law, Consultant shall defend (with counsel of District's choosing), indemnify and hold the District, its officials, officers, employees, volunteers and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any alleged acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Consultant's Services, the Project or this Agreement, including without limitation the payment of all consequential damages, expert witness fees and attorneys fees and other related costs and expenses. Consultant shall reimburse the District and its officials, officers, employees, agents, and/or volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the District, its directors, officials officers, employees, agents, or volunteers. Notwithstanding the foregoing, to the extent Consultant's Services are subject to Civil Code Section 2782.8, the above indemnity shall be limited, to the extent required by Civil Code Section 2782.8, to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of Consultant. Consultant agrees to waive all rights of subrogation against the District.

(h) Entire Agreement. This Agreement contains the entire Agreement of the Parties with respect to the subject matter hereof, and supersedes all prior negotiations, understandings or agreements.

(i) Governing Law. This Agreement shall be governed by the laws of the State of California. Any action brought to enforce the terms of this Agreement shall be brought in a state or federal court located in the County of Los Angeles, State of California.

(j) Time of Essence. Time is of the essence for each and every provision of this Agreement.

(k) District's Right to Employ Other Consultants. The District reserves right to employ other consultants in connection with this Project. However, Consultant shall be the exclusive consultant for purposes of the Services as noted within this Agreement, unless terminated as provided herein.

(l) Successors and Assigns. This Agreement shall be binding on the successors and assigns of the Parties, and shall not be assigned by Consultant without the prior written consent of the District.

(m) Amendments. This Agreement may not be amended except by a writing signed by the District and Consultant.

(n) Severability. If any section, subsection, sentence, clause or phrases of this Agreement, or the application thereof to any of the Parties, is for any reason held invalid or unenforceable, the validity of the remainder of the Agreement shall not be affected thereby and may be enforced by the Parties to this Agreement.

(o) Interpretation. In interpreting this Agreement, it shall be deemed that it was prepared jointly by the Parties with full access to legal counsel of their own. No ambiguity shall be resolved against any party on the premise that it or its attorneys were solely responsible for drafting this Agreement or any provision thereof.

(p) Conflict of Interest. For the term of this Agreement, no member, officer or employee of the District, during the term of his or her service with the District, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

(q) Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

Glendale Community College District does not discriminate with regard to race, religious creed, marital status, age, color, sex, national origin, mental or physical disability in the award of contracts. Glendale Community College District encourages responses from minority, small business, disadvantaged business, disabled veteran, and women contractors, consultants and suppliers.

(r) Non-Waiver. None of the provisions of this Agreement shall be considered waived by either party, unless such waiver is expressly specified in writing.

(s) Drugs and Tobacco. All the District's facilities are drug and tobacco-free facilities. Any drug and/or tobacco use (smoked or smokeless) is prohibited at all times on all areas of the District's facilities.

(t) Board Approval Required. This Agreement shall not be binding nor take effect unless approved or ratified by the District Board of Education. Any amendments to this Agreement shall require Board approval or ratification.

(u) Exhibits and Recitals**.** All Exhibits and Recitals contained herein are hereby incorporated into this Agreement by this reference.

(v) Counterparts. This Agreement may be executed in counterparts, each of which shall constitute an original and all of which shall constitute one agreement.

(w) Authority to Execute. The persons executing this Agreement on behalf of their respective Parties represent and warrant that they have the authority to do so under law and from their respective Parties.

ARTICLE 1 IN WITNESS HEREOF, the Parties have executed this Agreement as of the date set forth above.

GLENDALE COMMUNITY COLLEGE DISTRICT	**[INSERT NAME OF CONSULTANT]**
By: _____	By: _____
Sharlene Coleal, **Vice President,** **Administrative Services**	**[INSERT NAME]** **[INSERT TITLE]**

EXHIBIT "A"

SCOPE OF SERVICES

[TO BE REVIEWED WITH PROGRAM MANAGEMENT OFFICE]

Consultant shall provide the services set forth herein, as well as any incidental services necessary for the full and adequate completion of Services in strict accordance with all applicable local, state and federal laws rules and regulations, including but not limited to, the State Building Code, California Code of Regulations, including but not limited to Title 24, and instructions included herein. Consultant shall provide daily and/or individual occurrence reports on previously approved forms and provide sufficient copies for distribution to the District, the construction contractor, and the architect.

Scope of Services, Qualifications and Term.

Provide Consulting services in accordance with **COMMISSIONING SPECIFICATION REQUIREMENTS, Section 019113:**

Prepare a commissioning plan for the project overall. Include as responsibilities of the commissioning agent the following:

a. Owner's Project Requirements (OPR);
b. Lead commissioning meetings with design and construction teams;
c. Prepare a schedule of commissioning activities in accordance with contractor's master schedule of construction activities;
d. Provide issues log to track and sign off on issues affecting the commissioning of systems and equipment during preconstruction activities and construction;
e. Review the recommendations from the DBE constructability review for commissioning and O&M issues.
f. Provide constructability review comments for DSA Approved plans, submittals, and construction documents);
g. Provide periodic on-site observations for quality control, specific to systems and equipment to be commissioned during the project construction duration;
h. Provide equipment and materials submittal reviews for specification compliance;
i. Provide pre-functional test scripts for systems and equipment installation and operation and provide verification with field activities;
j. Write step-by-step functional performance test scripts for equipment and systems operational and observe all verification in compliance with all project documentation;
k. Provide verification of compliance with California Building Standard Codes (Title 24): Part 6 Energy code, and Part 11 CalGreen code requirements;
l. The final acceptance tests of all fire protection and life safety systems shall be witnessed by the District Fire Protection Engineer or their designated representative. Plan to assist the District Fire Protection Engineer or their designated representative in those tests. Testing and

commissioning for the fire protection and life safety systems shall be per the requirements of those sections of the specifications and the applicable governing codes and standards.

m. Provide project close out documentation including a final commissioning report.

Construction Phase

1. Coordinate and direct the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.
2. Coordinate the commissioning work with the design team and construction manager, to ensure that commissioning activities are being incorporated into the master schedule.
3. Revise, as necessary, the construction phase commissioning plan developed during design, including scope and schedule.
4. Plan and conduct commissioning meetings as needed and distribute minutes.
5. Request and review additional information required to perform commissioning tasks, including Operations & Maintenance (O&M) materials, contractor start-up and checkout procedures. Before start-up, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
6. Review submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the design team and Construction Manager reviews.
7. Review requests for information and change orders for impact on commissioning and District objectives.
8. Review coordination drawings to ensure that trades are making a reasonable effort to coordinate.
9. Write and distribute construction checklists for commissioned equipment.
10. Develop an enhanced start-up and initial systems checkout plan with contractors for selected equipment.
11. Perform site visits, as necessary, to observe component and system installations. Attend selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/ substitutions relating to the commissioning process. Assist in resolving any discrepancies.
12. Witness Heating Ventilating and Air Conditioning (HVAC) piping pressure test and flushing, sufficient to be confident that proper procedures were followed. Include testing documentation in the Commissioning Record.
13. Witness any ductwork testing and cleaning sufficient to be confident that proper procedures were followed. Include documentation in the Commissioning Record.
14. Document construction checklist completion by reviewing completed construction checklists and by selected site observation.
15. Document systems start-up by reviewing start-up reports and by selected site observation.
16. Approve air and water systems balancing by spot testing and by reviewing completed reports and by selected site observation.
17. Coordinate functional testing for all commissioned systems and assemblies. Witness and document manual functional performance tests performed by the Construction Contractor for all commissioned systems and assemblies, except: a) some smaller equipment may be tested and documented by the Construction

Contractor at the Commissioning Agent's discretion, b) electrical equipment testing and regulated testing may be directed and documented by the Construction Contractor with only spot witnessing and report review by the Commissioning Agent.

The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including start-up, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during construction check listing by the installing contractors, and spot-checked by the commissioning provider during functional testing. Analyze functional performance trend logs and monitoring data to verify performance. Coordinate retesting as necessary until satisfactory performance is achieved.

Tests on respective HVAC equipment shall be executed, if possible, during both the heating and cooling seasons. However, some overwriting of control values to simulate conditions shall be allowed. Functional testing shall be done using conventional manual methods, control system trend logs, and readouts or standalone data loggers, to provide a high level of confidence in proper system function, as deemed appropriate by the Commissioning Agent and District.

18. After manual testing and initial trouble shooting is complete, monitor system operation and performance for selected data points for up to two weeks by requesting trend logs from the Construction Contractor from the building automation system. For needed system points not able to be trended by the building automation system, furnish and install temporary portable data loggers that will monitor up to 20 points. Analyze monitored data to verify operation and performance and issue a written report. This time frame and monitoring points may be modified to accurately commission the building.
19. The final acceptance tests of all fire protection and life safety systems shall be witnessed by the District Fire Protection Engineer or their designated representative. Testing and commissioning for the fire protection and life safety systems shall be per the requirements of those sections of the specifications and the applicable governing codes and standards. No building or portion thereof shall be occupied until the District has issued a certificate of occupancy. Once the District Fire Protection Engineer has ensured that to the best of their knowledge all the fire protection and life safety systems have been completed, inspected, successfully tested and approved and all outstanding fire and life safety deficiencies have been corrected to afford a reasonable degree of safety to the building occupants from fire and similar emergencies, a certificate of occupancy will be issued.
20. Maintain a master issues log and a separate record of functional testing. Report all issues through the Construction Manager as they occur. Provide through the Construction Manager with written progress reports and test results with recommended actions.
21. Review equipment warranties to ensure that District responsibilities are clearly defined.
22. Facilitate, oversee and review the training of District operating personnel. Oversee the videotaping of this training. Attend and participate in key training sessions.
23. Review and review the preparation of the O&M manuals for commissioned equipment.
24. Compile a Commissioning Record, which shall include:

A. A brief summary report that includes a list of participants and roles, brief building description, overview of commissioning and testing scope, and a general description of testing and verification methods. For each piece of commissioned equipment, the report shall contain the disposition of the commissioning provider regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
    1. Equipment meeting the equipment specifications,
    2. Equipment installation,
    3. Functional performance and efficiency,
    4. Equipment documentation, and
    5. Operator training.

B. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each noncompliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented.

C. Also included in the Commissioning Record shall be the commissioning plan, District's Project Requirements (from DISTRICT PM), Basis of Design (from A/E), commissioning specifications, design review, submittal review, issues log, construction checklists, CxA site visit and Commissioning Team meeting minutes, O&M review, training documentation, test procedures, warranty review and test data reports.

D. A Re-Commissioning Management Manual which provides guidance and establishes timelines for recommissioning of building systems and components. The format of the Re-Commissioning Management Manual will closely parallel the Commissioning Plan for the facility.

E. Submit (1) bound text copies of the Commissioning Records with three USB flash drive electronic copies, including all information listed in B & C above.

Post-Construction Phase

A. Coordinate and supervise required opposite season or deferred testing and deficiency corrections and provide the final testing documentation for the Final Commissioning Report and O&M manuals.

B. Return to the site ten months into the 12-month warranty period and review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have with operating the building as originally intended. Make suggestions for improvements and for recording these changes in the O&M manuals. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports and documents and requests for services to remedy outstanding problems.

The commissioning requirements which will include, but is not limited to, the following systems:

1. Mechanical Systems
    a. Air Handling Unit
    b. Air Valve + Heating Coil
    c. Boiler
    d. Building Automation System (including submetering)
    e. Fan (Exhaust)
    f. Fan (Lab Exhaust)
    g. Pumps

h. Split System (VRF System)
i. Terminal Unit – VAV (Cooling + Heating)

2. Electrical System
   a. Automatic Transfer Switches (ATS)
   b. Generator
   c. Generator Switchgear
   d. Lighting (Exterior)
   e. Lighting (Interior)

3. Plumbing Systems
   a. Booster Pump
   b. Circulation Pump
   c. Water Heater (HX)

4. Landscape Irrigation
   a. Landscape Irrigation

EXHIBIT "B"

COMPENSATION FOR SERVICES
ASSIGNED PROJECT COMMISSIONING AGENT – RATE SCHEDULE

Attachment B
GLENDALE COMMUNITY COLLEGE DISTRICT
RFQ/P FOR PROJECT COMMISSIONING SERVICES
INSTRUCTIONAL BUILDING & CONFERENCE CENTER
QUALIFICATIONS STATEMENT

1. Respondent Information.

1.1. Respondent Name:

_____

1.2. Address:

Physical Office Location:
Street Address: _____

City, State and Zip Code: _____

Mailing Address (if different than address above):
Street Address: _____

City, State and Zip Code: _____

1.3. Phone:

(_____) _____

1.4. Fax:

(_____)_____

1.5. Respondent's principal contacts:

Name: _____

Title: _____

Phone: (_____) _____

Fax: (_____) _____

E-Mail: _____

Name: _____

Title: _____

Phone: (_____) _____

Fax: (_____) _____

E-Mail: _____

1.6. Length of time Respondent has been in business providing Project Commissioning Services:

_____ years

1.7. Respondent Federal Tax ID No.: _____

2. **Respondent Annual Revenue**. Complete the following for each of the calendar years/fiscal years noted below. If any portion of the annual gross revenue or dollar value of contracts, as disclosed below, are generated by services including DSA Project Commissioning Services.

Calendar Year/ Fiscal Year	Annual Gross Revenue	Average Dollar Value of all Contracts	Dollar Value of Largest Contract
2025/2024-2025			
2024/2023-2024			
2023/2022-2024			

3. **Insurance**.

3.1. Commercial General Liability Insurance.

Insurer: _____

Current Policy No.: _____

General Liability Insurance Broker:

Address: _____

Telephone No.: (___) _____

Fax No.: (___)_____

Contact Name: _____

3.2. Workers' Compensation Insurance.

Insurer: _____

Current Policy No.: _____

Workers' Compensation Insurance Broker:

Address: _____

Telephone No.: (___) _____

Fax No.: (___)_____

Contact Name: _____

[CONTINUED NEXT PAGE]

4. References. Complete the following to identify: (i) owner references who are California public K-14 School Districts, preferably California Community College Districts; and (ii) architect references. Architect references must be architects that have served as the architect of record for projects subject to DSA jurisdiction. A minimum of three (3) references are required per category.

Public School Owners (California K-12 public school districts or California Community College Districts only)			
Owner Name	**Address**	**Telephone No.**	**Contact Name**

Architects (Architect of Record for projects subject to DSA jurisdiction)			
Firm Name	**Address**	**Telephone No.**	**Contact Name**

[CONTINUED NEXT PAGE]

5. Essential Minimum Qualifications. Any response of a Respondent indicating "not qualified" to the following minimum qualifications criteria will result in rejection of the Respondent's RFQ Response for failure to meet minimum qualifications criteria. Circle your response.

5.1. Respondent has a current Commercial General Liability policy of insurance with coverage limits of at least One Million Dollars ($1,000,000) per occurrence and Two Million Dollars ($2,000,000) in the aggregate.

Yes
No (not qualified)

5.2. Respondent has a current professional liability policy of insurance with coverage limits of at least One Million Dollars ($1,000,000) per claim and Two Million Dollars ($2,000,000) in the aggregate.

Yes
No (not qualified)

5.3. Respondent has obtained a current Workers Compensation policy of insurance with coverage limits in accordance with applicable law.

Yes
No (not qualified)

5.4. Respondent is ineligible for award of public works contracts pursuant to Labor Code §1777.1 or 1777.7.

Yes (not qualified)
No

5.5. Has any public agency, within the past ten (10) years conducted proceedings that resulted in a finding that the Respondent or any predecessor to the Respondent is not a "responsible" bidder?

Yes (not qualified)
No

5.6. At any time during the last ten (10) years, has Respondent or any predecessor to the Respondent been convicted of a crime involving any federal, state, or local law related to a private or public construction project?

Yes (not qualified)
No

5.7. At any time during the last ten (10) years, has the Respondent or any predecessor to the Respondent been convicted of a federal or state crime involving fraud, theft, or any other act of dishonesty?

Yes (not qualified)
No

5.8. Within the past ten (10) years, one or more contract(s) to provide work, labor, materials or services to which the Respondent was a party to have been terminated for default of the Respondent.

Yes (not qualified)
No

5.9. Within the past ten (10) years, has the Respondent or any predecessor in interest to the Respondent agreed with any public agency, whether by written instrument or verbally, that the Respondent will not submit bids, proposals or other responses to any request of the public agency for bids or proposals relating to public works, equipment service/maintenance contracts or other similar services?

Yes (not qualified)
No

6. Claims and Disputes.

6.1. Respondent Claims and Disputes. The Respondent is presently engaged in a claim, dispute or other disagreement relating to or arising out of a construction contract or equipment Consultant Services contract in which the Respondent is seeking additional compensation.

Yes
No

If "Yes" on a separate attachment, provide details of each such pending claim, dispute or other disagreement.

6.2. Judgments and Arbitration Awards. Within the past ten (10) years, the Respondent is a party to a judgment entered in a civil proceeding or an arbitration award issued by an arbitrator in a binding arbitration proceeding.

Yes
No

If "Yes" on a separate attachment, provide details of each such judgment or arbitration award including: (i) parties; (ii) summary of dispute; (iii) summary of judgment or arbitration award.

6.3. General Liability/Automobile Liability Insurance. Within the past ten (10) have claims been made under the Respondent's general liability insurance policy (whether for personal injury, death, property damage or automobile liability)?

Yes
No

If "Yes" on a separate attachment, provide details of each such judgment or arbitration award including: (i) parties; (ii) summary of dispute; (iii) summary of judgment or arbitration award.

6.4. Professional Liability Insurance. Within the past ten (10) have claims been made under the Respondent's professional liability insurance policy (whether for personal injury, death, property damage or automobile liability)?

Yes
No

If "Yes" on a separate attachment, provide details of each such judgment or arbitration award including: (i) parties; (ii) summary of dispute; (iii) summary of judgment or arbitration award.

7. Accuracy and Authority.
The undersigned is duly authorized to execute this Qualifications Statement under penalty of perjury on behalf of the above-identified Respondent. The undersigned warrants and represents that he/she has personal knowledge of each of the responses to this Qualifications Statement and/or that he/she has conducted all necessary and appropriate inquiries to determine the truth, completeness and accuracy of responses to this Qualifications Statement.

The undersigned declares and certifies that the responses to this Qualifications Statement are complete and accurate; there are no omissions of material fact or information that render any response to be false or misleading and there are no misstatements of fact in any of the responses. The above-identified Respondent acknowledge and agree that if the District determines that any response herein is false or misleading or contains misstatements of fact, the Respondent's RFQ/P Response may be rejected by the District.

Executed this___ day of _____ 20__ at_____
(City and State)

I declare under penalty of perjury under California law that the foregoing is true and correct.

_____
(Signature)

_____
(Typed or written name)

ATTACHMENT C; PRICE PROPOSAL
RFQ/P FOR PROJECT COMMISSIONING SERVICES
INSTRUCTIONAL BUILDING & CONFERENCE CENTER

Respondent: _____

The above-identified Respondent proposes the following pricing for Project Commissioning Services for the Project:

1. Proposed Not to Exceed Contract Price. For completion of the Commissioning Services and other obligations of the Commissioning Services Firm under the Commissioning Agreement, the Respondent proposes a not to exceed Contract Price of _____ Dollars ($_____) for Project Commissioning Services during normal working hours.

2. Commissioning Agent Hourly Billing Rates. The foregoing not to exceed Contract Price proposed by Respondent is based on the following hourly rates for Commissioning Services the Respondent proposes for assignment to the Project (the following are all of the proposed Commissioning Agents identified by the Respondent in the response to Paragraph 5 of the Qualifications Statement).

   2.1. Project Commissioning Services performed Mondays-Fridays (Straight Time). For Commissioning services provided Mondays-Fridays (holidays excepted) during normal working hours and with a maximum of eight (8) hours of Services per proposed Project CxA, the hourly billing rates are as follows:

Proposed CxA Name	Proposed Hourly Billing Rate
	_____ Dollars ($_____) per hour
	_____ Dollars ($_____) per hour
	_____ Dollars ($_____) per hour
	_____ Dollars ($_____) per hour
	_____ Dollars ($_____) per hour

   2.2. Commissioning Services performed Mondays-Fridays (Overtime). For Commissioning services provided by a proposed CxA on Mondays-Fridays (holidays excepted) in excess of eight (8) hours of Commissioning Services per day, the hourly billing rates proposed in Paragraph 2.1 are adjusted as follows for work beyond eight (8) hours per day: _____.

   2.3. Commissioning Services performed on Saturdays (Straight Time). For Commissioning services provided by a proposed CxA on Saturdays, the hourly billing rates proposed in Paragraph 2.1 are adjusted as follows for work beyond eight (8) hours per day.

2.4. Commissioning Services performed on Saturdays (Overtime). For Commissioning services provided by a proposed CxA on Saturdays in excess of eight (8) hours, the hourly billing rates proposed in Paragraph 2.1 are adjusted as follows for work beyond eight (8) hours on Saturdays: _____.

2.5. Commissioning Services performed on Sundays and Holidays. For Commissioning services provided by a proposed CxA on a Sunday or a holiday day, the hourly billing rates proposed in Paragraph 2.1 are adjusted as follows for work beyond eight (8) hours per day: _____.

3. Fully Burdened and All-Inclusive Labor Rates; Prevailing Wage Rates. The Respondent confirms that the foregoing proposed hourly billing rate for each proposed Project Commissioning services is inclusive of all labor burdens, general administrative and other overhead costs, charges or expenses and profit. The Respondent also confirms that if prevailing wage rates are applicable to any of the Commissioning Services, the hourly billing rate for each proposed CxA is equal to or greater than the prevailing wage rate. If it is subsequently determined that the proposed hourly rate for a CxA is less than the applicable prevailing wage rate, the Respondent is solely responsible for any such difference without adjustment of the Contract Price.

4. Acknowledgment and Confirmation. The Respondent has a full and complete understanding of the Commissioning Services required for the Project. The Respondent certifies that its personnel are duly certified, licensed, approved and otherwise qualified to complete the Commissioning Services required for the Project and other obligations under the Commissioning Agreement, if the Commissioning Agreement is awarded to Respondent. The undersigned: (i) has reviewed and verified the accuracy and completeness of the foregoing Price Proposal and (ii) is authorized to bind and commit Respondent to the foregoing Price Proposal.

By: _____
(Signature of Respondent's Authorized Officer or Representative)

_____
(Typed or Printed Name)

Title: _____

PROJECT MANUAL INCLUDING SPECIFICATIONS

FOR

Glendale Community College
Instructional Building & Conference Center
Glendale, California

Steinberg Hart Project #20123-000

DOCUMENT 000110
TABLE OF CONTENTS

DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

DIVISION 25 –INTEGRATED AUTOMATION

NOT APPLICABLE

DIVISION 26 - ELECTRICAL

END OF TABLE OF CONTENTS

SECTION 019113

COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This work contributes to 2019 California Green Building Standards Code (CALGreen) and T-24 part 6.

B. Commissioning is a systematic quality-controlled process to provide documented confirmation that building systems perform according to the criteria set forth in the design intent and satisfy the owner's operational needs. This is achieved in the design phase by documenting design intent and continues through construction, acceptance and the warranty period with actual verification of performance. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and training.

C. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.

D. The Owner has the required level of training and documentation to operate the building efficiently. This section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.

1.02 GENERAL

A. The commissioned systems will be required to be installed and operate in accordance with:
   1. The manufacturer's recommendations.
   2. The Contract Documents.
   3. The Commissioning Authority's Pre-Functional Checklists, Functional Test forms and procedures.

B. The commissioning process will include verification of the following processes:
   1. Pre-Functional Checking.
   2. Test & Balance results.
   3. Functional Testing.
   4. Owner Training.

C. The commissioning process will include verification of the following documents:
   1. Owners Project Requirements.
   2. Basis of Design.
   3. Contract Documents.
   4. Equipment submittals for Commissioned System.
   5. Pre-Functional Checklists.
   6. Test & Balance report.
   7. Automatic Transfer Switch Heat Run report.
   8. Generator Heat Run report.
   9. Operations and Maintenance manuals for commissioned systems.
   10. Training plan.

1.03 SCOPE OF WORK

A. The commissioning process will include, but is not limited to, the following systems:
   1. Mechanical Systems
      a. Air Handling Unit
      b. Air Valve + Heating Coil
      c. Boiler
      d. Building Automation System (including submetering)
      e. Fan (Exhaust)
      f. Fan (Lab Exhaust)
      g. Pumps
      h. Split System (VRF System)
      i. Terminal Unit – VAV (Cooling + Heating)
   2. Electrical System
      a. Automatic Transfer Switches (ATS)
      b. Generator
      c. Generator Switchgear
      d. Lighting (Exterior)
      e. Lighting (Interior)
   3. Plumbing Systems
      a. Booster Pump
      b. Circulation Pump
      c. Water Heater (HX)
   4. Landscape Irrigation
      a. Landscape Irrigation

1.04 RELATED SECTIONS

A. Division 01 Specification Sections.

B. Division 22 Specification Sections.

C. Division 23 Specification Sections.

D. Division 26 Specification Sections.

E. Related Documents: OPR, BOD, Cx Plan (for reference only).

1.05 RESPONSIBILITIES

A. The Commissioning Team includes the following members:
   1. Owner (or Owner Representative).
   2. Construction Manager.
   3. Project Manager.
   4. Commissioning Authority.
   5. Design Team.
   6. Contractor.
   7. Sheet Metal Subcontractor.
   8. Mechanical Test & Balance Subcontractor.
   9. DDC Systems Programmer.
   10. Boiler Supplier Star-Up Technician.
   11. VFD Supplier Start-Up Technician.
   12. Fuel Oil Systems Start-Up Technician.

13. BAS/Controls Systems Integrator.
14. Manufacturer Representative for specialized equipment or systems.
15. Electrical Subcontractor Representative: (the following are a listing of major suppliers & their personnel to the Electrical Subcontractor who must play a significant part in the Cx Process).
    a. Lighting Control System Integrator Technician and/or Manufacturer Technician.
    b. Switchgear Manufacturer Technician.
    c. Standby Generator Manufacturer Technician.
    d. Automatic Transfer Switch Manufacturer Technician.
16. Others who might be deemed essential by the Commissioning Authority.

B. Owner will:
1. Assist with the preparation of the Owners Project Requirements.
2. Make timely decisions where required.
3. Be available for and participate in commissioning meetings as needed.
4. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.
5. Complete CALGreen closeout documentation as required.

C. Owner's Project/Construction Manager will:
1. Assist the Owner.
2. Make timely decisions where required.
3. Be available for commissioning meetings as needed.
4. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.
5. Complete CALGreen closeout documentation as required.

D. Commissioning Authority will:
1. Coordinates and directs the commissioning activities.
2. Coordinate the commissioning work and, with the GC and PM, ensure that commissioning activities are being scheduled in the master schedule.
3. Review the Contract Documents.
4. Create, edit, distribute, and manage portions of the commissioning process within Cx Alloy.
5. Submit commissioning status reports to the Owner.
6. Review equipment submittals.
7. Attend site meetings, as necessary, to obtain information on construction progress.
8. Conduct commissioning meetings.
9. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
10. Perform site visits to observe component and system installations.
11. Attend site to verify completed Pre-Functional Checklists.
12. Coordinate the resolution of non-compliance and deficiencies.
13. Attend site to witness Functional Testing.
14. Verify outcomes of commissioning tests and approve tests when completed.
15. Compile and maintain a commissioning record and building systems book(s).
16. Review, approve and provide comments to the training plan.
17. Analyze functional performance logs and monitoring data.
18. Provide a final commissioning report to the Owner.
19. Provide Systems Manual for commissioned systems.

E. Design Team will:
   1. Design and document the building and services in response to the Owner Project Requirements.
   2. Prepare, issue and update the Basis of Design throughout the project as needed.
   3. Accept invite, log-in, review and respond to items within Cx Alloy as required by the Commissioning Authority.
   4. Attend and participate in commissioning meetings.
   5. Include specific commissioning requirements in the contract documents.
   6. Provide any design narrative and sequence documentation requested by the Commissioning Authority. 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.
   7. Work with the Commissioning Authority to resolve design, documentation and operational issues.
   8. Review construction and issue punch lists when required.
   9. Issue all document revisions and construction bulletins to the Commissioning Authority.
   10. Approve equipment submittals prior to distribution to the Commissioning Authority.
   11. Approve Testing and Balancing reports prior to distribution to the Commissioning Authority.
   12. Participate in Functional Testing when required.
   13. Provide assistance and documentation as required for the systems manual.
   14. Complete CALGreen compliance forms.

F. Contractor will:
   1. Provide monthly reports to the Owner on the progress of commissioning.
   2. Follow the commissioning plan.
   3. Attend commissioning meetings.
   4. Accept invite, log-in, review and respond to issues, complete checklists and tests within Cx Alloy as required by the Commissioning Authority.
   5. Upload O&Ms, startup reports, TAB reports and any other necessary documents to Cx Alloy.
   6. Attend testing, adjusting, and balancing review and coordination meetings.
   7. Analyze specified products and verify that the designer has specified the newest most updated equipment reasonable for this project’s scope and budget.
   8. Provide submittals for systems to be commissioned to the Engineer of Record for approval. The approved submittals will then be issued to the CxA for development of PFC and FT forms.
   9. Provide Commissioning Authority with equipment manufacturer start-up reports and heat run reports and upload to Cx Alloy.
   10. Included detailed start-up procedures and specific responsibilities of the Owner to keep warranties in force.
   11. Provide measuring instruments and logging devices to record test data and provide data acquisition equipment to record data for the complete range of testing for the required test period.
   12. Provide information requested by Commissioning Authority regarding equipment sequence of operation and testing procedures including final calibration point to point reports.
   13. Coordinate with the Commissioning Authority to provide ten (10) day advance notice so that the witnessing of equipment and system start-up and testing can begin.
   14. Notify the Commissioning Authority a minimum of ten (10) days in advance of the time for start of the testing and balancing work. Attend the initial testing and balancing meeting for review of the official testing and balancing procedures.
   15. Execute, document, and submit Pre-Functional Checklists. contractors can submit their

installation, pre-functional checklists, or start-up forms for all systems to be commissioned for approval. Contractors forms must meet or exceed the CxA checklists in order to be approved. These forms must be submitted within 30-days of contract being awarded to contractors. Complete paper or electronic checklists as work is completed and provide to the Commissioning Authority on a weekly basis in Cx Alloy.

16. Review test procedures for equipment installed by factory representatives.
17. Provide input on Functional Test scripts.
18. Contractors shall pre-test all systems and equipment using functional test scripts prior to formal testing in presence of Commissioning Authority. Contractors shall provide filled in functional test forms to Commissioning Authority.
19. The Contractor will advise the Commissioning Authority of TAB Work that is incomplete or of obligations that have not been fulfilled but are required for Acceptance in accordance with the Contract Documents.
20. If engineer of record has approved certified TAB report with no comments, submit certified TAB report to the Commissioning Authority minimum of (5) days prior to the start date of TAB verification.
21. If engineer of record has not approved certified TAB report because of comments (issues i.e. air shortage, missing reads, equipment excluded) complete corrections and resubmit certified TAB report to the Commissioning Authority (3) days prior to the start date TAB verification. Handwritten copy is acceptable provided all issues have been resolved.
22. TAB verification and mechanical functional testing cannot be started in the event the TAB report has not been received / reviewed by the Engineer of Record or Commissioning Authority.
23. Participate in verification of the final test and balance report, which will consist of repeating measurements contained in the testing and balancing reports.
24. Assist in diagnostic purposes when directed.
25. Provide written notification to the CM/PM/GC and Commissioning Authority that the following work has been completed in accordance with the contract documents, and that the equipment, systems, and sub-system are operating as required.
26. Provide desk space in close proximity to utility, data and specialized software services that will record, trend, and Provide utility services required for the commissioning process.
27. Analyze components and systems that are identified as required for the commissioning process. A computer station to use during commissioning shall be set up on site to access building automation system and any individual sub-system servers to allow viewing of trending, alarms etc. during the commissioning process.
28. Assist in and execute Functional Tests for verification by the Commissioning Authority.
29. Include all special tools 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, except for stand-alone data logging equipment that may be used by the Commissioning Authority.
30. Cooperate with the Commissioning Authority for resolution of issues recorded in the issues log.
31. Review and accept pre-functional checklists provided by the Commissioning Authority.
32. Issue deficiency reports for any systems or equipment that is not in compliance with Contract Documents.
33. Resolve system deficiencies identified during commissioning process.
34. Execute all re-testing of deficient equipment and systems.
35. Submit trend logs (in CSV format) from the controls system to the Commissioning Authority for review and approval.
36. Submit an Owner training plan to the Commissioning Authority for review and approval.
37. Participate in, and schedule vendors and contractors to participate in Owner Operation & Maintenance training for the Owner’s operating personnel.

38. Provide Operation & Maintenance manuals to the Commissioning Authority for review and provide approved manuals to the Owner.
39. Provide as-built control sequences, control diagrams, system diagrams, maintenance schedules and construction drawings for inclusion in the systems manual.
40. Assist with the preparation of systems manuals.
41. The Contractor will ensure the subcontractors are responsible for the above as well as the following:
    a. The Contractor will ensure the subcontractors' vendors are involved and participate as required by the Commissioning Authority.
    b. The Contractor shall provide utility services and fuel required for the commissioning process.
    c. The Contractor will ensure the subcontractors' provide the required heat run reports for the ATS / Generator systems.
    d. Participate in Pre-Construction Commissioning Orientation meeting that will review procedures, testing and demonstration requirements.
    e. Conduct and participate in Construction-Phase Commissioning Coordination meetings.
    f. Develop and continually update and track schedule for specified submittals.
    g. Submit specified technical data, including start-up checklists and functional test procedures for each piece of major equipment.

1.06 ABBREVIATIONS AND DEFINITIONS

A. Abbreviations
1. **A/E:** Architect and Design Engineers
2. **BOD:** Basis of Design
3. **Cx:** Commissioning
4. **CxA:** Commissioning Authority
5. **CC:** Controls Contractor
6. **CD:** Contract Documents
7. **CM:** Construction Manager
8. **DD:** Design Develop Documents
9. **EC:** Electrical Contractor
10. **FT:** Functional Test
11. **GC:** General Contractor (Prime)
12. **LC:** Landscape Irrigation Contractor
13. **MC:** Mechanical Contractor
14. **OPR:** Owner Project Requirements
15. **O&M:** Operations and Maintenance
16. **OR:** Owner's Representative
17. **PFC:** Pre-Functional Checklist
18. **PC:** Plumbing Contractor
19. **PM:** Project Manager (of the Owner)
20. **SUBS:** Subcontractor to General
21. **TAB:** Testing and Balancing

B. Definitions
1. **Approval:** Acceptance that a document/piece of equipment/system has been properly prepared/installed/tested and is complaint with the requirements of the Contract Documents.
2. **Architect/Engineer (A/E):** The prime consultant (Architect) and sub-consultants who comprise the design team, generally the HVAC mechanical design/engineer and the

electrical design/engineer.

3. **Basis of Design (BOD):** A document that records concepts, calculations, decisions, and product selection used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
4. **Commissioning Authority (CxA):** An independent agent, not otherwise associated with the A/E team members or the Contractor, hired by the Owner. The CxA directs and coordinates the day-to-day commissioning activities. The CxA does not take an oversight role like the CM. The CxA is part of the Construction Manager (CM) team or shall report directly to the CM.
5. **Commissioning Plan (Cx Plan):** A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
6. **Cx Alloy (Online Commissioning Tool):** Cx Alloy is an online commissioning tool used to facilitate the commissioning process. It is used as a platform to host the commissioning plan, commissioning spec, design reviews, site observations, meeting minutes, project files, issue logs, pre-functional checklists, functional tests and all things commissioning related. Each person that is a part of the commissioning team will be required to log in to Cx Alloy in order to stay up to date with commissioning activities, respond to issues, complete pre-functional checklists, comment on functional test scripts, upload all necessary Cx documents and track progress of equipment being commissioned.
   Also available from Cx Alloy is an application for smart phones that allows users to respond to issues and complete pre-functional checklists.
7. **Data Logging:** Monitoring flows, currents, status, pressures, etc. of equipment using stand-alone data loggers separate from the control system.
8. **Deferred Functional Tests:** FT's that are performed later, after substantial completion, due to partial occupancy, equipment performed.
9. **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 perform properly or is not complying with the design intent).
10. **Factory Testing:** Testing of equipment on-site or at the factory by factory personnel with an Owner's Representative present.
11. **Functional Test (FT):** Test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g. the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The CxA develops the functional test procedures in a sequential written form, coordinates, oversees and documents that actual testing, which is usually performed by the installing contractor or vendor. FTs are performed after pre-functional checklists and startup are complete.
12. **General Contractor (GC):** The prime contractor for this project. Generally, refers to all the GC's subcontractors as well. Also referred to as the contractor, in some contexts.
13. **Heat Run Report:** Report provided by the Electrical Contractor for CxA review. Heat run to be conducted for ATS at 80% load, 4 hours in each position (utility / generator). Heat run to be conducted for Generator at 100% load, 30 minutes at 75% load and 30 minutes

at full load. Heat run testing can be performed in conjunction with other testing in order to maximize the use of temporary load banks.

14. **Monitoring:** The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.
15. **Non-Compliance:** See Deficiency.
16. **Non-Conformance:** See Deficiency.
17. **Over-written Value:** Writing over a sensor value in the control system to see the response of a system (e.g., changing the outside air temperature value from 50F to 75F to verify economizer operation). See also "Simulated Signal."
18. **Owner's Project Requirements (OPR):** A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
19. **Pre-Functional Checklist (PFC):** A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Sub. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK, labels affixed, gages in place, sensors calibrated, etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word pre-functional refers to before functional testing. Pre-functional checklists augment and are combined with the manufacturer's start-up checklist. Even without a commissioning process, contractors typically perform some, if not many, of the pre-functional checklist items a CxA will recommend. However, few contractors document in writing the execution of these checklist items. Therefore, for most equipment, the contractors execute the checklists on their own.
20. **Sampling:** Functionally testing only a fraction of the total number of identical or near identical pieces of equipment.
21. **Seasonal Performance Tests:** FT's that are deferred until the system(s) will experience conditions closer to their design conditions.
22. **Simulated Condition:** Condition that is created for the purpose of testing the response of a system (e.g., applying a hair blower to a space sensor to see the response in a VAV box).
23. **Simulated Signal:** Disconnecting a sensor and using a signal generator to send an amperage, resistance or pressure to the transducer and DDC system to simulate a sensor value.
24. **Startup:** The initial starting or activating of dynamic equipment, including executing pre-functional checklists.
25. **Subs:** The subcontractors to the GC who provide and install building components and systems.
26. **Test Procedures:** The step-by-step process, which must be executed to fulfill the test requirements. The CxA develops the test procedures.
27. **Test Requirements:** Requirements specifying what modes and functions, etc. shall be tested. The test requirements are not the detailed test procedures. The test requirements are specified in the Contract Documents.
28. **Vendor:** Supplier of equipment.
29. **Warranty Period:** Warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals.

1.07 COORDINATION

A. Commissioning Team:

1. The members of the commissioning team consist of the Commissioning Authority (CxA), the Owner, the designated representative of the owner's Project Management firm (PM), the General Contractor (GC or Contractor), the Architect and Design Engineers (A/E), the Mechanical Contractor (MC), the Electrical Contractor (EC), the TAB representative, the Controls Contractor (CC), and any other installing subcontractors or suppliers of equipment. If known, the Owner's building or plant operator/engineer is also a member of the commissioning team.
2. Management: The Owner hires the CxA directly. The CxA directs and coordinates the commissioning activities and reports to the Owner. All members work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents.
3. Scheduling: The CxA will work with the CM and GC according to established protocols to schedule the commissioning activities. The CxA will provide sufficient notice to the Owner and General Contractor for scheduling commissioning activities. The GC will integrate all commissioning activities into the master schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

1.08 SUBMITTALS

A. Commissioning Work Products:
The commissioning process generates a number of written work products during construction that are to be submitted to the CxA as described in Division specifications and sections specifying related equipment. The written products to be developed by the Contractor and uploaded to Cx Alloy are:
1. Revised construction schedule including commissioning tasks.
2. Equipment submittals for all commissioned systems.
3. Sequences of Operation for all commissioned systems.
4. Control diagrams and computer graphics.
5. Final Testing and Balancing report.
6. Energy Code Compliance Forms – if applicable.
7. Pre-Functional Checklists for all commissioned systems.
8. Heat Run report for ATS / Generator.
9. Load bank plan for ATS / Generator load testing.
10. Monthly commissioning reports.
11. Commissioning deficiency Reports.
12. Manufacturer installation, Operation and Maintenance manuals for commissioned systems.
13. Training plan for commissioned systems.
14. As-built control sequences, control diagrams, system diagrams, maintenance schedules and construction drawings for inclusion in the systems manual.
15. The CxA will review and comment on all documents relating to the commissioned equipment and commissioning process.

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

A. The following minimum testing equipment required for the execution of Functional Testing shall be provided by the Contractor:
1. Air temperature probes.
2. Immersion temperature probes.
3. Air pressure meter.
4. Water pressure meter.

5. Air flow hood.
6. Air relative humidity or wet bulb temperature probes.
7. Light meter.

B. The Contractor shall provide two-way radios, extension cords and ladders, as needed, to assist in the commissioning process.

C. During testing, the Contractor shall make available any room or equipment that is required for testing such as electrical or mechanical rooms. This access shall include keys, security badges or escorts for secured areas. The Client shall provide access to any areas that have been secured prior to final commissioning. The Commissioning entities will provide the Client 48 hours advance notification in order to provide access to any campus secured areas as part of the testing effort.

D. During testing, the Contractor shall provide equipment specific keys or access tools and passwords that are to be used as part of the testing process.

E. All test equipment shall be calibrated at 12-month intervals or sooner where recommended by the manufacturer. Independent certificates of calibration or current calibration tags shall be readily available. If equipment is dropped or damaged it shall be fixed or replaced and re-calibrated prior to use.

F. Test Equipment Sensor Tolerances (Use values listed below if not specified in mechanical drawings/specs):
1. Outside air, space air, duct air temps: 0.4°F.
2. Watt-hour, voltage & amperage: 1% of design.
3. Pressures, air, water and gas: 3% of design.
4. Flow rates, air: 10% of design.
5. Flow rates, water: 4% of design.
6. Relative humidity: 4% of design.
7. Barometric pressure: 0.1 in. of Hg.

G. Control System Instrument Calibration:
1. All sensors and gauges will be tested to verify accuracy within the specified tolerances. Contractor to provide the necessary artificial smoke/gas aerosol to demonstrate accuracy for field calibrated sensors (ex: CO, CO2).
2. All field-installed sensors, gauges, and actuators shall be calibrated per the manufacturer's recommendations.
3. Alternate calibration methods may be used, if approved by the CxA beforehand.
4. Sensors installed at the factory that are provided with calibration certification need not be field calibrated.

H. IR Scanning Equipment:
IR scanning shall be performed by an Infraspection Institute Level II certified Thermographer per NETA Testing Specifications and the latest edition of the Standard for Infrared Inspection of Electrical Systems and Rotating Equipment as issued by the Infraspection Institute. Report to be provided to CxA for review. See Division 26 specifications for additional IR scanning requirements.

I. Other Testing Equipment:
1. Any required rental or purchase of test equipment, tools and instruments required for

commissioning shall be included in the base bid price by the Contractor.

2. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents shall be included in the base bid price to the Contractor and left on site, except for stand-alone data logging equipment that may be used by the CxA. Included in this requirement is any false loading equipment (i.e. load banks) required for Functional Testing. False load equipment shall be provided until the respective test is passed.
3. Load banks will be required for the testing of the following areas:
   a. ATS load
   b. Generator load
4. Portable Load Banks with cables/connections for ATS and standby Generator burn-in and functional testing.

J. Fuel
1. Any required fuel for commissioning shall be included in the base bid price by the Contractor.
2. Additional fuel required to repeat failed tests shall be provided until the test is passed.

PART 3 - EXECUTION

3.01 MEETINGS

A. Kick-off Meeting:
1. The CxA will schedule, plan, and conduct a commissioning Kick-Off meeting with the entire Commissioning Team. This will include the Contractor's commissioning team.

B. Commissioning Meetings:
1. The CxA will schedule, plan, and conduct all additional commissioning meetings.
2. Commissioning meetings will be scheduled with each Site Observation, Pre-Functional check, and functional Testing site attendance.
3. Commissioning meetings required to resolve and/or update scheduling, commissioning coordination and design issues will be held at the discretion of the CxA.
4. All meetings will include the contractors commissioning team.

3.02 REPORTING

A. The Contractor will provide monthly reports to the Owner on the progress of commissioning, keeping the CxA informed of commissioning progress and scheduling changes.

B. Commissioning team will issue and track deficiency reports in CxAlloy.

C. CxA will issue site observation reports.

D. CxA will issue Cx Issues Logs that record any deviations from the Contract Documents and any functional deficiencies.

E. CxA will issue a final commissioning report.

3.03 PHASED COMMISSIONING

A. The project will not require startup and initial checkout to be executed in phases.

3.04 PRE-FUNCTIONAL CHECKING

A. The Contractor shall execute Pre-Functional checks and document the process within Cx Alloy using the Pre-Functional Checklists provided by the CxA.

B. The Contractor shall submit completed Pre-Functional Checklists signed and dated where required, for approval prior to proceeding to Functional Testing.
   1. Only individuals that have direct knowledge of the system and equipment shall mark Pre-Functional Checklists completed.
   2. The Contractor shall clearly list any outstanding items that were not completed successfully.
   3. By completing the Pre-Functional Checklists in Cx Alloy the Contractor certifies to the Commissioning Authority that MEP and landscape systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.
   4. By completing the Pre-Functional Checklists in Cx Alloy the Contractor certifies to the Commissioning Authority that HVAC&R instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.
   5. By completing the Pre-Functional Checklists in Cx Alloy the Contractor certifies that testing, adjusting, and balancing procedures have been completed and that testing, adjusting, and balancing reports have been submitted, discrepancies corrected, and corrective work approved.
   6. Place systems, subsystems, and equipment into operating mode to be tested (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).
   7. Inspect and verify the position of each device and interlock identified on checklists.
   8. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.
   9. Testing Instrumentation: Install measuring instruments and logging devices to record test data as directed by the CxA.

C. The Owner has contracted the CxA to attend site on one (1) occasion to verify that the Pre-Functional Checklists submitted by the Contractor are complete and reflect the site installation. If the Pre-Functional Checklists are not verified as complete the Contractor will be liable for the costs associated with achieving the required verification.

D. Pre-Functional Checking does not exclude or supersede manufacturer’s start-up and checkout procedures. Such additional checks and start-up procedures will form part of the commissioning documents and need to be uploaded to Cx Alloy.

E. Prior to performance of Testing, Adjusting and Balancing work, provide copies of reports, sample forms, checklists, and certificates to the CxA. Upload reports to Cx Alloy.

F. Notify the CxA at least ten (10) days in advance of testing and balancing work, and provide access for the CxA to witness testing and balancing work.

G. Provide technicians, instrumentation, and tools to verify testing and balancing of HVAC&R systems at the direction of the CxA.

H. The CxA will notify testing and balancing subcontractor ten (10) days in advance of the date of field verification. Notice will not include data points to be verified.

I. The testing and balancing subcontractor shall use the same instruments (by model and serial

number) that were used when original data were collected. Failure of an item includes a deviation of more than 10 percent. Failure of more than 10 percent of selected items shall result in rejection of final testing, adjusting, and balancing report.

J. Remedy the deficiency and notify the CxA so verification of failed portions can be performed.

K. Sensor and Actuator Calibration.
   1. All field-installed temperature, relative humidity, CO, CO_2 and pressure sensors and gages, and all actuators (dampers and valves) on all equipment shall be calibrated using the methods described below. Alternate methods may be used, if approved by the Owner and CxA beforehand. All test instruments shall have had a certified calibration within the last 12 months. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.
   2. All procedures used shall be fully documented on the pre-functional checklists or other suitable forms, clearly referencing the procedures followed and written documentation of initial, intermediate and final results.
   3. Sensor Calibration Methods: All Sensors. Verify that all sensor locations are appropriate and away from causes of erratic operation. Verify that sensors with shielded cable are grounded only at one end. For sensor pairs that are used to determine a temperature or pressure difference, make sure they are reading within 0.2°F of each other for temperature and within a tolerance equal to 2% of the reading, of each other, for pressure. Tolerances for critical applications may be tighter.
   4. Sensors without Transmitters--Standard Application. Take a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage or building automation system (BAS)) is within the tolerances in the table below of the instrument-measured value. If not, install offset in BAS, calibrate or replace sensor.
   5. Sensors with Transmitters--Standard Application. Disconnect sensor. Connect a signal generator in place of sensor. Connect ammeter in series between transmitter and BAS control panel. Using manufacturer's resistance-temperature data, simulate minimum desired temperature. Adjust transmitter potentiometer zero until 4 mA is read by the ammeter. Repeat for the maximum temperature matching 20 mA to the potentiometer span or maximum and verify at the BAS. Record all values and recalibrate controller as necessary to conform to specified control ramps, reset schedules, proportional relationship, reset relationship and P/I reaction. Reconnect sensor. Make a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage or building automation system (BAS)) is within the tolerances in the table below of the instrument-measured value. If not, replace sensor and repeat.
   6. For pressure sensors, perform a similar process with a suitable signal generator.
   7. Critical Applications: For critical applications (process, manufacturing, etc.) more rigorous calibration techniques may be required for selected sensors. Describe any such methods used on an attached sheet.

TOLERANCES, STANDARD APPLICATIONS			
Sensor	Required Tolerance (+/-)	Sensor	Required Tolerance (+/-)
Cooling coil, chilled and Condenser water temps	0.4F	Flow rates, water Relative humidity	4% of design 4% of design
AHU wet bulb or dew point	2.0F	Flow rates, air	10% of design
Hot water coil and boiler water temp	1.5F	Natural gas and oil flow rate	1% of design
Outside air, space air, duct air temps	0.4F	Pressures, air, water and gas	3% of design
Watt hour, voltage and amperage	1% of design	CO_2 monitor	0.01 % pts
		Barometric pressure	in. of Hg

8. Valve and Damper Stroke Setup and Check: For all valve and damper actuator positions checked, verify the actual position against the BAS readout.
9. Set pumps or fans to normal operating mode. Command valve or damper closed, visually verify that valve or damper is closed and adjust output zero signal as required. Command valve or damper open, verify position is full open and adjust output signal as required. Command valve or damper to a few intermediate positions. If actual valve or damper position doesn't reasonably correspond, replace actuator or add pilot positioner (for pneumatics).
10. Closure for heating coil valves (NO): Set heating setpoint 20°F above room temperature. Observe valve open. Remove control air or power from the valve and verify that the valve stem and actuator position do not change. Restore to normal. Set heating setpoint to 20°F below room temperature. Observe the valve close. For pneumatics, by override in the EMS, increase pressure to valve by 3 psi (do not exceed actuator pressure rating) and verify valve stem and actuator position does not change. Restore to normal.
11. Closure for cooling coil valves (NC): Set cooling setpoint 20°F above room temperature. Observe the valve close. Remove control air or power from the valve and verify that the valve stem and actuator position do not change. Restore to normal. Set cooling setpoint to 20°F below room temperature. Observe valve open. For pneumatics, by override in the EMS, increase pressure to valve by 3 psi (do not exceed actuator pressure rating) and verify valve stem and actuator position does not change. Restore to normal.

L. Execution of Pre-functional Checklists and Startup: Four weeks prior to startup, the Subs and vendors schedule startup and checkout with the CM, GC and CxA. The performance of the pre-functional checklists, startup and checkout are directed and executed by the Sub or vendor. When completing Pre-Functional Checklists contractors should only complete sections assigned to them.

M. The CxA shall observe, at minimum, the procedures for each piece of primary equipment, unless there are multiple units, (in which case a sampling strategy may be used as approved by the CM). In no case will the number of units witnessed be less than ten on any one building, nor less than 10% of the total number of identical or very similar units.

N. For lower-level components of equipment, (e.g., VAV boxes, sensors, controllers), the CxA shall observe a sampling of the pre-functional and start-up procedures. The sampling procedures are identified in the commissioning plan and Functional Testing section within the spec.

O. The Subs and vendors shall execute startup and provide the CxA with a signed and dated copy

of the completed start-up report, pre-functional checklists and tests uploaded to Cx Alloy.

P. Only individuals that have direct knowledge and witnessed that a line item task on the pre-functional checklist was actually performed shall check that item. It is not acceptable for witnessing supervisors to fill out these forms.

Q. Deficiencies, Non-Conformance and Approval in Checklists and Startup.
1. The Subs shall create issues of any outstanding items of the initial start-up and pre-functional procedures that were not completed successfully, within Cx Alloy.
2. The CxA reviews the report submitted either a non-compliance report or an approval form to the Sub or Cx. The CxA shall work with the Subs and vendors to correct and retest deficiencies or in complete items. The CxA will involve all parties necessary. The installing Subs or vendors shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, and shall notify the CxA as soon as outstanding items have been corrected and resubmit an updated start-up report and a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CxA recommends approval of the execution of the checklists and startup of each system to the CM using a standard form.
3. Items left incomplete, which later cause deficiencies or delays during functional testing may result in back charges to the responsible party. Refer to Part 3.07 herein for details.

3.05 FUNCTIONAL TESTING

A. Functional Test forms are prepared by the CxA and issued to the Commissioning Team for review.

B. Functional Testing is scheduled by the Commissioning Team and managed by the CxA.

C. Functional Tests are executed by the Contractor and verified by the CxA and/or Owner.

D. The Contractor shall confirm the schedule for execution of Functional Tests at least two weeks prior to execution of any test.

E. The Contractor, relevant subcontractors or manufacturer technicians shall provide heat run reports required for ATS / Generator Functional Testing.

F. The Contractor, relevant subcontractors and manufacturer technicians shall attend and execute the Functional Tests.

G. Provide the necessary calibrated test equipment, load banks, cabling, hot air heat deflection, temporary floor reinforcing, instruments, test leads, artificial smoke/gas aerosols, tools, fuel, temporary power and lighting, handheld communication devices, appropriately skilled technicians, physical security, barricades, temporary structures and barriers, safety equipment, protective clothing, additional code line programming for virtual and simulation control overrides, consumable materials (lubricants, filters, gaskets, drive belts, fuses, cleaners, etc.), miscellaneous incidentals, and other material and labor as necessary to conduct the functional test.

H. The Contractor, relevant subcontractors and manufacturer technicians shall attend and execute the ATS Functional Tests and requirements listed below:
1. Prior to commencing Functional Testing, provide load bank plan with load bank size, load bank location, load bank cable routing and a means of protection to be provided to CxA for review.

2. In the course of the Functional Testing, generate a Heat Run Report with the transfer switch loaded at 80% of full load rating for 4 hours in each position (Utility & Generator).
3. During Functional Testing, transfer power from utility to generator in order to verify generator start signal and switch transfer.
4. During Functional Testing, transfer power from generator to utility in order to verify generator stop.

I. The Contractor, relevant subcontractors and manufacturer technicians shall attend and execute the Generator Functional Tests and requirements listed below.
1. Prior to commencing Functional Testing, provide load bank plan with load bank size, load bank location, load bank cable routing and a means of protection to be provided to CxA for review.
2. In the course of the Functional Test, generate a Heat Run Report with the Generator loaded at 100% of full load rating. Generator to operate at 75% load for 30 minutes and 100% load for 30 minutes. Water temperature, oil pressure, ambient air temperature, voltage, current, frequency and kilowatts shall be recorded every 15 minutes.
3. Complete Generator engine run for a minimum of 8 hours at full load test at 0.8pf on the generator using temporary load banks recording gauge and meter readings every 30 minutes.
4. During Functional Testing, transfer power from utility to generator in order to verify generator start signal and switch transfer.
5. During Functional Testing, transfer power from generator to utility in order to verify generator stop.
6. In the course of the Functional Testing, verify Generator loading in sequence.
7. In the course of the Functional Testing, verify Generator control panel operation.
8. In the course of the Functional Testing, verify Emergency Power Off function.

J. The Owner and/or CxA may choose to witness the execution of any Functional Tests.

K. The CxA shall formally list any system deficiencies found during the Functional Testing on the Commissioning Issues Log.

L. The Contractor shall correct deficient or incomplete system elements in a timely manner, and shall formally notify the CxA as soon as the system is ready for re-testing.

M. Any Functional Test that fails due to a deficiency will be retested by the Contractor until the Functional Test is passed.

N. The Owner has contracted the CxA to attend site to witness one (1) test attempt for each Functional Test issued by the CxA, plus four (4) hours (as a single site visit) of retesting. If the test is not passed after the allotted retest time, the Contractor will be liable for the costs associated with additional Functional Tests until the test is passed.

O. Statistical Sampling: The CxA may choose to implement statistically sampling as part of the testing procedures. The use of sampling will be confirmed prior to sampling.
1. Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy. Significant application differences and significant sequence of operation differences in otherwise identical equipment invalidates their common identity. A small size or capacity difference, alone, does not constitute a difference. It is noted that no sampling by Subs is allowed in pre-functional checklist execution.
2. A common sampling strategy referenced in the *Specifications* as the “xx% Sampling—yy% Failure Rule” is defined by the following example.

xx = the percent of the group of identical equipment to be included in each sample.
yy = the percent of the sample that if failing, will require another sample to be tested.

3. The example below describes a 20% Sampling—10% Failure Rule.
4. Randomly test at least 20% (xx) of each group of identical equipment. In no case test less than ten units in each group. This 20%, or ten, constitute the "first sample."
5. If 10% (yy) of the units in the first sample fail the functional performance tests, test another 20% of the group (the second sample).
6. If 10% of the units in the second sample fail, test all remaining units in the whole group.

P. If at any point, frequent failures are occurring and testing is becoming more troubleshooting than verification, the CxA may stop the testing and require the responsible Sub to perform and document a checkout of the remaining units, prior to continuing with functionally testing the remaining units.

Q. Functional Testing Objectives and Scope:
1. The objective of Functional Testing is to demonstrate that each system is operating in accordance with the Contract Documents.
2. Each system to be commissioned will be tested while operating in all modes of operation.
3. During the testing process, areas of deficient performance will be identified and corrected.

R. Mechanical Functional Testing Outline:

AIR VALVE + HEATING COIL		
Functions to be tested:		
Remove and restore local power	Shutdown	Lockouts
Occupied / Unoccupied modes	Interlocks	Safeties
Alarms	Overrides	Temperature Control
Airflow Offset Control		
Sampling:		
Yes		
Conditions under which test shall be performed:		
Normal power		
All equipment and systems in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Artificial smoke / spray (smoke detectors)		
Velocity Meter / Flow Hood		
Team members required to be present for testing:		
GC, MC, CC, EC		

AIR HANDLING UNIT		
Functions to be tested:		
Remove and restore local power	Interlocks	Safeties
Occupied / Unoccupied modes	Cooling / heating	Startups
Alarms	Overrides	Scheduling
Shutdown	Lockouts	
Sampling: No		
Conditions under which test shall be performed: Normal power All equipment and systems in auto		
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Temperature probe (calibrated) Artificial smoke / spray (smoke detectors) Velocity Meter / Flow Hood		
Team members required to be present for testing: GC, MC, CC, EC, Manufacturer Technician		

BOILER	
Functions to be tested:	
Control parameters	Control
Remove and restore local power	Pump operation
Sampling: No	
Conditions under which test shall be performed: Normal power All equipment and systems in auto	
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Thermometer (calibrated)	
Team members required to be present for testing: GC, MC, Manufacturer Technician	

BUILDING AUTOMATION SYSTEM (BAS)		
Functions to be tested:		
Point-to-point	Alarm management	Control parameters
Graphics	Schedule management	Workstation component verification
Trends	Device calibration	Password and access control
Power interruption	Sensor verification	Software communication
Submetering		
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
Emergency power		
All equipment and systems in auto		
Operator workstation installation complete		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Temperature / Humidity probe (calibrated)		
Manufacturer's control point map		
Team members required to be present for testing:		
GC, MC, CC		

FAN (EXHAUST) (EF)		
Functions to be tested:		
Remove and restore local power	Interlocks	Startup
Occupied / Unoccupied modes	Overrides	Scheduling
Alarms	Lockouts	
Shutdown	Safeties	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
All equipment and systems in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Artificial smoke / spray (smoke detectors)		
Velocity Meter / Flow Hood		
Team members required to be present for testing:		
GC, MC, CC, EC		

FAN (LAB EXHAUST)		
Functions to be tested:		
Remove and restore local power	Interlocks	Startup
Occupied / Unoccupied modes	Overrides	Scheduling
Alarms	Lockouts	
Shutdown	Safeties	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
Emergency power		
All equipment and systems in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Artificial smoke / spray (smoke detectors)		
Velocity Meter / Flow Hood		
Team members required to be present for testing:		
GC, MC, CC, EC		

PUMPS (HEATING HOT WATER)		
Functions to be tested:		
Control parameters	Control	Shutdown
Remove and restore local power	Alarms	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
Emergency power		
System in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Amperage meter		
Team members required to be present for testing:		
GC, MC, CC, EC, Manufacturer Technician		

SPLIT SYSTEM (VARIABLE REFRIGERANT) (FC, BS, HRV)		
Functions to be tested:		
Remove and restore local power	Interlocks	Safeties
Occupied / Unoccupied modes	Condensate Pump	Startup
Alarms	Overrides	Scheduling
Shutdown	Lockouts	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
All equipment and systems in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Temperature probe (calibrated)		
Bucket / bottle of water to fill condensate pan (pump operation)		
Velocity Meter / Flow Hood		
Team members required to be present for testing:		
GC, MC, CC, EC, Manufacturer Technician		

TERMINAL UNIT – VAV (COOLING + HEATING)		
Functions to be tested:		
Remove and restore local power	Shutdown	Lockouts
Occupied / Unoccupied modes	Interlocks	Safeties
Alarms	Overrides	Temperature Control
Sampling:		
Yes		
Conditions under which test shall be performed:		
Normal power		
All equipment and systems in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Artificial smoke / spray (smoke detectors)		
Velocity Meter / Flow Hood		
Team members required to be present for testing:		
GC, MC, CC, EC		

S. Electrical Functional Testing Outline:

AUTOMATIC TRANSFER SWITCH (ATS)		
Functions to be tested:		
Control parameters	Control at 80% of full load	
Remove and restore local power	Alarms	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
Standby power		
System in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Team members required to be present for testing:		
GC, EC, Manufacturer Technician		

GENERATOR (+ SWITCHGEAR)		
Functions to be tested:		
Control parameters	Control at full load	Fuel Transfer System
Remove and restore local power	Alarms	Shutdown
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
Standby power		
System in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Team members required to be present for testing:		
GC, EC, Manufacturer Technician		

LIGHTING (EXTERIOR)
Functions to be tested: Control parameters Control (on/off, zoning) Schedule
Sampling: No
Conditions under which test shall be performed: Normal power Emergency power All equipment and systems in auto
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Light Meter
Team members required to be present for testing: GC, EC

LIGHTING (INTERIOR)
Functions to be tested: Control parameters Schedule Daylight Dimming Test (Day / Night Test) Occupancy sensor control (sensitivity, on/off, illumination, timeout, false trigger, zoning) Wall station control (on/off, zoning, scenes, illumination, override) Lighting control panels (schedule, zoning, override, program) Power failure
Sampling: Yes
Conditions under which test shall be performed: Normal power Emergency power All equipment and systems in auto
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Light Meter
Team members required to be present for testing: GC, EC, Manufacturer Technician

T. Plumbing Functional Testing Outline:

BOOSTER PUMP (BP)		
Functions to be tested:		
Control parameters	Control	Shutdown
Remove and restore local power	Alarms	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
System in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Amperage meter		
Team members required to be present for testing:		
GC, PC, EC, Manufacturer Technician		

CIRCULATION PUMP (CP)		
Functions to be tested:		
Control parameters	Control	Shutdown
Remove and restore local power	Alarms	
Sampling:		
No		
Conditions under which test shall be performed:		
Normal power		
System in auto		
Equipment / tools required for testing:		
As needed by contractor to demonstrate functionality		
Amperage meter		
Team members required to be present for testing:		
GC, PC, EC, Manufacturer Technician		

WATER HEATER (WH)
Functions to be tested: Control parameters Control (schedule, heating, temperature setpoint) Remove and restore local power
Sampling: No
Conditions under which test shall be performed: Normal power All equipment in auto
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Thermometer (calibrated) Amperage meter
Team members required to be present for testing: GC, PC, EC

U. Landscape Irrigation Functional Testing Outline:

LANDSCAPE IRRIGATION
Functions to be tested: Control parameters Control (schedule, overspray, zoning)
Sampling: No
Conditions under which test shall be performed: Normal power System in auto Manual schedule override
Equipment / tools required for testing: As needed by contractor to demonstrate functionality Amperage meter
Team members required to be present for testing: GC, LC, EC

3.06 POST CONSTRUCTION CHECKING, TESTING AND OPTIMIZATION

A. The contractor will provide BAS trend data in excel format to the CxA on a quarterly basis. Ensure all trends have same time stamps so they all line up with one another and there are no empty rows of data between one time interval and the next.

B. The CxA shall review the operation of the commissioned systems with Owner.

C. The CxA shall provide recommendations on system enhancements that will address operational issues or energy efficiency of the commissioned systems.

D. The Contractor will complete tests, implement optimization strategies and participate in the resolution of issues.

3.07 DEFICIENCY RESOLUTION

A. The CxA will record Pre-Functional deficiencies on Cx Issues Logs and issue to the Contractor.

B. Correction of Pre-Functional deficiencies must be completed prior to Functional Testing. Completion will be verified by the closeout of the Commissioning Issues Log items.

C. The CxA will record the results of the Functional Testing on the Functional Test Forms. Deficiencies or non-compliance issues shall be noted on the test forms and/or on the Commissioning Issues Log.

D. Corrections of minor deficiencies identified may be made during the tests at the discretion of the Cx Authority. In such cases the deficiency and resolution will be documented on the test form.

E. Problem Solving: The CxA may recommend solutions to problems found, however the burden of responsibility to solve, correct and retest problems is with the GC, Subs and A/E.

F. Non-Conformance: The CxA will record the results of the functional test on the procedure or test form. All deficiencies or non-conformance issues shall be noted and reported to the CM in the issues log. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CxA. In such cases the deficiency and resolution will be documented on the procedure form.

G. Every effort will be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures. However, the CxA will not be pressured into overlooking deficient work or loosening acceptance criteria to satisfy scheduling or cost issues, unless there is an overriding reason to do so at the request of the CM.

H. As tests progress and a deficiency is identified, the CxA discusses the issue with the executing contractor.

I. When there is no dispute on deficiency and the Sub accepts responsibility to correct it: The CxA documents the deficiency and the Sub's response and intentions and they go on to another test or sequence. After the day's work, the CxA submits the issues log to the CM. A copy is provided to the Sub and CxA. The Sub corrects the deficiency, and marks item "complete pending CxA verification" on issues log certifying that the equipment is ready to be retested and notifies CxA.

J. The CxA reschedules the test and the test is repeated.

K. If there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible:
   1. The deficiency shall be documented on the non-compliance form with the Sub's response and a copy given to the CM and to the Sub representative assumed to be responsible.
   2. Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the A/E. Final acceptance authority is with the Project Manager.
   3. The CxA documents the resolution process.
   4. Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency, responds to the associated issue(s) with correction and photos (as needed) and marks the item(s) "complete pending CxA verification" and provides it to the CxA. The CxA reschedules the test and the test is repeated until satisfactory performance is achieved.

L. Cost of Retesting: For a deficiency identified, not related to any pre-functional checklist or start-up fault, the following shall apply: Up to a maximum of four (4) hours (as a single site visit) is assumed for verification of any retesting of systems during functional testing phase. Retesting required beyond this amount shall be charged on a time and materials basis upon pre-approval of the client. The CxA's time for retesting beyond the amount listed above will be charged to the GC, who may choose to recover costs from the responsible Sub.

M. Approval: The CxA notes each satisfactorily demonstrated function on the test form. Formal approval of the functional test is made later after review by CxA and by CM, if necessary. The CxA recommends acceptance of each test to CM using a standard form. The CM gives final approval on each test using the same form, providing a signed copy to CxA and the Contractor.

3.08 OPERATIONS & MAINTENANCE DOCUMENTATION

A. The Contractor will provide the Owner with complete Operations and Maintenance information, per the provisions in Division 01 Specification Sections. Contractor to provide at a minimum:
   1. Basic operation (i.e., narratives of basic equipment operation, interfaces, interlocks & interaction with other equipment & systems, initial maintenance provided by the contractor).
   2. General site operating schedules (i.e., instructions for changes in major system operating schedules, instructions for changes in major system holiday & weekend schedules).
   3. Basic troubleshooting (i.e., cite recommended troubleshooting procedures specific to major systems & equipment, manual operation procedures, standby/backup/bypass operation procedures, major system power fail resets and restarts, trend log listing).
   4. Recommended maintenance events log (i.e., HVAC air filler replacement schedule & log, building control system sensor calibration schedule & log).

B. Contractor shall submit two draft copies of the complete operating and maintenance manual to the Owner and/or PM for review by the architect/engineer and CxA within 60 calendar days after review of equipment shop drawings. One copy will be returned to the contractor within 30 days after receipt by the A/E. The O&M manuals are the responsibility of the Contractor.

C. Equipment submittals provided to CxA do not constitute compliance for O&M manual documentation.

D. Contractor shall provide O&M documentation to CxA in electronic format.

3.09 TRAINING

A. The Contractor will provide the Owner with complete Operations and Maintenance (O&M) training, per the provisions in Division 01 Specification Sections.

B. Each Sub and vendor responsible for training will submit a written training plan to the CxA for review and approval 1 month prior to training. The plan will cover the following elements:
   1. Equipment (included in training).
   2. Intended audience.
   3. Location of training.
   4. Objectives.
   5. Subject covered (description, duration of discussion, special methods, etc.).
   6. Duration of training on each subject.
   7. Instructor for each subject.
   8. Methods (classroom lecture, video, site walk-through, actual operational demonstrations, written handouts, etc.).
   9. Instructor and qualifications.
   10. System/equipment overview (i.e., what it is, what it does, and with what other systems and/or equipment interfaces).
   11. Review and demonstration of servicing & preventative maintenance.
   12. Review of the information in the Systems Manual.
   13. Review of the record drawings on the system/equipment.

C. For the primary HVAC equipment, the Controls Contractor shall provide a short discussion of the control of the equipment during the mechanical or electrical training conducted by others.

D. The Contractor shall record the training sessions and provide the Owner with a training manual and edited DVD of the training sessions.

3.10 SYSTEMS MANUAL

A. The CxA shall be responsible for coordinating the production of the systems manual.

B. The Contractor shall provide the following information to the CxA 30 days prior to substantial completion for inclusion to the systems manual.
   1. Prime Contractor contact information.
   2. Subcontractor information.
      a. Mechanical
      b. Electrical
      c. Plumbing
      d. Controls
      e. Test and Balance
      f. Fire Alarm
   3. Equipment supplier contact information.
   4. Spare parts inventory.
   5. Frequently required parts and supplies.
   6. Special equipment required to operate or maintain systems.
   7. Special tools required to operate or maintain systems.
   8. Copies of all special inspection verifications required by the enforcing agency of CALGreen.
   9. Final control drawings and schematics and final control sequences.
   10. Current requirements (i.e., building operating schedules, space temperature, humidity, pressure, CO2 setpoints, summer and winter setback schedules, chilled and hot water temperatures, as-built control setpoints & parameters).

C. A/E Contribution: The A/E will include in the beginning of the O&M Manuals a separate section describing the systems including:
   1. The design intent narrative (Basis of Design) prepared by the A/E and provided as part of the bid documents, updated to as-built status by the A/E.
   2. Simplified professionally drawn single line system diagrams on 8 ½" x 11" or 11" x 17" sheets. These shall include chillers, water system, condenser water system, heating system, supply air systems, exhaust systems and electrical distribution system. These shall show major pieces of equipment such as pumps, chillers, boilers, control valves, expansion tanks, coils, service valves, switchboards, motor control centers, panel boards, etc.

D. CxA Review and Approval: Prior to substantial completion, the CxA shall review the O&M manuals, documentation and redline as-builts for systems that were commissioned to verify compliance with the Specifications.

E. Final Report Details: The final commissioning report shall include an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the CxA regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
   1. Equipment meeting the equipment specifications.
   2. Equipment installation.
   3. Functional performance and efficiency.
   4. Equipment documentation and design intent.
   5. Operator training.
   6. All outstanding non-compliance items shall be specifically listed.
   7. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed.

F. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented. The functional performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, etc.) and include observations and conclusions from the testing.

G. The CxA will retain other documentation: The Contractor shall provide as-built control sequences, control diagrams, system diagrams, maintenance schedules and construction drawings for inclusion in the system manual.

3.11 WRITTEN WORK PRODUCT

The commissioning process generates a number of written work products described in various parts of the *Specifications.* The *Commissioning Plan—Construction Phase,* lists all the formal written work products, describes briefly their contents, who is responsible to create them, their due dates, who receives and approves them and the location of the specification to create them. In summary, the written products are:

Product	**Developed By**
Final commissioning plan	Commissioning Authority
Cx meeting minutes	Commissioning Authority
Commissioning schedules	Commissioning Authority with GC and CM
Equipment documentation submittals	Subs
Sequence clarification	Subs and A/E (as needed)

Product	Developed By
Pre-functional checklists	Commissioning Authority
Startup and initial checkout plan	Subs and CxA (compilation of existing documents)
Startup and initial checkout forms filled out	Subs
Final TAB report	TAB
Issues log (deficiencies)	Commissioning Authority
Commissioning Progress Record	Commissioning Authority
Deficiency reports	Commissioning Authority
Functional test forms	Commissioning Authority
Filled out functional tests	Commissioning Authority
O&M manuals	Subs
Overall training plan	GC and CM
Specific training agendas	Subs
Final commissioning report	Commissioning Authority
Misc. approvals	Commissioning Authority

3.12 PROJECT CLOSEOUT

A. The Commissioning process shall be completed when:
1. All Pre-Functional Checklists are complete and signed by the Commissioning Authority.
2. All Functional Tests are completed and all test elements are passed.
3. All issues recorded on the Commissioning issues log are closed.
4. Training and post construction review of the commissioned systems is complete.
5. Controls system trend logs have been reviewed and approved by the Commissioning Authority.
6. The commissioned systems are installed and operate in accordance with the Contract Documents, as determined by the Commissioning Authority and Owner.
7. The commissioning process shall continue past substantial completion of the Project, until all non-compliance issues have been resolved.
8. Closeout docs and systems manual are complete and submitted to the Owner.

END OF SECTION