Port of Portland
Mechanical Guidelines

HVAC STANDARD FOR COMPUTER ROOMS, NETWORK ROOMS, AND EQUIPMENT ROOMS

OVERVIEW

The Port currently has no standard procedure in place for the air conditioning of computer rooms, network rooms and communication equipment rooms that house electronic equipment. With the increased use of temperature sensitive electronic equipment in life-safety, data processing and communications applications, reliable air conditioning systems have become mandatory. Of particular importance is the criticality of the space and the impact to its equipment of heat buildup over time.

This document is to be used by Consultants and Port Engineering as a guide to determining the application of air conditioning equipment, controls, and alarms within electronic equipment rooms.

COMPUTER ROOMS WITH HUMIDITY CONTROL

Port computer rooms, and those constructed as a portion of tenant improvement projects, are often designed with future equipment expansion intended, and as such, are equipped with stand-alone air conditioning systems sized for operation at design (maximum cooling) capacity. When these units are used at part-load capacities, they are subject to short-cycling, which decreases the life of the system. For primary cooling at the beginning stages of equipment buildout, a variable air volume terminal unit connected to the building's primary air distribution system should be installed that meets 50% of the cooling demand at full buildout. The stand-alone air conditioning system will then be utilized when the equipment capacity exceeds 50%. The primary building air system terminal unit will then turn down to its minimum setting and provide only ventilation air for the space. The Johnson Controls (JCI) Metasys system must be configured so that an alarm is generated when the stand-alone unit fails. The terminal unit will provide some cooling until repairs are made.

NETWORK EQUIPMENT ROOMS

Note: Network rooms shall be considered to be "Critical Use" unless deemed otherwise by the Communication Services Manager or Tenant.

CRITICAL USE

If the network room/closet is deemed to have critical functionality, it shall have a backup cooling system. Primary cooling is to be accomplished by use of a variable air volume terminal unit connected to the building's primary air distribution system and dedicated to the room, and sized to meet the cooling load at full equipment buildout. In addition, a split system air conditioner or heat pump, sized for the full room load and connected to emergency power, needs to be installed in the room. The JCI Metasys system must be configured so that an alarm is generated when the backup system is activated.

NON-CRITICAL USE

As with computer rooms, Port and tenant network rooms/closets are designed with the capability of future equipment expansion. These rooms typically do not have stand-alone air conditioning systems, and are cooled using a variable air volume terminal unit connected to the building's primary air distribution system, sized to meet the cooling load at full equipment buildout. If the room's location is such that the use of the building's air distribution system is not feasible, an individual split-system air conditioner or heat pump needs to be installed. It is not necessary for the unit to be connected to emergency power. If the JCI Metasys system is available, it shall be used to monitor the space temperature and provide an alarm in the event of high temperatures.

RADIO REPEATER EQUIPMENT ROOMS (800 MHZ RADIOS)

Radio repeater equipment rooms are critical areas due to the role played in the operation of life-safety equipment. As with critical use network rooms/closets, primary cooling is to be accomplished by use of a variable air volume terminal unit connected to the building's primary air distribution system and dedicated to the room, and sized to meet the cooling load at full equipment buildout. In addition, a split system air conditioner or heat pump, sized for the full room load and connected to emergency power, needs to be installed in the room. The JCI Metasys system must be configured so that an alarm is generated when the backup system is activated.