SECTION 230924 MODIFICATIONS TO DIRECT DIGITAL BUILDING CONTROL SYSTEM

THIS SECTION IS WRITTEN TO BE COMPATIBLE WITH THE TYPE OF SYSTEM SPECIFIED IN SECTION 230923. (normally use this section to modify an existing system & use 230923 for a new system: unless there is a new and modified system on the same contract).

PART 1 GENERAL

* + - 1. RELATED WORK SPECIFIED ELSEWHERE
         1. Basic Electrical Materials and Methods for Direct Digital Building Control System: Section 260502.
         2. General Commissioning Requirements: Section 019113
         3. Commissioning Process: Section **AGCP in Appendix**

INCLUDE PARAGRAPH BELOW WHEN AN ALLOWANCE IS USED FOR PORTIONS OF THE WORK. MODIFY EXAMPLE TO SUIT.

* + - 1. ALLOWANCES
         1. An allowance for the following portions of the Work of this Section is included in Section 012100:

Services of the Company Field Advisor as described in QUALITY ASSURANCE.

All items listed in SUBMITTALS.

Engineering and reprogramming associated with the installation of the new equipment and updating existing information.

MODIFY SUBPARAGRAPH BELOW TO SUIT.

All products listed in PART 2 of this Section except:

Piping.

Dampers.

Electric switching relays.

Markers and nameplates.

Labor for installation of the materials shall be included in the Contract Sum (not the allowance).

* + - 1. DESCRIPTION OF EXISTING SYSTEM

CHANGE COMPANY AND SYSTEM IDENTIFICATION IN PARAGRAPH BELOW AS REQUIRED.

* + - * 1. The existing system is a (e.g. Siemens Apogee.)
      1. MODIFICATIONS TO EXISTING SYSTEM

LIST AND EXPLAIN MODIFICATIONS TO EXISTING SYSTEM IN PARAGRAPH BELOW. EXAMPLES:

* + - * 1. Add control and monitoring of primary hot water circulation pumps serving instantaneous water heaters in Buildings 4, 7, 8, 9, 10, 11, 12, 13, and 17.
        2. Add monitoring of tempered domestic hot water from instantaneous water heaters in Buildings 4, 7, 8, 9, 10, 11, 12, 13, and 17.
        3. Add control of primary hot water heating pumps in Buildings 4 and 29.
        4. Add differential pressure monitoring of primary hot water heating piping in Buildings 4, 8, 9 and 12
        5. Add DCP in Building 14. Modify existing controls.
      1. SUBMITTALS
         1. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300 does not apply to this Section.
         2. Preliminary Submittal: Existing system test report.
         3. Submittals Package: Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package.
         4. Shop Drawings:

Composite wiring and/or schematic diagrams of the modifications as proposed to be installed (standard diagrams will not be acceptable).

* + - * 1. Product Data:

Catalog sheets, specifications and installation instructions.

Bill of materials.

Detailed description of system operation.

* + - * 1. Quality Control Submittals:

Company Field Advisor Data: Include:

Name, business address and telephone number of Company Field Advisor secured for the required services.

Certified statement from the Company listing the qualifications of the Company Field Advisor.

Services and each product for which authorization is given by the Company, listed specifically for this project.

* + - * 1. Contract Closeout Submittals:

System acceptance test report.

Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.

Operation and Maintenance Data:

Deliver 2 copies, covering the installed products, to the Director’s Representative. Include:

Operation and maintenance data for each product.

Complete point to point wiring diagrams of entire system as installed. Number all conductors and show all terminations and splices. (Numbers shall correspond to markers installed on each conductor.)

* + - 1. QUALITY ASSURANCE

ADJUST NUMBER OF HOURS IN PARAGRAPH BELOW

* + - * 1. Company Field Advisor: Secure the services of a Company Field Advisor from the Company of the existing system for a minimum of 24 working hours for the following:

Render advice and witness test of existing system.

Render advice regarding modifications to the system.

Assist in reprogramming of the system.

Witness final system test and then certify with an affidavit that the modifications were installed in accordance with the contract documents and are operating properly.

1. PRODUCTS
   * + 1. CONTROL COMPONENTS

SPECIFY REQUIRED PRODUCTS IN PARAGRAHS BELOW. FOLLOWING ARE EXAMPLES. VERIFY THAT PRODUCTS SPECIFIED ARE COMPATIBLE WITH EXISTING SYSTEM.

* + - * 1. Electronic Analog Sensors: (Parts by allowance)

|  |  |  |  |
| --- | --- | --- | --- |
| **Quantity** | **Part Number** | **Description** | **Manufacturer** |
| **2** | **544-577-25** | **Temperature Sensor** | **Siemens** |
| **3** | **QBE3190UD25** | **Differential Pressure Sensor** | **Siemens** |
|  |  |  |  |

* + - * 1. Field Panels and Points:

|  |  |  |  |
| --- | --- | --- | --- |
| **Quantity** | **Part Number** | **Description** | **Manufacturer** |
| **4** | **A&F30057268** | **Transformer** | **Functional Devises, Inc.** |
| **4** | **RIBUIC** | **Relay** | **Functional Devises, Inc.** |
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* + - 1. MISCELLANEOUS ELECTRIC/ELECTRONIC AND MECHANICAL DEVICES

REFER TO SECTION 230923 FOR COMPREHENSIVE LIST OF DEVICES.

* + - 1. MARKERS AND NAMEPLATES
         1. Markers: Premarked self-adhesive; W.H. Brady Co.’s B940, Thomas and Betts Co.’s E-Z Code WSL self-laminating, Ideal Industries’ Mylar/Cloth wire markers, or Markwick Corp.’s permanent wire markers.
         2. Nameplates: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.

Phenolic: Two color laminated engraver’s stock, 1/16-inch minimum thickness, machine engraved to expose inner core color (white).

Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled, or background enameled with natural aluminum engraved characters.

Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

* + - 1. WIRING
         1. See Section 260502.
      2. ACCESSORIES
         1. Include accessories required for the modifications to perform the functions specified and indicated on the drawings.

1. EXECUTION
   * + 1. VERIFICATION OF CONDITIONS
          1. Test of Existing System:

Prior to modifying the system, test portions of the existing system to ascertain their operating condition. Specifically, test:

Active points which will be modified.

Primary operators station (POS) and distributed control processor (DCP) functions associated with the modifications.

Prepare a written report for the Director’s Representative indicating the repairs required, if any, to make the existing system function properly.

Repairs to the existing system are not included in the Work unless requested by Order on Contract.

* + - 1. INTERRUPTIONS TO EXISTING SYSTEM
         1. Maintain the existing system in its present condition to the extent possible while installing new Work.
         2. Prior to making changes relative to the existing system, notify the Director’s Representative and have procedures approved.
      2. INSTALLATION
         1. Install the Work in accordance with the Company’s printed instructions unless otherwise indicated.
         2. Reprogram the system to include new sensor and control points and update existing system program to include changes and additions requested by facility.

Obtain from the facility personnel through the Director’s Representative, a list of desired system program changes, additions, etc.

* + - * 1. Identification, Labeling, Marking:

Identification of Circuits: Identify wires, cables, and tubing by system and function in interconnection cabinets, POSs and DCPs to which they connect with premarked, self-adhesive, wraparound type markers. Designations shall correspond with point-to-point wiring diagrams.

* + - 1. FIELD QUALITY CONTROL
         1. Preliminary System Test:

Preparation: Have the Company Field Advisor adjust the completed system and then operate it long enough to assure that it is performing properly.

Run a preliminary test for the purpose of:

Determining whether the system is in a suitable condition to conduct an acceptance test.

Checking and adjusting equipment.

* + - * 1. System Acceptance Test:

Preparation: Notify the Director’s Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.

Make the following tests:

Test system operational functions associated with the modifications.

Test each monitor and control device connected or added under this project.

3. Supply all equipment necessary for system adjustment and testing.

4. Submit written report of test results signed by Company Field Advisor and the Director’s Representative. Mount a copy of the written report in a Plexiglas enclosed frame assembly adjacent to the POS.

* + - 1. POINT DESCRIPTION, PROGRAM LIST AND SEQUENCES

SEE SECTION 230923 - LIBRARY OF EXAMPLES AND USE THEM AS INSERTS FOR THIS SECTION. FOLLOWING IS A BLANK FORM TO BE FILLED OUT IF APPROPRIATE EXAMPLES CANNOT BE FOUND IN LIBRARY OF EXAMPLES.

* + - * 1. Blank Form:

Point:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Points** | | | |  |
|  | **Input** | | **Output** | |  |
| **Description** | **Binary** | **Analog** | **Binary** | **Analog** | **Notes** |
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Program List: AHU-1.

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| **Description** | **Yes** | **No** |
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Sequences:

END OF SECTION 230924