**ATTACHMENT A**

**Work Order \_\_\_**

This Work Order is subject to the terms and conditions of the Master Commissioning Services Agreement (as may be amended from time to time, (the “Agreement”) dated as of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the Massachusetts School Building Authority and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. Capitalized terms used and not otherwise defined in this Work Order shall have the meanings ascribed to such terms in the Agreement. In the event of any conflict between this Work Order and the Agreement, the Agreement shall govern.

Pursuant to the terms and conditions of the Agreement and this Work Order, the MSBA and Contractor agree as follows:

1. Location: Contractor shall provide the Commissioning Services for the following school construction project:

MSBA Cx I.D:

School District:

School Name:

School Address:

Construction Project Description:

1. Scope of Services and Deliverables: Contractor shall provide the commissioning services and deliverables set forth below and as more fully described in Attachment A-2, Standard Scope of Commissioning Services, for the School Construction Project identified in Section 1 of this Work Order (“Services”).
   1. Contractor shall conduct Full Building Commissioning on the following major building systems:
      1. Building Envelope
      2. Roofing Systems
      3. HVAC Systems
      4. Plumbing Systems
      5. Electrical Power Systems
      6. Voice, Data and Video Systems
      7. Life Safety Systems
      8. Building Automation and Control Systems
   2. Systems shall be commissioned at the following sampling rates:

|  |  |  |
| --- | --- | --- |
| **Systems/Equipment to be Commissioned** | **Minimum Sample %** | **Comments** |
|  |  |  |
| ***Building Envelope*** |  |  |
| Exterior walls | 100 |  |
| Exterior windows | 25 |  |
| Exterior doors | 25 |  |
| Louvers and vents | 25 |  |
| Grilles and sunscreens | 25 |  |
| Infrared scan of envelope | 100 | Performed by Commissioning Contractor |
|  |  |  |
| ***Roofing*** |  |  |
| Roof systems, including parapet | 100 |  |
| Roof openings, including skylights, pipe chases, ducts, etc. | 100 |  |
| Infrared scan of roof | 100 | Performed by Commissioning Contractor |
|  |  |  |
| ***HVAC Systems*** |  |  |
| Boilers | 100 |  |
| Chillers | 100 |  |
| Domestic hot water heating coils | 100 |  |
| Piping | 25 |  |
| Heat exchangers | 100 |  |
| Pumps and drives | 50 |  |
| Air handler systems | 100 |  |
| Rooftop units | 100 |  |
| Heating and ventilating units | 100 |  |
| Induction units | 25 |  |
| Displacement terminal units | 25 |  |
| Unit ventilators | 25 |  |
| Cabinet unit heaters | 25 |  |
| Fan coil units | 25 |  |
| Unit heaters | 25 |  |
| Radiant panels | 25 |  |
| Finned tube radiation | 25 |  |
| Convectors | 25 |  |
| Chilled beams | 25 |  |
| Exhaust fans | 25 |  |
| Combustion air units | 100 |  |
| Split system AC | 100 |  |
| Make-up air units | 100 |  |
| Fume hoods | 100 |  |
| Heat recovery systems | 100 |  |
| Thermal solar systems | 100 |  |
| Testing, adjusting and balancing spot check | 10 |  |
| Automated temperature controls and energy management systems | 100 |  |
| ***Plumbing Systems*** |  |  |
| Natural gas systems | 25 |  |
| Compressed air systems | 25 |  |
| Backflow preventers | 100 |  |
| Pressure booster systems | 100 |  |
| Water heaters | 100 |  |
| Hot water storage | 100 |  |
| Recirculation pumps | 100 |  |
| Water closets and sinks | 25 |  |
| Laboratory waste and acid neutralization systems | 100 |  |
| Safety shower/eyewash stations | 100 |  |
| Mixing valves | 100 |  |
| Irrigation Systems | 100 |  |
| Grey water systems | 100 |  |
| Rain water reclamation systems | 100 |  |
|  |  |  |
| ***Electrical Power Systems*** |  |  |
| Electrical service and switchgear | 100 |  |
| Transformers | 100 |  |
| Motor control centers | 100 |  |
| Electrical distribution systems | 25 |  |
| Emergency and standby power systems including automatic transfer switching systems | 100 |  |
| Lighting and lighting control systems | 25 |  |
| Low voltage systems | 25 |  |
| Grounding and bonding systems | 25 |  |
| Photovoltaic systems | 100 |  |
| Wind power systems | 100 |  |
| Interfaces to automated temperature/building automation control systems | 100 |  |
|  |  |  |
| ***Voice, Data, Video Systems*** |  |  |
| Cabling | 10 |  |
| Switches | 10 |  |
| Servers | 10 |  |
| Routers | 10 |  |
| Interfaces | 10 |  |
| Terminals | 10 |  |
| Master clock system | 100 |  |
| Public address systems | 100 |  |
|  |  |  |
| ***Life Safety Systems*** |  |  |
| Security systems | 100 |  |
| Fire alarm systems | 100 |  |
| Fire suppression systems | 100 |  |
| Fire pump systems | 100 |  |
| Egress lighting | 100 |  |
| Egress pressurization systems | 100 |  |
|  | 100 |  |
| ***Building Automation and Controls*** | | |
| Interface of these systems with HVAC systems, fire alarm and security systems. | 100 |  |
| ***Other Systems/Equipment Not Noted Above*** | | |
|  |  |  |
|  |  |  |

* 1. Standard Scope of Commissioning Services, Exceptions: Contractor shall provide all of the services set forth in Section D of Attachment A-2, Standard Scope of Commissioning Services, except the following provisions of said Section D shall not be included as part of the Services to be delivered pursuant to this Work Order (see also strikethrough version of Attachment A-2):
     1. No exceptions taken.

1. Term of Work Order: This Work Order will become effective as of \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Unless otherwise expressly agreed by the MSBA in writing, Contractor shall complete the Services commensurate with the overall Project schedule.
2. Payments /Services and Deliverable Schedule/Invoices:

a. Invoices shall be submitted monthly for payment and shall be based on Contractor’s good faith estimate of percentage of services actually complete at the time of the billing up to the following maximum amounts for each phase of the Project, plus any completed additional services and reimbursable expenses previously approved by the MSBA. Payments shall be made in accordance with the provisions outlined in the Agreement and with the following payment schedule.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project Phase** | | **Fee** | | **Estimated**  **No. Meetings** | |
| Design Development and Construction Documents Phases | | $0.00 | |  | |
| Bidding Phase | | $0.00 | |  | |
| Construction Phase | | $0.00 | |  | |
| Acceptance Phase | | $0.00 | |  | |
| Project Closeout | | $0.00 | |  | |
| Post Commissioning | | $0.00 | |  | |
| **TOTAL** | | **$0.00** | |  | |

* + - * 1. Travel expenses, including meal expenses, incurred by Contractor as may be required to fulfill the tasks required by this Work Order or Attachment A-2, Standard Scope of Commissioning Services, shall be included in the fees set forth in Section 4(a) above and shall not be reimbursable. All costs associated with providing copies of the deliverables required by this Work Order or Attachment A-2, Standard Scope of Commissioning Services, shall be included in the fees set forth in Section 4(a) above and shall not be reimbursable.
        2. In the event that the MSBA requests additional or reimbursable Services from the Contractor under this Work Order, Contractor shall be paid for any such additional and reimbursable Services and Deliverables based on the hourly rate(s) set forth below, plus reasonable out-of-pocket expenses related to such additional or reimbursable services at cost, with no mark-up to the MSBA. Invoicing for additional and reimbursable services shall be based on the following rate schedule:
    1. Services performed by principals of the Contractor or of firms engaged as by Contractor as consultants shall be billed at a rate of $175.00 per hour.
    2. Services performed by senior engineers, senior architects, project managers, registered professional engineers and architects of the Contractor or of firms engaged by Contractor as consultants shall be billed at a rate of $150.00 per hour.
    3. Services performed by commissioning agents, designers (non-registered design professionals), drafters, technicians, and construction specialists of the Contractor or of firms engaged by Contractor as consultants shall be billed at a rate of $125.00 per hour.
    4. Services performed by technical support and administrative personnel of the Contractor or of firms engaged by Contractor as consultants shall be billed at a rate of $85.00 per hour.
    5. Travel shall be a rate of $0.55 per mile. Normal travel expenses incurred by Contractor or firms engaged by Contractor as consultants as may be required to fulfill the tasks required by this Work Order or Attachment A-2, Standard Scope of Commissioning Services, shall not be reimbursable.)
    6. Printing at cost. (Copies of deliverables as required by this Work Order or Attachment A-2, Standard Scope of Commissioning Services, shall not be reimbursable.)
       - 1. The MSBA shall only pay for Services and Deliverables rendered that have been properly documented and invoiced and are to the satisfaction of the MSBA. The fee amount in Section 4(a) shall be the sole and complete compensation for Services performed by Contractor pursuant to this Work Order, including contingencies and direct and indirect expenses, except as specifically provided for in Section 4(c). The fee amount stated in Section 4(a) is a maximum amount, and the total fee amount due pursuant to this Work Order may be an amount less than that amount.
         2. Contractor shall invoice the MSBA monthly. Invoices must be submitted in a format and with such detail as required by the MSBA. Payments hereunder will be made by the MSBA within forty-five (45) days following receipt of reasonably detailed invoices from Contractor, according to the banking information submitted by Contractor to the MSBA on the attached form (*Attachment A-1)*,and subject to the fee limitations set forth in Section 4(a) of this Work Order.Contractor’s monthly invoices shall be in a format consistent with the Services and Deliverables set forth in Section 2 of this Work Order and in Attachment A-2, and the Services and Deliverables Schedule set forth in Section 4 of this Work Order. All invoices submitted for payment shall provide reasonable documentation to provide evidence of costs incurred. For services provided on an hourly basis, such documentation shall include for each individual, the name, title, hours worked per task, and description or work performed.

1. Project Personnel:

For Contractor:

For MSBA: Mary Pichetti, Director of Capital Planning

Greg Brunell, MSBA Senior Project Manager

MSBA Project Manager

6. Contractor hereby represents and warrants that, as of the date of this Work Order, all of the representations, warranties and certifications of Contractor set forth in the Agreement are true and correct and Contractor is in compliance with all of Contractor’s obligations under the Agreement and each other Work Order between the MSBA and Contractor.

**Massachusetts School Building Authority \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**By: By:**

**Name:** John K. McCarthy **Name:**

**Title:** Executive Director **Title:**

**Date:**  **Date:**