

PURCHASING DIVISION
CITY OF WORCESTER
MASSACHUSETTS 01608-1895
ROOM 201 - CITY HALL, 455 MAIN ST.
PHONE (508) 799-1220

SEALED BID INVITATION
(Supplies, Material, Equipment, Services)

AN EQUAL OPPORTUNITY AFFIRMATIVE ACTION EMPLOYER

SEALED BID NO. CR-8564-F6

DATE: October 21, 2025

CITY OF WORCESTER
Christopher J. Gagliastro, MCPPO
Purchasing Agent

BUYER: Jeremy C. Flansburg

NOTICE TO BIDDERS
TERMS AND CONDITIONS

All bids are subject to the terms and conditions and specificity herein set forth except where specifically deleted by the City of Worcester in Section No. 6 below.

COMPLETE ORIGINAL COPY (including ALL pages) OF THIS BID MUST BE SUBMITTED IN A SEALED ENVELOPE:

DATE: NOVEMBER 19, 2025 TIME: 10:00 A.M. LOCAL TIME

PLACE: Purchasing Division, Room 201, City Hall, Worcester, Massachusetts

MARK SEALED ENVELOPE **"Sealed Bid No. CR-8564-F6, Commissioning Services - SDFH / DPF"**

The name and address of the bidder must appear in the upper left hand corner of the envelope. The City of Worcester is not responsible for bids not properly marked.

GENERAL

1. This Bid Invitation covers: Provide professional Commissioning Services for the new South Division Fire House as per the requirements and specifications of the City of Worcester Department of Public Facilities for the entire length of the project.
2. A certified check or bid bond made payable to the "City Treasurer, City of Worcester" in the Amount of \$ N/A must accompany this bid.
3. All bids received will be publicly opened and read in the Bid Room at City Hall at date and time shown above.
NO BID WILL BE ACCEPTED AFTER TIME AND DATE SPECIFIED
4. A performance bond in the amount of \$ N/A of the total dollar award is required.
5. A payment bond in the amount of \$ N/A of the total dollar award is required.
6. All terms and conditions are applicable to this proposal except the following section numbers which are hereby deleted from this invitation: all apply
7. **Questions pertaining to this bid must be directed to Jeremy C. Flansburg at flansburgjc@worcesterma.gov**

8. The following meanings are attached to the defined words when used in this bid form.
 - (a) The word "City" means The City of Worcester, Massachusetts.
 - (b) The word "Bidder" means the person, firm or corporation submitting a bid on these specifications or any part thereof.
 - (c) The word "Contractor" means the person, firm or corporation with whom the contract is made by carrying out the provisions of these specifications and the contract.
 - (d) The words "Firm Price" shall mean a guarantee against price increases during the life of the contract.
9. Any prospective bidder requesting a change in or interpretation of existing specifications of terms and conditions must do so within five (5) days (Saturdays, Sundays and Holidays excluded) BEFORE scheduled bid opening date. All requests are to be in writing to the Purchasing Division (or e-mailed at: flansburgjc@worcesterma.gov). *No changes will be considered or any interpretation issued unless the request is in our hands within five (5) days (Saturdays, Sundays and Holidays excluded) BEFORE scheduled bid opening date.*
10. The contractor will be required to indemnify and save harmless the City of Worcester, for all damages to life and property that may occur due to his negligence or that of his employees, subcontractors, etc., during this contract.
11. The Contract Agreement will be in the form customarily employed by the City of Worcester and is on file in the Purchasing Division at City Hall.
12. Bids which are incomplete, not properly endorsed, or signed, or otherwise contrary to these instructions will be rejected as informal by the Purchasing Agent. **Conditional bids will not be accepted.**
13. The Bidder must certify that no official or employee of the City of Worcester, Massachusetts is pecuniarily interested in this proposal or in the contract which the bidder offers to execute or in expected profits to arise therefrom, unless there has been compliance with provisions of G.L. C. 43 Sec. 27, and that this bid is made in good faith without fraud or collusion or connection with any other person submitting a proposal.
14. As the City of Worcester is exempt from the payment of Federal Excise Taxes and Massachusetts Sales Tax, prices quoted herein are not to include these taxes.
15. All prices are to be firm F.O.B. Destination, City of Worcester, Massachusetts, unless otherwise indicated by the City. **Time reserved for award is ninety days.**
16. In case of error in the extension prices quoted herein, the unit price will govern.
17. It is understood and agreed that should any price reductions occur between the opening of this bid and delivery of any order, the benefit of all such reductions will be extended to the City.
18. The City of Worcester reserves the right to reject any and all bids, wholly or in part, and to make awards in a manner deemed in the best interest of the City.
19. Awards will be made to the bidder quoting the lowest net price in accordance with the specifications.
20. The supplier will be bound by all applicable statutory provisions of law of the Federal Government, the Commonwealth of Massachusetts, the City of Worcester, and the Department of Public Safety of the Commonwealth of Massachusetts.
21. Any bid withdrawn after time and date specified, the bidder shall forfeit deposit on bid as liquidated damages.
22. The contractor will not be permitted to either assign or underlet the contract, not assign either legally or equitably any monies hereunder, or its claim thereto without the previous written consent of the City Treasurer and of the Purchasing Agent of the City of Worcester.
23. If this bid shall be accepted by the City, and the bidder shall fail to contract as aforesaid and to give a bond in the amount as specified in Section 4, within ten (10) days, (not including Sunday or a legal Holiday) from the date of the mailing of a notice from the City to him/her, according to the address given herewith, that the contract is ready for signature, the City may by option determine that the bidder has abandoned the contract and thereupon the proposal and

acceptance shall be null and void and the bid security accompanying this proposal shall become the property of the City as liquidated damages.

24. When quoting, the bidder shall submit a signed copy of this bid form, and if bid accepted by the City shall constitute part of the contract of purchase. Do not detach any part of this form 30B (Sealed Bid Goods & Services) when submitting a bid. Bidder must sign and return complete form 30B (Sealed Bid Goods & Services).
25. If in the judgment of the Purchasing Agent any property is needlessly damaged by an act or omission of the contractor or his/her employees, servants or agent, the amount of such damages shall be determined by the Purchasing Agent of the City of Worcester and such amount shall be deducted from any money due the contractor or may be recovered from said contractor in actions at law.
26. It is agreed that deliveries and/or completion are subject to strikes, lockouts, accidents and/or Acts of God.

INSURANCE AND WORKER'S COMPENSATION

27. COMMERCIAL GENERAL LIABILITY INSURANCE: Contractor to supply the City of Worcester with certificates of insurance evidencing general liability coverage of not less than \$ 1,000,000.00 per occurrence / \$ 2,000,000.00 aggregate.
28. AUTOMOBILE LIABILITY INSURANCE: Contractor to supply the City of Worcester with certificates of insurance evidencing automobile liability coverage, bodily injury and property damage combined single limit, of \$ 1,000,000.00 (all owned, hired, and non-owned autos).
29. COMPENSATION INSURANCE: The contractor shall furnish the City of Worcester with certificates showing that all of his/her employees who shall be connected with this work are protected under Massachusetts' statutory worker's compensation insurance policies.
30. The Contractor shall carry public liability insurance with an insurance company satisfactory to the City so as to save the City harmless from any and all claims for damages arising out of bodily injury to or death of any person or persons, and for all claims for damages arising out of injury to or destruction of property caused by accident resulting from the use of implements, equipment or labor used in the performance of the contractor or from any neglect, default or omission, or want of proper care, or misconduct on the part of the Contractor or for anyone of his employ during the execution of the contract.
31. Prior to starting on this contract, the Contractor shall deposit with the Contracting Officer certificates from the insurer to the effect that the insurance policies required in the above paragraphs have been issued to the Contractor. The certificates must be on a form satisfactory to the Purchasing Agent.
32. Except as may otherwise be stated herein, the Contractor shall also carry bodily injury and property damage insurance in an amount not less than those set forth above covering the operation of all motor powered vehicles owned or operated by the Contractor and engaged in this contract.

DISCOUNT

33. Prompt pay discounts will be considered when determining the low bid except when discounts are for a period of less than 30 days. In this event discounts will not be taken into consideration when determining low bid.
34. Time, in connection with discount offered, will be computed from date of completion and/or delivery and acceptance at destination, or from date correct bill or voucher properly certified by the contract is received if the latter date is later than the date of completion and acceptance and/or delivery and acceptance.

GUARANTEE

35. The bidder to who a contract is awarded guarantees to the City of Worcester all equipment, materials and or workmanship for a period of one (1) year after final inspection and acceptance and shall replace promptly any defective equipment, materials and/or workmanship required without additional cost to the City.

DELIVERIES AND COMPLETION

36. It is understood and agreed that in the event of failure on the part of the bidder to indicate date of delivery and/or completion, delivery and/or completion will be made within twelve (12) days from date of notification. Should the successful bidder fail to make delivery or complete contract within time specified, the City reserves the right to make the purchase on such orders at the open market and charge any excess over contract price to the account of the successful bidder, who shall pay the same.
37. The contractor shall familiarize himself with the location and facilities for storage.
38. The City through its Purchasing Division reserves the right to divert delivery from one location to another, and to allow for any change in operating conditions or for any other cause not now foreseen and to proportion deliveries according to available storage facilities.

SAMPLING AND ANALYSIS

39. Each bidder must state the commercial name of the product quoted, name, and address of operator or agent from whom the product will be purchased and in addition shall furnish an analysis of the product, date of analysis, by whom made and their address.
40. Samples of the product to be delivered may be taken by a representative of the City, either prior to delivery or while it is being delivered in the storage facilities at destination, or will be taken from the storage facilities to which the product has been delivered as determined from time to time by the Purchasing Agent. Bidder agrees to furnish the necessary manual labor, without additional cost required to assemble the physical samples, which is to be performed under the direction of the City representative.
41. The representative of the City taking the samples shall be given the opportunity, while sampling, to affix his or her signature to the delivery slip each item represented in his/her sample.
42. Any product after the sampling and analysis, not found meeting the requirements of the contract shall be sufficient cause for the cancellation of the contract at the option of the Purchasing Agent.
43. If any product is found that does not meet the analysis submitted by the bidder in his/her proposal, the Purchasing Agent may, at his or her option, exercise his/her right to reject the product and require that all or any part thereof shall be removed promptly by and at the expense of the contractor and replace it forthwith with a product satisfactory to the Purchasing Agent, or to retain the product and compensate the contractor in an amount as determined by the Purchasing Agent and the City Manager.
44. It is understood and agreed that it shall be a material breach of any contract resulting from this bid for the Contractor to engage in any practice which shall violate any provisions of Massachusetts General Laws, Chapter 151B, relative to discrimination in hiring, discharge, compensation, or terms, conditions or privileges of employment because of race, color, religious creed, national origin, sex, age or ancestry.
45. The undersigned as bidder, declares that the only parties interested in this proposal as principals are named herein; that this proposal is made without collusion with any other person, firm or corporation, that no officer or agent of the City is directly or indirectly interested in this bid; and he/she proposes and agrees that if this proposal is accepted he/she will contract with the City in accordance with the specifications, also the terms and conditions as spelled out in this bid form.
46. No Person, including but not limited to corporations, partnerships, limited partnerships or limited liability corporations, shall be eligible to receive a contract under this invitation to bid and/or requires for proposal if that person has been convicted of any felony offense involving the distribution of controlled substances as that term is defined under Chapter 94C of the General Laws and, for contracts to be performed for on-site services to the Worcester Public Schools, if that person or any person to be employed by that person in the performance of such on-site services has been convicted of a "sex offense" or a "sex offense involving a child" or a "sexually violent offense" or would meet the definition of "sexually violent predator" as those terms are defined in Section 178C of the General Laws and who must register with the sex offender registry board.

47. The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ for work or services relating to this contract any unfit person or anyone not skilled in the task assigned to him. In light of the fact that the performance of this contract requires the Contractor and its employees to have significant interaction with the public, the Contractor shall require all employees who may perform services under this contract to conduct themselves in a courteous, professional manner. If the Contractor is notified by the Contract Officer that any person engaged upon the work is incompetent, unfaithful, disorderly, discourteous, or otherwise unsatisfactory, then such person shall be discharged from providing services or work pursuant to this contract. Without limiting the generality of the foregoing, intimidation, threats and/or violent conduct of any kind or nature directed to members of the public are absolutely prohibited. Failure to comply with this requirement shall be grounds for termination of the contract.
48. The Contractor's performance may be evaluated on an ongoing basis including but not limited to consideration of complaints received from members of the public. In order to facilitate this evaluation, the Contractor shall provide the City with documents and records upon request. The Contractor shall further obtain from its employees authorization that appropriate City personnel may obtain all available criminal offender information ("CORI") from the Criminal History Systems Board. A high number of unresolved complaints, any number of complaints that are particularly severe, or employment of individuals who have been convicted of assault or other violent crimes shall be grounds for the early termination or non-renewal of the contract by the City.
49. The procurement officer shall award the contract to the lowest responsible and responsive bidder. The term "responsible bidder" means "a person who has the capability to perform fully the contract requirements, and the integrity and reliability which assures good faith performance." Consistent with its duty to maintain public order and promote public safety, the City has determined that this contract is of a type and nature so as to be particularly sensitive due, at least in part, to the contractor's inherent access and dealings with the members of the general public. Therefore, the City has concluded that additional scrutiny is justified as it determines whether a particular bidder is responsible, having the integrity and reliability to properly perform the requested services. This may entail consideration of the contractor's system of oversight, training and supervision of its employees, including but not limited to its requirement of a high standard of customer service and courtesy in its dealings with the public. The bidder's care and diligence in hiring and assigning its employees will also be considered. In making its determination, the City reserves the right to examine any and all information at its disposal, including but not limited to prior City contracts, the experiences and information obtained from current and former customers (whether identified by the bidder as references or not), as well as other sources available to the City, including but not limited to court documents, newspapers, financial reports (such as DUNS), and certain police data and reports.
50. The Contractor, acting through its owner(s) or any of its employees, or its agents or sub-contractors and any of their employees, shall not engage in any behavior, whether during the course of its duties under this contract or at any other time, that is illegal, criminal or otherwise shocking or offensive to the general public. The determination whether any particular behavior is illegal, criminal or shocking to the general public shall rest in the sound judgment of the Contracting Officer or the City Manager. In making such determination, the Contracting Officer or the City Manager shall apply the general standards of the community. No criminal conviction or formal charges shall be required to make such determination. Such behavior need be something more than trivial and something which would cause the general public to have concerns either about the safety of individuals coming in contact with the Contractor or about the character and integrity of the individuals with which the City does business. Violation of this provision shall be grounds for immediate and unilateral termination of this contract by the City upon five days' notice as otherwise provided herein.

GIVE FULL NAMES AND RESIDENCES OF ALL PERSONS INTERESTED IN THE FOREGOING PROPOSAL.

(NOTICE: Give first and last name in full; in case of corporations, give corporate name and names of President, Treasurer, and Manager; and in case of firms give names of the individual members)

Name	Address	Zip Code
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

KINDLY FURNISH THE FOLLOWING INFORMATION REGARDING BIDDER:

(1) If a Proprietorship

Name of Owner _____

Business Address _____

Zip Code _____ Telephone No. _____

Home Address _____

Zip Code _____ Telephone No. _____

(2) If a Partnership
Full names and addresses of all partners

<u>Name</u>	<u>Address</u>	<u>Zip Code</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Business Address _____ Zip Code _____

Tel. No. _____

(3) If a Corporation

Full Legal Name _____

State of Incorporation _____ Qualified in Massachusetts ? Yes _____ No _____

Principal Place of Business _____

Street P.O. Box

City/Town State Zip

Telephone No. _____

Email Address: _____

Place of Business in Massachusetts _____

Street P.O. Box

City/Town State Zip

Telephone No. _____

GIVE THE FOLLOWING INFORMATION REGARDING SURETY COMPANY

Full Legal Name of Surety Company _____

State of Incorporation _____ Admitted in Massachusetts ? Yes _____ No _____

Principal Place of Business _____

Street P.O. Box

City/Town State Zip

Place of Business in Massachusetts _____

Street P.O. Box

City/Town State Zip

Telephone No. _____

NOTE

The Office of the Attorney General, Washington, D.C. requires the following information on all bid proposals amounting to \$1,000.00 or more.

F.I.D. Number of bidder _____

This number is regularly used by companies when filing their "EMPLOYER'S FEDERAL TAX RETURN, U.S." Treasury Department Form 941.

AUTHORIZED SIGNATURE OF BIDDER _____ TITLE _____
PLEASE SIGN

DATE _____ BID SECURITY \$ _____ N/A

The name(s) of customer service representative(s) to be responsible for servicing this account in the event of contract award are:

Customer Service Rep.:

NAME _____ (PLEASE PRINT) _____ TEL. NO. _____

Contract Administrator:

NAME _____ (PLEASE PRINT) _____ FAX. NO. _____

E-MAIL: _____

UNDER MASSACHUSETTS GENERAL LAWS, CHAPTER 30B: SECTION 10, THE FOLLOWING CERTIFICATION MUST BE PROVIDED:

Section 10. A person submitting a bid or a proposal for the procurement or disposal of supplies, or services to any governmental body shall certify in writing, on the bid or proposal, as follows:

" The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals."

(Please Print) _____

Name of Person Signing Bid

Signature of Person Signing Bid

Company

No award will be made without vendor certification of the above.

Bidders must state and identify the product offered, such as manufacturer's name, trade name, brand name and quality next to each item. WE MUST KNOW WHAT HAS BEEN OFFERED.

The quantities shown herein are estimated only and the Contractor will be required to furnish all quantities ordered by the City during the period of the contract.

YES ☒ NO ☐

Delivery to be made to: South Division Fire House, Worcester, MA

This Bid includes addenda numbered _____

NO PRICE ADJUSTMENTS ALLOWED. PRICES QUOTED ARE FINAL. CHECK BEFORE SIGNING!

BIDDER TO COMPLETE ITEMS BELOW

Item No.	Estimated Annual Quantity	Description			Unit Price	Total Amount
		Provide professional commissioning services for the South Division Fire House project per attached requirements and specifications of the City of Worcester Department of Public Facilities.				See pricing pages

TERMS, PROMPT PAY DISCOUNT _____% 30 DAYS, NET 45 DAYS.

DELIVERY AND/OR COMPLETION TO BE MADE WITHIN AS REQUIRED DAYS FROM DATE OF NOTIFICATION BY THE CITY.

(PLEASE REFER TO SECTION NO. 36 RELATIVE TO DELIVERY).

NAME OF BIDDER _____



CITY OF WORCESTER

IFB Issue Date: 10/21/2025

Bids Due Date: 11/19/2025 @ 10:00 a.m.

Invitation for Bid to Provide Commissioning Services #CR-8564-F6
For
SOUTH DIVISION FIRE STATION

The City of Worcester will receive sealed bids to provide commissioning services for the South Division Fire Station to be constructed in Worcester, MA. Sealed Bids are due no later than 10:00 a.m. on November 19, 2025.

Sealed Bids shall be submitted to:

Jeremy C. Flansburg, MCPPO, MAPPO

Assistant Director of Purchasing

City of Worcester

455 Main Street

Worcester, MA 01605

(508) 799-1220

Any addenda will be distributed by City of Worcester. All firms are responsible for checking for new addenda at www.worcesterma.gov.

1. INTRODUCTION

City of Worcester is soliciting sealed bids for comprehensive commissioning services for the construction of South Division Fire Station in Worcester, MA. This IFB is not a contract offer, and no contract will exist unless and until a written contract is signed by City of Worcester and the successful proposer.

Interested parties should submit a sealed bid in accordance with the requirements and directions contained in this IFB. Bidders are prohibited from contacting any City of Worcester employee, officer or official concerning this IFB, except as set forth in Section 6. A bidder's failure to comply with this requirement may result in disqualification.

If there are any conflicts between the provisions of these standard instructions to proposers and any other documents comprising this IFB, these standard instructions to proposers shall prevail.

2. PROJECT DESCRIPTION

2.1 Project Background

The City of Worcester's DPF is currently working in conjunction with Colliers and Perkins and Will on the programming and schematic design for a project for the Worcester South Division Fire Station. The City of Worcester's Fire Department has 10 fire stations located throughout the City. The Department is dedicated to professionally serving the citizens and protecting lives and property in its community. It accomplishes its mission through fire suppression, emergency response, prevention, and community risk reduction. The existing South Division Fire Station is located at 180 Southbridge Street and houses Engine 2, Engine 13, Ladder 3, Car 4, and SCUBA 1.

The new South Division Fire Station will be located at 25 Madison Street, commonly referred to as the Registry of Motor Vehicles Ancillary Parking Lot located at the southwest corner of the intersection of Southbridge Street and Madison Street. The proposed building site is 22, 24, 26 Beacon Street, 25 Madison Street (currently owned by the Commonwealth of Massachusetts), and a portion of 165 Southbridge Street (to be conveyed to the City later). There are no known site conditions that would impact the potential project.

The new building will be a two-story mostly brick façade of approximately 30,000 square feet. The new building has six (6) overhead doors, multiple storage rooms, decontamination laundry facilities, apparatus floor bathrooms, workroom, SCBA room, custodial closet, radio watch/ready room, training tower, conference rooms, office support room, dining/kitchen, study room, exercise room, locker/bathroom(s), mechanical room, bunk room, etc.

2.2 Project Description

South Division Fire Station

2.3 Project Schedule

Design Development Documents	Complete
50% Construction Documents	October 2025
Construction Documents	December 2025
Construction Start	March 2025
Construction Completion	June 1, 2027

2.4 Project Team

Owners Representative
Architect
MEP Engineer
Construction Manager
Structural Engineer
Weston & Sampson
Data/AV/Sec
Energy Model
Firematic

Colliers Project Leaders
Perkins Will
Arup
W.T. Rich
RSE Associates
Civil/Landscape
INTOBA
Andelmanelek
Wendell I Mitchell Associates

3. SCOPE OF SERVICES

3.1 Professional Services

The Commissioning Agent (CxA) will plan, manage, perform and report on the commissioning activities, utilizing the reporting formats and standardized forms provided by the CxA whenever required. The CxA will submit deliverable reports to the Owner's Project Manager, if applicable], the City of Worcester, the design team, and the Construction Manager according to a project schedule set by CxA and agreed upon by Owner, CM and the Owner's Project Manager, if applicable. It is extremely important that all commissioning tasks be conducted in a transparent manner and involve the building engineer and operations staff to the greatest degree possible.

The owner's primary construction representative on-site will be provided by the separately contracted services of a construction manager. The commissioning agent will be hired by and report directly to Colliers Project Leaders, Owner' Representative.

3.2 Commissioning Agent Responsibilities by Phase

The commissioning is required as one quality measure of the construction of this building in order to assure that the final building meets the original intent of the Owner's design. The proposer is free to suggest changes and improvements to this process. Following is a summary of the commissioning process and scope of work the Owner requests for this project.

A. Commissioning Process During Design & Bid Phase

The commissioning process activities completed by the CxA during the design & bid phase include:

1. Conduct a commissioning kick-off meeting with the project team.
2. Review the Owner's Project Requirements.
3. Review the Basis of Design as prepared by the Design team.
4. Attend meetings, design workshops, design reviews, and value engineering discussions during design. Participate in discussions relating to new technologies being evaluated to meet energy efficiency and sustainability requirements.
5. Perform commissioning design review and conduct a design review meeting at each review. Verify the Basis of Design in regard to the Owner's Project Requirements.
 - a. Schematic Design
 - b. Design Development
 - c. 90% Construction Document
 - d. 100% Construction Document

6. Develop full commissioning specifications for all commissioned equipment. Coordinate this with the architect and engineers and integrate the commissioning specifications into the overall project specification package. The specifications shall follow the intent of ASHRAE Guideline 0-2005 The Commissioning Process. The commissioning specification will include a detailed description of the responsibilities of all parties, details of the commissioning process, reporting and documentation requirements (including formats), alerts to coordination issues, deficiency resolution, construction checklist and startup requirements, and the functional testing process.
7. Develop a commissioning plan encompassing the design, construction, occupancy and operations phases.

B. Commissioning Process During the Construction Phase

During the construction phase, the CxA will coordinate and direct commissioning activities in a logical, sequential and efficient manner using consistent protocols, clear and regular communications and consultations with all necessary parties, frequently update timeline, schedules, and technical expertise. The commissioning process activities accomplished by the CxA during the construction phase include:

1. Update construction phase commissioning plan and integrate with overall schedule. Organize the commissioning process components and conduct a commissioning kick-off meeting where the commissioning process requirements are reviewed with the commissioning team.
2. Review submittals concurrent with the design professional's review for compliance with the Owner's Project Requirements.
3. Coordinate and lead an integrated controls meeting.
4. With necessary assistance and review from the installing contractors, develop and write construction checklists. Submit to CM and Owner for approval.
5. Perform monthly/bi-weekly/weekly site visits, as necessary, to observe component and system installations. Accomplish a statistical review of construction focusing on the owner's design intent and the quality process. Coordinate field visits to attend planning and job-site meetings during the same visit to obtain information on construction progress. Review construction-meeting minutes for revisions/substitutions relating to the Owner's design intent. Assist in resolving any discrepancies. Document construction checklist completion by reviewing completed construction checklists and by selected site observation. Sampling Rate per Table 1 provided at the end of this section.
6. Attend monthly/bi-weekly/weekly project meetings and conduct commissioning team, coordinated with project meetings, as necessary to plan, develop the scope, coordinate, schedule activities and resolve problems.
7. Witness initial HVAC piping pressure test and flushing to be confident that proper procedures were followed. Include testing documentation in the commissioning record.
8. Witness initial ductwork testing and cleaning to be confident that proper procedures were followed. Include documentation in the commissioning record.
9. Review mock ups and/or initial first piece installation.
10. Document systems startup by reviewing start-up reports and by selected site observation.
11. Verify air and water systems balancing by spot testing and by reviewing completed reports and by selected site observation.

12. With necessary assistance and review from installing contractors, write the functional test procedures. Submit to A/E and Owner for review and approval.
13. Oversee and document the execution of the functional performance tests by the contractors.
14. Coordinate retesting, as necessary, until satisfactory performance is achieved. Retesting beyond one day will be at the expense of the contractors.
15. Maintain a master issues log and a separate testing record. Provide to the CM and Owner written progress reports and test results with recommended actions.
16. Review the Operations and Maintenance Manuals developed by the Contractors.
17. Reviews the Systems Manual developed by the Contractors.
18. Review training plans and program developed by the Contractors, recommend pre-approval, and verify that the training is provided.
19. Complete the final commissioning process report.

C. Commissioning Process During the Post-Occupancy Phase

1. Coordinate and supervise required opposite season or deferred testing and deficiency corrections and provide the final testing documentation for the Commissioning Record and O&M manuals.
2. Return to the site at 10-months into the 12-month warranty period. 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 agent is not required to:

1. Establish design concept, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction management. The CxA may assist with problem solving or resolving non-conformance or deficiencies, but ultimately that responsibility resides with the general contractor and the design team. The CxA will report to the owner any deficiencies or discrepancies.
2. Review or approve change orders.

Table 1: Observation and Testing Requirements

Equipment or Systems	Sampling Rate
<u>HVAC Systems</u>	
<i>All Equipment of the HVAC System</i>	
Heating Heat Exchangers	100%
Pumps	100%
Air Handling Units	100%
Ventilation Fans	30%
Toilet and General Exhaust Fans	100%

VFDs	100%
Air Terminal Units (VAV, FCU, etc.)	30%
Ductwork	N/A
Piping	N/A
Smoke Exhaust Fans	100%
Building Automation System	100%
<u>Plumbing and Fire Protection Systems</u>	
Domestic Hot Water System	100%
Domestic Hot Water Heaters	100%
Thermostatic Mixing Valves	100%
Domestic Hot Water Recirculation Pumps	100%
<u>Electrical Systems</u>	
Emergency Generator	100%
Emergency Power System (System Test Only)	100%
Lighting and Lighting Control Systems	30%
Normal Power Systems	30%
<u>Building Envelope Systems</u>	
Curtain Wall	4 tests
Exterior Doors and Windows	4 tests
Insulation	4 tests
Waterproofing	4 tests
Roofing	4 tests
Air barriers	4 tests
Joint sealants	4 tests
Vapor barrier	4 tests

4. SELECTION AND DESIRED QUALIFICATIONS

4.1. Minimum Qualifications

It is the Owner's desire for the person(s) designated as the CxA to satisfy as many of the following requirements as possible:

1. Acted as the principal commissioning agent for at least three projects of comparable size, type and scope.
2. Extensive experience in the operation and troubleshooting of HVAC systems and energy management control systems.
3. Extensive field experience. A minimum of five full years in this type of work is required.
4. Knowledgeable in building operation and maintenance and O&M training.
5. Knowledgeable in national building & fire codes as well as water based fire extinguishing systems, detection systems and alarms systems.
6. Knowledgeable in test and balance of both air and water systems.
7. Experienced in energy-efficient system and control strategy optimization.
8. Demonstrated experience with total building commissioning approach including building enclosure.
9. Direct experience in monitoring and analyzing system operation using energy management control system trending and stand-alone data logging equipment.

10. Excellent verbal and writing communication skills. Highly organized and able to work with both management and trade contractors.
11. Experienced in writing commissioning specifications.
12. A bachelor's degree in mechanical or electrical engineering is strongly preferred, and P.E. license is desired. However, other technical training, past commissioning, and field experience will be considered as a substitute.
13. Membership and certification as a Certified Commissioning Professional with the Building Commissioning Association is desired but not required.

The required expertise for this project will be based on the skill and experience set of the full team submitting the Bid. A member of the prime firm will be the project manager who is the member of the team that will coordinate the commissioning activities from the technical perspective. This party may not necessarily be the team's overall project or contract manager. The commissioning agent must have significant in-building commissioning experience, including technical and management expertise on projects of similar scope. If the commissioning agent or prime firm does not have sufficient skills to commission a specific system, the prime firm shall subcontract with a qualified party to do so. Subcontractor qualifications shall be included and clearly designated in the response to this scope of work.

5. SUBMISSION REQUIREMENTS

Sealed Bids shall include the following information at a minimum:

- I. Executive Summary
 - Please provide a narrative history of your firm and its relevant commissioning experience.
- II. Relevant Project Experience
 - Reference a minimum of three relevant commissioning projects of similar type and scale to this scope. Include project name, location, brief description, and total square footage, a list of systems commissioned, and a client reference.
- III. Proposed Project Team
 - Provide an organization chart and resumes for all key personnel. For each of the key personnel provide a resume that provide the following information:
 - Relevant background, credentials and experience with specific project of comparable nature and scope.
 - Clearly defined roles and responsibilities as well as estimated time commitment to this project.
- IV. Project Approach
 - Include your project understanding, approach and methodology, and key elements and factors which differentiate your firm from your competition.
- V. Fee Proposal
 - The fee proposal shall be submitted utilizing the format shown in Attachment A: Fee Breakdown Form.
 - The total fee for each phase of the commissioning work will be broken down by anticipated hours required to complete each commissioning activity, as required in Attachment A.
 - Provide a list of hourly billing rates per person assigned to the project, to be used for additional services.

- List reimbursable expenses and the direct cost of each reimbursable.

6. QUESTIONS AND AMENDMENTS

Any questions regarding the IFB should be directed to the contact listed below via e-mail. Answers to questions will be responded to in writing only. Note: It is the responsibility of the commissioning agent responding to this IFB to qualify within its formal bid, any modifications to this written IFB and the Scope of Services contained herein.

Jeremy C. Flansburg, MCPPO, MAPPO

Assistant Director of Purchasing

City of Worcester

455 Main Street

Worcester, MA 01605

(508) 799-1220

flansburgjc@worcesterma.gov

7. RIGHT OF REJECTION AND CLARIFICATION

The City of Worcester reserves the right to reject any and all bids and to request clarification of information.

8. INDEPENDENT CONTRACTOR

The commissioning agent shall be and operate as an independent contractor in the performance of the commissioning services. The commissioning agent shall have complete charge of the personnel proposed as part of its team, and all persons employed by the commissioning agent shall be employees of said commissioning agent and not employees of City of Worcester in any respect.

9. SUB-CONTRACTORS

The selected commissioning agent shall not subcontract any of its Work or Services to be performed to others without the express prior written consent of City of Worcester.

10. NONDISCLOSURE

The commissioning agent agrees that it will not divulge to third parties, without the written consent of the Owner, any information obtained from or through the Owner, Architect or others in connection with the Project, except to the extent necessary to carry out the comply with this RFP.

ATTACHMENTS

Attachment A – Fee Breakdown Form (MEP Commissioning)

Attachment B – Fee Breakdown Form (Envelope Commissioning)

- ***Bidders may bid on Attachment A and/or Attachment B. Award to be made by Group A & B. Bidders must bid on all items within each group.***

Attachment C – 90% Design/Development Documents

Attachment A – Fee Breakdown Form

MEP COMMISSIONING (Cx)	TOTAL HOURS	TOTAL FEE PER/HOUR	TOTAL FEE
Design & Bid Phase Services			
Commissioning Kick-off meeting with Team	4	\$	\$
Review Owner's Project Requirements	10	\$	\$
Review Basis of Design (prepared by Design team)	10	\$	\$
Attend Integrated Design Meetings	30	\$	\$
Review of SD Documents and meeting	NA	NA	N/A
Review of DD Documents and meeting	20	\$	\$
Review of 90% CD Documents and meeting	20	\$	\$
Review of 100% CD Documents and meeting	20	\$	\$
Development of Commissioning Specifications	10	\$	\$
Development of Commissioning Plan	20	\$	\$
Subtotal			\$
Construction Phase Services			
Update Construction Phase Cx Plan and integrate with overall project schedule and Lead Cx Kickoff meeting	10	\$	\$
Review of Contractor Submittals, RFI's, Mtg. Minutes, Etc.	20	\$	\$
Coordinate and lead Controls Integration Meeting	10	\$	\$
Develop and Distribute Construction Checklists	10	\$	\$
Project & Commissioning Coordination Meetings	20	\$	\$
Witness Initial HVAC Piping Pressure Test & Flushing	20	\$	\$
Witness Initial Ductwork Testing & Cleaning	30	\$	\$
Field Visits to Verify Installation Checklists	40	\$	\$
Review Mock Ups and/or First Piece Installations	10	\$	\$
Verify Equipment Start Up	20	\$	\$
Review and Verify TAB Reports	20	\$	\$
Develop Functional Performance Test Procedures	10	\$	\$
Oversee & Document Functional Systems Testing	30	\$	\$
Coordinate Retesting (1 day)	10	\$	\$
Develop & Maintain Cx Issue Log	20	\$	\$
Review O&M Manual	20	\$	\$
Review System Manual	20	\$	\$
Verify Operator & Occupant Training	10	\$	\$
Production of Final Cx Report	30	\$	\$
Subtotal			\$
Post-Occupancy Phase Services			
Coordinate and Witness Opposite Season & Deferred Testing	20	\$	\$
Perform a Near Warranty End Review, Interview and Assistance	30	\$	\$
Subtotal		\$	\$
<i>Project Expenses (Lump Sum)</i>			\$
Grand Total, Fees & Expenses			\$

Bidder Name: _____

Attachment B – Fee Breakdown Form

ENVELOPE COMMISSIONING (BECx)	TOTAL HOURS	TOTAL FEE PER/HOUR	TOTAL FEE
Design & Bid Phase Services			
BECx Commissioning Kick-off meeting with Team	4	\$	\$
Review Construction Documents/ OPR/ BOD to develop Construction Phase BECx Plan	4	\$	\$
Attend Integrated Design Meetings	6	\$	\$
Review of DD Documents and meeting	4	\$	\$
Review of 90% CD Documents and meeting	4	\$	\$
Review of 100% CD Documents and meeting	4	\$	\$
Development of Envelope Commissioning Specifications	4	\$	\$
Development of Envelope Commissioning Plan	6	\$	\$
Subtotal			\$
Construction Phase Services			
Update Construction Phase BECx Plan and integrate with overall project schedule and Lead BECx Kickoff meeting	4	\$	\$
Review of Contractor Submittals, RFI's, Mtg. Minutes, Etc.	8	\$	\$
Project & BECx Commissioning Coordination Meetings	8	\$	\$
Develop Performance Testing Procedures	8	\$	\$
Oversee & Document Testing	16	\$	\$
Review Mock Ups and/or In-situ Installations	8	\$	\$
Develop & Maintain BECx Issue Log	10	\$	\$
Coordinate Retesting (1 day)	10	\$	\$
Production of Final BECx Report	10	\$	\$
Subtotal			\$
<i>Project Expenses for Testing (lump sum):</i>			
IR Scan of building and roof			\$
Thermal Envelope Certificate			\$
Blower Door Test (per ASTM E779)			\$
Whole Building Air Leakage Testing (per ASTM E3158)			\$
Sleeping Unit Enclosure test (ASTM E779, ANSI/RESNET/ICC 380, ASTM E1827, ASTM E3158, or an equivalent approved			\$
Review of construction documents to assess compliance with the requirements in Section C402.5.1. Inspection of continuous air barrier materials, assemblies, and during construction to verify compliance. (per requirements of Sections C402.5.2.3.1 or C402.5.2.3.2) Provide final inspection report.			\$
Continuous air barrier shall be verified; provide final inspection report in accordance with C402.5.2.3 Building Envelope Design			\$
Functional Performance Testing for Window/Storefronts/Glazing/Curtain Walls: test method ASTM E783/ASTM 1105 standard			\$
Grand Total, Fees & Expenses			\$

Bidder Name: _____

SECTION 01 91 13

GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General requirements that apply to implementation of commissioning without regard to systems, subsystems, and equipment being commissioned.

1.2 DEFINITIONS

- A. BoD: Basis of Design.
- B. CxA: Commissioning Authority.
- C. OPR: Owner's Project Requirements.
- D. Systems, Subsystems, and Equipment: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, and equipment.
- E. TAB: Testing, Adjusting, and Balancing.

1.3 COMMISSIONING TEAM

- A. Members Appointed by Contractor(s): Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated actions. The commissioning team shall consist of, but not be limited to, representatives of Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members Appointed by Owner:
 - 1. CxA: The designated person, company, or entity that plans, schedules, and coordinates the commissioning team to implement the commissioning process. Owner will engage the CxA under a separate contract.
 - 2. Representatives of the facility user and operation and maintenance personnel.
 - 3. Architect and engineering design professionals.

1.4 OWNER'S RESPONSIBILITIES

- A. Provide the OPR documentation to the CxA and Contractor for use in developing the commissioning plan; systems manual; operation and maintenance training plan; and testing plans and checklists.
- B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities including, but not limited to, the following:
 - 1. Coordination meetings.

2. Training in operation and maintenance of systems, subsystems, and equipment.
 3. Testing meetings.
 4. Demonstration of operation of systems, subsystems, and equipment.
- C. Provide utility services required for the commissioning process.
- D. Provide the BoD documents, prepared by Architect and approved by Owner, to the CxA and Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.5 CONTRACTOR'S RESPONSIBILITIES

- A. Provide utility services required for the commissioning process.
- B. Contractor shall assign representatives with expertise and authority to act on behalf of the Contractor and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
1. Participate in design- and construction-phase coordination meetings.
 2. Participate in maintenance orientation and inspection.
 3. Participate in operation and maintenance training sessions.
 4. Participate in final review at acceptance meeting.
 5. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls.
 6. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
 7. Review and approve final commissioning documentation.
- C. Subcontractors shall assign representatives with expertise and authority to act on behalf of subcontractors and schedule them to participate in and perform commissioning team activities including, but not limited to, the following:
1. Participate in design- and construction-phase coordination meetings.
 2. Participate in maintenance orientation and inspection.
 3. Participate in procedures meeting for testing.
 4. Participate in final review at acceptance meeting.
 5. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to CxA for incorporation into the commissioning plan. Update schedule on a weekly basis throughout the construction period.
 6. Provide information to the CxA for developing construction-phase commissioning plan.
 7. Participate in training sessions for Owner's operation and maintenance personnel.
 8. Provide updated Project Record Documents to the CxA on a daily basis.
 9. Gather and submit operation and maintenance data for systems, subsystems, and equipment to the CxA, as specified in Division 01 Section "Operation and Maintenance Data."
 10. Provide technicians who are familiar with the construction and operation of installed systems and who shall develop specific test procedures and participate in testing of installed systems, subsystems, and equipment.

1.6 CXA'S RESPONSIBILITIES

- A. Organize and lead the commissioning team.
- B. Prepare a construction-phase commissioning plan. Collaborate with Contractor and with subcontractors to develop test and inspection procedures. Include design changes and scheduled commissioning activities coordinated with overall Project schedule. Identify commissioning team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task.
- C. Review and comment on submittals from Contractor for compliance with the OPR, BoD, Contract Documents, and construction-phase commissioning plan. Review and comment on performance expectations of systems and equipment and interfaces between systems relating to the OPR and BoD.
- D. Convene commissioning team meetings for the purpose of coordination, communication, and conflict resolution; discuss progress of the commissioning processes. Responsibilities include arranging for facilities, preparing agenda and attendance lists, and notifying participants. The CxA shall prepare and distribute minutes to commissioning team members and attendees within five workdays of the commissioning meeting.
- E. At the beginning of the construction phase, conduct an initial construction-phase coordination meeting for the purpose of reviewing the commissioning activities and establishing tentative schedules for operation and maintenance submittals; operation and maintenance training sessions; TAB Work; and Project completion.
- F. Observe and inspect construction and report progress and deficiencies. In addition to compliance with the OPR, BoD, and Contract Documents, inspect systems and equipment installation for adequate accessibility for maintenance and component replacement or repair.
- G. Prepare Project-specific test and inspection procedures and checklists.
- H. Schedule, direct, witness, and document tests, inspections, and systems startup.
- I. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning report.
- J. Certify date of acceptance and startup for each item of equipment for start of warranty periods.
- K. Review Project Record Documents for accuracy. Request revisions from Contractor to achieve accuracy. Project Record Documents requirements are specified in Section 01 78 39 - Project Record Documents.
- L. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BoD, and Contract Documents. Operation and maintenance documentation requirements are specified in Section 01 78 23 - Operation and Maintenance Data.
- M. Prepare operation and maintenance training program and provide qualified instructors to conduct operation and maintenance training. Operation and maintenance training is specified in Section 01 79 00 - Demonstration and Training
- N. Videotape and edit training sessions.

GENERAL COMMISSIONING REQUIREMENTS

- O. Videotape construction progress including hidden shafts.
- P. Prepare commissioning reports.
- Q. Assemble the final commissioning documentation, including the commissioning report and Project Record Documents.

1.7 COMMISSIONING DOCUMENTATION

- A. Index of Commissioning Documents: CxA shall prepare an index to include storage location of each document.
- B. OPR: A written document, prepared by Owner, that details the functional requirements of Project and expectations of how it will be used and operated. This document includes Project and design goals, measurable performance criteria, budgets, schedules, success criteria, and supporting information.
- C. BoD Document: A document, prepared by Architect, that records concepts, calculations, decisions, and product selections 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.
- D. Commissioning Plan: A document, prepared by CxA, that outlines the schedule, allocation of resources, and documentation requirements of the commissioning process, and shall include, but is not limited to the following:
 - 1. Plan for delivery and review of submittals, systems manuals, and other documents and reports. Identification of the relationship of these documents to other functions and a detailed description of submittals that are required to support the commissioning processes. Submittal dates shall include the latest date approved submittals must be received without adversely affecting commissioning plan.
 - 2. Description of the organization, layout, and content of commissioning documentation (including systems manual) and a detailed description of documents to be provided along with identification of responsible parties.
 - 3. Identification of systems and equipment to be commissioned.
 - 4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.
 - 5. Identification of items that must be completed before the next operation can proceed.
 - 6. Description of responsibilities of commissioning team members.
 - 7. Description of observations to be made.
 - 8. Description of requirements for operation and maintenance training, including required training materials.
 - 9. Description of expected performance for systems, subsystems, equipment, and controls.
 - 10. Schedule for commissioning activities with specific dates coordinated with overall construction schedule.
 - 11. Identification of installed systems, subsystems, and equipment, including design changes that occurred during the construction phase.

12. Process and schedule for documenting changes on a continuous basis to appear in Project Record Documents.
 13. Process and schedule for completing prestart and startup checklists for systems, subsystems, and equipment to be verified and tested.
 14. Step-by-step procedures for testing systems, subsystems, and equipment with descriptions for methods of verifying relevant data, recording the results obtained, and listing parties involved in performing and verifying tests.
- E. Test Checklists: CxA shall develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. Prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Provide space for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in Division 23 Section "HVAC Commissioning Requirements." Each checklist, regardless of system, subsystem, or equipment being tested, shall include, but not be limited to, the following:
1. Name and identification code of tested item.
 2. Test number.
 3. Time and date of test.
 4. Indication of whether the record is for a first test or retest following correction of a problem or issue.
 5. Dated signatures of the person performing test and of the witness, if applicable.
 6. Individuals present for test.
 7. Deficiencies.
 8. Issue number, if any, generated as the result of test.
- F. Certificate of Readiness: Certificate of Readiness shall be signed by Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing. Completed test checklists signed by the responsible parties shall accompany this certificate.
- G. Test and Inspection Reports: CxA shall record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application shall be included with data. CxA shall compile test and inspection reports and test and inspection certificates and include them in systems manual and commissioning report.
- H. Corrective Action Documents: CxA shall document corrective action taken for systems and equipment that fail tests. Include required modifications to systems and equipment and revisions to test procedures, if any. Retest systems and equipment requiring corrective action and document retest results.
- I. Issues Log: CxA shall prepare and maintain an issues log that describes design, installation, and performance issues that are at variance with the OPR, BoD, and Contract Documents. Identify and track issues as they are encountered, documenting the status of unresolved and resolved issues.
1. Creating an Issues Log Entry:
 - a. Identify the issue with unique numeric or alphanumeric identifier by which the issue may be tracked.
 - b. Assign a descriptive title of the issue.

- c. Identify date and time of the issue.
 - d. Identify test number of test being performed at the time of the observation, if applicable, for cross-reference.
 - e. Identify system, subsystem, and equipment to which the issue applies.
 - f. Identify location of system, subsystem, and equipment.
 - g. Include information that may be helpful in diagnosing or evaluating the issue.
 - h. Note recommended corrective action.
 - i. Identify commissioning team member responsible for corrective action.
 - j. Identify expected date of correction.
 - k. Identify person documenting the issue.
- 2. Documenting Issue Resolution:
 - a. Log date correction is completed or the issue is resolved.
 - b. Describe corrective action or resolution taken. Include description of diagnostic steps taken to determine root cause of the issue, if any.
 - c. Identify changes to the OPR, BoD, or Contract Documents that may require action.
 - d. State that correction was completed and system, subsystem, and equipment is ready for retest, if applicable.
 - e. Identify person(s) who corrected or resolved the issue.
 - f. Identify person(s) documenting the issue resolution.
- 3. Issues Log Report: On a periodic basis, but not less than for each commissioning team meeting, CxA shall prepare a written narrative for review of outstanding issues and a status update of the issues log. As a minimum, CxA shall include the following information in the issues log and expand it in the narrative:
 - a. Issue number and title.
 - b. Date of the identification of the issue.
 - c. Name of the commissioning team member assigned responsibility for resolution.
 - d. Expected date of correction.
- J. Commissioning Report: CxA shall document results of the commissioning process including unresolved issues and performance of systems, subsystems, and equipment. The commissioning report shall indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BoD, and Contract Documents. The commissioning report shall include, but is not limited to, the following:
 - 1. Lists and explanations of substitutions; compromises; variances in the OPR, BoD, and Contract Documents; record of conditions; and, if appropriate, recommendations for resolution. This report shall be used to evaluate systems, subsystems, and equipment and shall serve as a future reference document during Owner occupancy and operation. It shall describe components and performance that exceed requirements of the OPR, BoD, and Contract Documents and those that do not meet requirements of the OPR, BoD, and Contract Documents. It may also include a recommendation for accepting or rejecting systems, subsystems, and equipment.
 - 2. OPR and BoD documentation.
 - 3. Commissioning plan.
 - 4. Testing plans and reports.

GENERAL COMMISSIONING REQUIREMENTS

5. Corrective modification documentation.
 6. Issues log.
 7. Completed test checklists.
 8. Listing of off-season test(s) not performed and a schedule for their completion.
- K. Systems Manual: CxA shall gather required information and compile systems manual. Systems manual shall include, but is not limited to, the following:
1. OPR and BoD, including system narratives, schematics, and changes made throughout the Project.
 2. Project Record Documents as specified in Section 01 78 39 - Project Record Documents.
 3. Final commissioning plan.
 4. Commissioning report.
 5. Operation and maintenance data as specified in Section 01 78 23 - Operation and Maintenance Data.

1.8 SUBMITTALS

- A. Commissioning Plan Prefinal Submittal: CxA shall submit three hard copies of prefinal commissioning plan. Deliver one copy to Contractor, one to Owner, and one to Architect. Present submittal in sufficient detail to evaluate data collection and arrangement process. One copy, with review comments, will be returned to the CxA for preparation of the final construction-phase commissioning plan.
- B. Commissioning Plan Final Submittal: CxA shall submit three hard copies and two sets of electronically formatted information of final commissioning plan. Deliver one hard copy and one set of discs to Owner, and two copies to Architect. The final submittal must address previous review comments. The final submittal shall include a copy of the prefinal submittal review comments along with a response to each item.
- C. Test Checklists and Report Forms: CxA shall submit sample checklists and forms to Contractor quality-control manager and subcontractors for review and comment. Submit three copies of each checklist and report form.
- D. Certificates of Readiness: CxA shall submit Certificates of Readiness.
- E. Test and Inspection Reports: CxA shall submit test and inspection reports.
- F. Corrective Action Documents: CxA shall submit corrective action documents.
- G. Prefinal Commissioning Report Submittal: CxA shall submit two hard copies of the prefinal commissioning report. Include a copy of the preliminary submittal review comments along with CxA's response to each item. CxA shall deliver one copy to Owner and one copy to Architect. One copy, with review comments, will be returned to the CxA for preparation of final submittal.
- H. Final Commissioning Report Submittal: CxA shall submit two hard copies and two sets of electronically formatted information of the final commissioning report. CxA shall deliver one hard copy and one set of discs to Owner, and one copy to Architect. The final submittal must address previous review comments and shall include a copy of the prefinal submittal review comments along with a response to each item.

1.9 QUALITY ASSURANCE

- A. Instructor Qualifications: Factory-authorized service representatives, experienced in training, operation, and maintenance procedures for installed systems, subsystems, and equipment.
- B. Test Equipment Calibration: Comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments immediately whenever instruments have been repaired following damage or dropping. Affix calibration tags to test instruments. Instruments shall have been calibrated within six months prior to use.

1.10 COORDINATION

- A. Coordinating Meetings: CxA shall conduct biweekly coordination meetings of the commissioning team to review progress on the commissioning plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities.
- B. Pretesting Meetings: CxA shall conduct pretest meetings of the commissioning team to review startup reports, pretest inspection results, testing procedures, testing personnel and instrumentation requirements, and manufacturers' authorized service representative services for each system, subsystem, equipment, and component to be tested.
- C. Testing Coordination: CxA shall coordinate sequence of testing activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- D. Manufacturers' Field Services: CxA shall coordinate services of manufacturers' field services.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 OPERATION AND MAINTENANCE TRAINING REQUIREMENTS

- A. Training Preparation Conference: Before operation and maintenance training, CxA shall convene a training preparation conference to include Owner's operation and maintenance personnel, Contractor, and subcontractors. In addition to requirements specified in Section 01 79 00 - Demonstration and Training, perform the following:
 - 1. Review the OPR and BoD.
 - 2. Review installed systems, subsystems, and equipment.
 - 3. Review instructor qualifications.
 - 4. Review instructional methods and procedures.
 - 5. Review training module outlines and contents.
 - 6. Review course materials (including operation and maintenance manuals).

GENERAL COMMISSIONING REQUIREMENTS

Worcester South Division Fire Station Project
Worcester, MA
Design Development

Perkins&Will
157132.000
25 July 2025

7. Inspect and discuss locations and other facilities required for instruction.
 8. Review and finalize training schedule and verify availability of educational materials, instructors, audiovisual equipment, and facilities needed to avoid delays.
 9. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.
- B. Training Modules: Develop an instruction program that includes individual training modules for each system, subsystem, and equipment as specified in Section 01 79 00 - Demonstration and Training.

END OF SECTION