PART I. PART 1 - GENERAL

1.01 SECTION INCLUDES
   A. Network Connection
   B. Local Supervisory LAN Gateways/Routers
   C. Chiller Controls Interface Device (CID)

1.02 RELATED DOCUMENTS:
   A. Drawings and general provisions of Contract, including General and Supplementary
      Conditions and Division-1 Specification sections, apply to work of this section.
   B. Section 15010 - Basic Mechanical Requirements
   C. Section 15950 - Building Automation System (BAS) General
   D. Section 23 0900 - Building Automation System (BAS) General
   E. Section 15951 - BAS Basic Materials, Interface Devices, and Sensors
   F. Section 23 0913 – BAS Basic Materials, Interface Devices, and Sensors
   G. Section 15952 - BAS Operator Interfaces
   H. Section 23 0902 - BAS Operator Interfaces
   I. Section 15953 - BAS Field Panels
   J. Section 23 0903 - BAS Field Panels
   K. Section 15955 - BAS Software
   L. Section 23 0905 - BAS Software and Programming
   M. Section 15958 - Sequences of Operation
   N. Section 23 0993 - Sequences of Operation
   O. Section 15959 - BAS Commissioning
   P. Section 23 0801 - BAS Commissioning

1.03 DESCRIPTION OF WORK
   A. Contractor shall provide all interface devices and software to provide an integrated
      system connecting BCs, AACs, ASCs and Gateways to the University network.

PART II. PART 2 - PRODUCTS

2.01 NETWORK CONNECTION
   A. UCB Private VLAN: Internet-based network connecting the BAS across multiple
      facilities with a central data warehouse and server, accessible via standard web-
      browser. This is an existing infrastructure and Contractor is not required to configure
      any components of this VLAN.
      The following ONLY applies to strict BACnet systems and will typically be deleted.
Contractor is however required to provide BACnet Objects and services at the Local Supervisory LAN via BACnet over IP.

2.02 LOCAL SUPERVISIONARY LAN GATEWAYS/ROUTERS

A. The Supervisory Gateway shall be a microprocessor-based communications device that acts as a gateway/router between the Supervisory LAN CSSs or OWS and the Primary LAN.

B. The Gateway shall perform information translation between the Primary LAN and the Local Supervisory LAN, which is 100 Mbps Ethernet TCP/IP and shall preferably use BACnet over IP.

C. The gateway shall contain its own microprocessor, RAM, battery, real-time clock, communication ports, and power supply as specified for a BC in Section 15953 [23 0903]. Each gateway/router shall be mounted in a lockable enclosure unless it is a PC that also serves as an OWS.

D. The gateway/router shall allow centralized overall system supervision, operator interface, management report generation, alarm annunciation, acquisition of trend data, and communication with control units. It shall allow system operators to perform the following functions from the CSS, OWSs, and POTs:
   1. Configure systems.
   2. Monitor and supervise control of all points.
   3. Change control setpoints.
   4. Override input values.
   5. Override output values
   6. Enter programmed start/stop time schedules.
   7. View and acknowledge alarms and messages.
   8. Receive, store and display trend logs and management reports.
   9. Upload/Download programs, databases, etc. as specified.

E. Upon loss of power to the Gateway, the battery shall provide for minimum 100 hour backup of all programs and data in RAM. The battery shall be sealed and self-charging.

F. The Gateway shall be transparent to control functions and shall not be required to control information routing on the Primary LAN

2.03 CHILLER CONTROLS INTERFACE DEVICE (CID)

A. The CID shall be a microprocessor-based communications device that acts as a gateway between the control protocol and the applicable chiller controller protocol.

B. The CID shall contain its own microprocessor, RAM, battery, communication ports and, power supply.

C. Each CID shall support full bi-directional communications translation as more fully specified in Section 15955 [23 0905].

Edit the following list as necessary to meet the needs of UCB based on chiller size and application.

D. The following points shall be mapped as a minimum:
   1. CHW Supply and Return Temperatures
   2. CW Supply and Return Temperatures
   3. Power Consumption (kW)
   4. Percent of Power Consumption (compared to maximum)
5. Bearing Temperature
6. Suction and Head Pressures
7. Suction and Head Temperatures
8. All available alarms; common alarm as minimum
9. Chiller Status
10. Enable/Disable
11. Current Limit Percent
12. CHW Setpoint and Setpoint Reset
PART III.  PART 3 - EXECUTION

3.01 INSPECTION:
   A. Examine areas and conditions under which control systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 INSTALLATION OF CONTROL SYSTEMS:
   A. General: Install systems and materials in accordance with manufacturer's instructions, roughing-in drawings and details shown on drawings.
   B. Contractor shall provide all interface devices and software to provide an integrated system.
   C. Contractor shall closely coordinate with the University, or designated representative, to establish IP addresses and communications to assure proper operation of the building control system on the University VLAN.

END OF SECTION 15954 [23 0904]