

University of Houston Master Specification

<Insert Project Name>
<Insert U of H Proj #>

<Insert Issue Name>
<Insert Issue Date>

SECTION 25 1109 – BMS OPERATOR INTERFACES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission
 - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.02 SUMMARY

- A. Includes:
 - 1. Operator Workstations.
 - 2. Control System Servers.
 - 3. Portable Operator Terminal / Remote Workstation.
- B. Furnish and install all Operator Interfaces and Control System Servers as required for the BMS functions specified. All computers shall be warranted by the manufacturer for a period of one year after final acceptance.

1.03 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

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- C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the following references:

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.
- B. The make and model of control system server computers, personal computers (PC), notebook PC's, monitors, and printers shall comply with Owner's current standards for desktop personal computers as of the date of Substantial Completion. Contact Owner for the current computer hardware standards.
- C. Operating system for operator workstation shall comply with Owner's current standards for desktop personal computers as of the date of Substantial Completion. Contact Owner for the current computer hardware standards.

Consult with BMS Project Manager whether a fixed operator workstation is required or not. Generally, notebook computers (laptops) will be used for new construction and retrofit projects, not fixed workstations. If workstation is not required, delete the following article.

Equipment listed below is representative of recent hardware requirements. Consult with BMS Project Manager regarding current computer equipment model specifications. Consult with BMS Project Manager regarding current computer equipment model specifications.

2.02 OPERATOR WORKSTATION (OWS)

- A. Workstation PC shall have the capability of changing serial port interrupt vectors and IOBMSE addresses through software.
- B. Operating system for operator workstation shall meet or exceed the minimum requirements of the BMS software and shall meet or exceed the minimum requirements of Owner. All software shall be the latest version available as of the date of Substantial Completion.
- C. Provide software, graphics and programming as specified in Section 25 1500 "BMS Software and Programming."
- D. Provide network card approved by BMS manufacturer to support Supervisory LAN communications (10/100/1000 Mbps Ethernet TCP/IP) for OWSs connected to the Local Supervisory LAN and network card or LANID where connected to the Primary Controller LAN.
- E. Provide additional hardware, video drivers, serial port, etc., to facilitate all control functions and software requirements specified for the BMS.

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It is important that the control system server and OWS's be indicated on the Drawings and/or their location clearly defined. Edit the following as applicable.

- F. Operator Workstations shall be placed as indicated on the Drawings or as directed by Owner.

Verify with Owner if a CSS exists for use on this Project.

2.03 CONTROL SYSTEM SERVER (CSS)

- A. Owner will provide a virtual server for use by controls vendor.

Consult with BMS Project Manager on whether a laptop is required for each project. Generally, laptops will be provided for new construction and large retro-fit projects.

Equipment listed below is representative of recent hardware requirements. Consult with BMS Project Manager regarding current portable terminal specifications

2.04 PORTABLE OPERATOR TERMINAL (POT) / REMOTE WORKSTATION

- A. Portable Operator Terminal shall support system management by connection to the controllers, by connection via the Internet, and by dial-up communications while serving as the remote workstation.
- B. Notebook personal computer shall be a Dell Latitude that meets or exceeds the minimum requirements of the BMS software and meets or exceeds the minimum requirements of Owner. The notebook shall have the following requirements at minimum.
 - 1. Notebook PC shall contain a 24X/24X/24X/8X CD-RW/DVD ROM Combo Drive.
 - 2. Provide a one terabyte solid state drive.
 - 3. Provide 16 gigabytes of Random Access Memory (RAM).
 - 4. Provide I7 processor at minimum.
 - 5. Operating system shall be Windows 10 Enterprise.
- C. Notebook personal computer shall have the University of Houston IT department service tag from manufacturer. The notebook shall have the following requirements at minimum.
- D. Provide a 10/100 LAN+56K CardBus Type III PC Card if internal adapter is not present.
- E. Provide minimum 14.1 inch XGA active matrix display.
- F. Provide carrying case and extra battery. Battery life shall be at least 3 hours per Win Drain Test.
- G. Operating system for operator workstation shall meet or exceed the minimum requirements of the BMS software and shall meet or exceed the minimum requirements of Owner. Provide software, graphics and programming as specified in Section 25 1500 "BMS Software and Programming."

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- H. Provide additional hardware, video drivers, serial ports, etc., to facilitate all control functions and software requirements specified for the building management system.
- I. Provide all controller configuration and interface software and/or plug-ins for all devices applicable. All shall be loaded and functional. Provide all required interface cables required to connect to all networks, routers, controllers, SDs etc.
- J. Wherever a POT connection point is not accessible in the same room as the device controlled, Contractor shall provide a wireless system, to permit configuration, testing and operation.
- K. Include licensing for all software packages.
 - 1. BMS licensing for this POT shall allow unlimited access to all aspects of the any manufacturer’s system including system access, workstations, points, programming, database management, graphics etc.
 - 2. No restrictions shall be placed on the license.
 - 3. All operator interface, programming environment, networking, database management and any other software used by the Contractor to install the system or needed to operate the system to its full capabilities shall be licensed to and provided to the Owner. Warranties for upgrades to software for five years shall be included.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Installation shall meet or exceed all applicable federal, state and local requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.
- B. All installation shall be in accordance with manufacturer’s published recommendations.
- C. Set up workstations, if required, as indicated on the Drawings. Install all software and verify that the systems are fully operational. Ensure licensing is provided for all software.
- D. No license, software component, key, etc or any piece of information required for installing, configuring, operating, diagnosing and maintaining the system shall be withheld from the Owner.
- E. Install electronic control system Operation and Maintenance Manuals, programming guides, network configuration tools, and control Shop Drawings etc. on each **[OWS and][CSS][and][POT]**. Provide interface or shortcuts to guide user to the appropriate information.
- F. Set up Portable Operator Terminal and configure it as the remote workstation. Install all software and verify that the system is fully operational.

END OF SECTION 25 1109