TABLE 1: ACCEPTABLE BACNET CONTROLLERS

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Acceptable DDC Controller</th>
<th>BACnet Device Profile</th>
<th>Primary Network</th>
<th>Secondary Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siemens</td>
<td>PXc Modular</td>
<td>x x x</td>
<td>x x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PXc Compact</td>
<td>x x x</td>
<td>x x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unitary Controller</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>PTEC</td>
<td></td>
<td></td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BACnet VAV Actuator</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>Honeywell</td>
<td>ComfortPoint Open Plant Controller</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ComfortPoint IP</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ComfortPoint Core</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ComfortPoint Open DIQ</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ComfortPoint VAV/SPC/Compact VAV/FCU</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td>ASI</td>
<td>JASIC Tridium Controller</td>
<td>x x</td>
<td>x x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASIC/3</td>
<td>x x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASIC/2</td>
<td>x x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASIC/1</td>
<td>x x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LEGEND:

- **BMS**: Building Management System
- **B-ASC**: BACnet Advanced Application Controller
- **B-ASCC**: BACnet Application Specific Controller
- **B-AWS**: BACnet Advanced Workstation
- **B-BC**: BACnet Building Controller
- **B-SA**: BACnet Smart Actuator
- **B-SS**: BACnet Smart Sensor
- **BMD**: BACnet Broadcast Management Device
- **FPD**: Facilities Planning & Development (UMHC)
- **HMI**: Human Machine Interface
- **MCIT**: Medical Center Information Technology
- **MCS**: Mechanical Control System
- **MSCC**: Mechanical Systems Controls Contractor
- **SI**: Systems Integrator
- **BACnet IP**: BACnet Application Specific Controller
- **BACnet MS/TP**: BACnet Secondary Field Level Network (FLN)
- **BACnet IP over the MCIT layer 3 network**: BACnet IP over the MCIT layer 3 network
- **Power source shall match or exceed that of the equipment being controlled**: Power source shall match or exceed that of the equipment being controlled
- **Power to controllers & associated controlled devices shall be provided by MSCC**: Power to controllers & associated controlled devices shall be provided by MSCC
- **Integrate UPS to Desigo CC frontend**: Integrate UPS to Desigo CC frontend
- **Proprietary, or vendor specific devices, are not allowed**: Proprietary, or vendor specific devices, are not allowed

KEYNOTES:

A. Mechanical Systems Controls Contractor (MSCC) shall provide 1C from DDC panel to nearest cable tray for IP network connectivity. MSCC shall mount switch data jack in DDC panel enclosure and provide data cabling, patch cables & network configuration. MSCC shall connect all patch cables at respective controllers/UPS’s.

B. Power to controllers & associated controlled devices shall be provided by MSCC. Power source must match or exceed that of the equipment being controlled (i.e. Normal vs. Emergency Power). UPS’s shall be provided for all controllers except for controllers serving non-critical infrastructure in offsite/offpatient facilities. Integrate UPS to Desigo CC frontend.

C. Human Machine Interface color touchscreen provided at all DDC panels for visual verification of critical system points (equipment status, temperatures, pressures, etc.)

D. Dedicated B-BC BBMD for managing BACnet Broadcasting for each subnet. BBMD shall manage the BACnet distribution table for all other BACnet IP devices.

GENERAL NOTES:

1. All UMHHC DDC systems, regardless of manufacturer or type, shall report all points back to the Design CCC. Proprietary, or vendor specific frontends, are not allowed. See MasterSpecs 230905 “Mechanical Systems Controls” for requirements.

2. The complete control system work shall be split between the Mechanical Systems Controls Contractor (MSCC), the Systems Integrator (SI) and UMH’s MCIT department. See Specification 230905 Mechanical Systems Controls (Hospital Projects), Part 1 section for a detailed description on the division of work.

3. The MSCC shall provide a fully integrated BACnet MCS incorporating electric, pneumatic, and direct digital control (DDC) components for the control and monitoring of heating, ventilating and air conditioning (HVAC) equipment and other related systems. Controllers shall natively use the most current ANSI/ASHRAE Standard 135 for communications and shall be BTL certified with BTL published PIC statements.

4. UMH’s MCIT’s Design CCC front end is installed on servers in MCIT’s server rooms. All communication/integration to the Design CCC front end shall be via BACnet IP over the MCIT layer 3 network.

5. UMHHC wishes to maximize the use of its MCIT network for a) communication to the Design CCC front end and b) communication between DDC building controllers. Communication between DDC building controllers shall be via a MS/TP secondary field level network (FLN), provided & installed by the Mechanical Systems Controls Contractor (MSCC).

6. The SI shall be responsible for BACnet device and object discovery, point instantiation and creating of all front end graphics. The role of Systems Integrator shall be performed by UMH Systems Monitoring staff, or an integration contractor hired by Systems Monitoring. All contracts for Systems Integration, if needed, shall be at the discretion of UMH Systems Monitoring staff and shall be direct contracts with UMH, external to the construction contract.

7. All products to be used as an integral part of the proposed MCS must be contained on the vendor’s pre-approved parts list (including BTL PIC statements) as listed in Table 1.

FILE: D230905SH-12a
ISSUE: Mar 16