DIVISION OF PUBLIC SAFETY & SECURITY
UNIVERSITY OF MICHIGAN

HVAC Outage (heating, ventilation, and air-conditioning systems)

In order to live and/or work in a fully enclosed structure, people must be provided comfortable living conditions. To achieve these conditions, the air within closed structures often is heated in the winter and cooled in the summer, and is continuously refreshed and circulated to maintain an adequate level of comfort. HVAC systems serve this function. In general, HVAC system components can be divided into Main Equipment and the Supporting Distribution System. Some components of these systems are located indoors, while others are located outdoors. The table below presents portions of the typical HVAC system and their typical locations. Most HVAC outages are due to the power (steam, electric, or natural gas) supplying the mechanical device being interrupted.

	MAIN EQUIPMENT	SUPPORTING DISTRIBUTION SYSTEM
OUTDOOR	Compressor/Condenser/Heat pump/Evaporative cooler units	Gas/Oil storage tanks Gas/Oil fuel supply lines Electrical supply lines
INDOOR	Furnace with evaporator coil/ Air handler Boiler	Duct work (room air ducts supply and return) Refrigerant lines Combustion air intake line Hydronic piping Pump Terminal units (radiators)

Updated

August 8, 2011

Source

Federal Emergency Management Agency

U-M Plant Operations

More Information

http://www.fema.gov/pdf/fima/pbuffd_chapter_3-1.pdf

http://www.plantops.umich.edu/

Prevention / Mitigation / Preparedness - HVAC Outage

Contact Plant Operations Facilities Maintenance Office at (734) 936-3259 for planning guidance in this area. The HVAC Controls/Building Automation Shop can provide the following services:

- Maintain all direct digital control equipment
- Calibrate and test input sensors: temperature, humidity, CO2, air flow and water flow
- Install direct digital control equipment
- Review blueprints and control programs to be sure that the information is correct as to how it relates to a proper "sequence of operation" for system control.
- Meter energy use
- Provide accurate reading to steam condensate meters
- Provide energy conservation outreach

Be aware and educate others on the health and safety aspects for maintenance personnel servicing the HVAC systems in your building

Educate staff about the potential health consequences of poorly performing HVAC systems.

Ensure HVAC system labeling protocols are met.

Work with Plant Operations in their Energy Conservation Outreach, The Energy Conservation Outreach (ECO) is a program to help building owners and managers make profitable investments in energy-efficient equipment and operations. Energy Conservation Outreach includes the following activities for the Green Lights Program:

- Building tune-up
- Load reductions
- HVAC Distribution Systems Upgrades
- HVAC plant Upgrades

Every building manager needs to understand the importance of humidity and its relationship with temperature. Warmer, humid air isn't good for either computers or people and can damage processors and promote mold growth

Response - HVAC Outage (heating, ventilation, and air-conditioning systems)

If the facility is too hot, too cold or there is no air circulation, assess the conditions to determine any immediate threat. Use heaters, fans and/or open doors/windows to reduce the risk to faculty, staff, students, or research specimen.

Building managers should have adequate electric heaters, fans and extension cords for use.

Do not overload circuits or misuse extension cords.

Consult with Plant Operations (734) 647-2059 as needed

Consider activating your building floor marshal system to spread the word of the outage ensuring that all occupants in the building are aware of the situation and what they need to do.

Inform investigators whose animals were involved no later than the next business day.

Unless an emergency occurs, do not call 911.

Recovery - HVAC Outage (heating, ventilation, and air-conditioning systems)

Debrief with all parties involved in the response and recovery efforts to discuss strengths and weaknesses and what could have been done better. Recommend any changes needed.

Implement those changes to the plan adopted.

Within two weeks, provide an assessment of the incident to the ARF Ad Hoc Committee

Contact the University Risk Management (734) 764-2200 so claims management and other insurance matters can be handled.