

## **PART II - PRIMARY SYSTEMS INFORMATION**

### **2 DIRECT DIGITAL CONTROL SYSTEM**

#### **1. Operation**

- i. **Safety Instructions:** When operating, servicing, or repairing the HVAC system equipment, always wear the appropriate personal protective equipment, use the appropriate safety equipment and tools, and follow proper safety procedures.

- (A) The Safety instructions indicated in the following pages is a partial list of safety instructions that should be followed and are not inclusive of all safety instructions. Additional Safety Instructions should be added to the list as soon as they are realized or discovered. See the following pages for safety instructions:

1i-2            General Generic Safety Instructions

#### **Specific Equipment Safety Instructions:**

1i-3            Mechanical Rooms 1E15, 2D05 and Outside Chiller Yard

1i-4            DDC System

1i-5            Dampers and Valves

#### **Safety Reference Appendix:**

1i-6            Safety Reference Appendix

### **General Generic Safety Instructions:**

- Warning:** Fire prevention is an important part of every safety program. Keep flammable materials in approved safety cans. Store oily rags outdoors in an approved oily waste can.
- Warning:** Verify that all electrical panel doors are properly closed when work is completed. Never leave electrical panel doors open in occupied portions to the building.
- Caution:** Wear work shoes/boots with rubber soles and steel toes.
- Caution:** Wear safety glasses when grinding, hammering, sawing and other activities that could produce flying objects that could injure the eyes.
- Caution:** Do not use metal ladders.
- Caution:** When using an extension ladder insure that the top is securely fastened, and the base of the ladder will not slip.
- Caution:** When using a stepladder, never stand on the top step of the ladder.
- Caution:** Wear hard hats when work is occurring overhead where falling objects could produce injury.
- Caution:** Wear hearing protection when working in noisy areas for a prolonged period of time.
- Caution:** Always use 3-wire grounded extension cords. Inspect the extension cord for damaged insulation and loose connections.
- Caution:** Keep floors clean and dry of water, oil, grease, etc., to prevent slipping.
- Caution:** When working around hot piping or systems avoid contact with hot piping surfaces.

### **Mechanical Rooms 1E15, 2D05 and Outside Chiller Yard:**

Safety instructions to observe when working in these rooms are as follows:

- Warning:** Verify that all electrical panel doors are properly closed when work is completed.
- Warning:** Place rubber mats on the floors in front of switchgear when doing work on this equipment.
- Warning:** Before servicing equipment with electrical connections 120V or greater, where danger of electrical shock could occur, lockout and tag the equipment both at the local lockout switch and at the motor control center (MCC) or lighting panel. When doing work on equipment controlled by a switch located at some distance from the equipment, also tag and lock out the switch to prevent others from opening the circuit.
- Caution:** Keep floors clean and dry of water, oil, grease, etc., to prevent slipping.
- Caution:** Pad and identify sharp projections or locations of low headroom by either marking them clearly or painting them with a contrasting color.
- Caution:** Never hang clothing on electrical disconnect handles, light switches, or control handle knobs.
- Caution:** Keep hatch covers, grating, and other similar protection devices in place. Whenever the opening is exposed, protect it with removable standard railings.
- Caution:** When performing any type of work around rotating machinery, keep extremities, long hair and loose clothing away from all rotating machinery.
- Caution:** When working around hot piping or systems avoid contact with hot piping surfaces.

### DDC System:

Safety instructions to observe when working with this equipment is as follows:

1. Power feeds to the Workstation Computer, Modular Building Panels, Digital Control Unit, Unitary Controller and the Terminal Unit Controllers are 120 V. All normal safety precautions for working on electrical systems should be followed to prevent electrical shock or accidental injury.
2. The DDC system is an electronic 4-20 milliamp or 0-10 volt DC powered. All normal safety precautions for working on electrical systems should be followed; even though these systems are of low voltage to prevent electrical shock or accidental injury.
  - (a) Disconnect power circuits when working on system.
  - (b) Insure that starting contactor circuits are de-energized.

**Caution:** Electrical Power to DDC Panels, damper and valve actuators are 120 V. If working on the electrical components, disconnect the power supply at the disconnect or power switch.

**Caution:** Do not use metal ladders.

**Caution:** When using a stepladder, never stand on the top step of the ladder.

## **Dampers and Valves:**

Safety instructions to observe when working on this equipment is as follows:

- Caution:** Electrical Power to damper and valve actuators is 120 V. If working on actuator motor or on the electrical components, disconnect the power supply at the disconnect switch.
- Caution:** Do not use metal ladders.
- Caution:** When using a stepladder, never stand on the top step of the ladder.
- Caution:** Where dampers and valves are located above ceilings. Wear safety glasses when servicing this equipment to prevent falling debris from injuring the eyes or from air blown particles when opening duct access door.
- Caution:** When opening duct access door at the damper remember that the duct may be under a positive pressure. Either turn off the respective AHU or carefully open the door keeping in mind to maintain pressure on the face of the door to prevent it from flying open upon release of the door latch.

## **Safety Reference Appendix:**

### **Definitions:**

- [1] Lockout Device - A device that utilizes a positive means, such as a lock, either key or combination, to hold an isolating device in a safe position and prevent the energizing of the equipment.
- [2] Lockout Tag - A tag that identifies the authorized personnel who installed the lockout device.
- [3] Tag-out Device - A prominent warning device, e.g., tag and means of attachment which can be securely fastened to an isolating device to indicate that the isolating device and the equipment being controlled may not be operated until the tag-out device is removed.