

FACILITY DEMOGRAPHIC REPORT

Quick Reference Guide: Heating, Ventilation, and Air Conditioning



ACUTE CARE HOSPITAL



CRITICAL ACCESS HOSPITAL



AMBULATORY SURGERY CENTER

The essence of your risk-assessment approach to heating, ventilation, and air conditioning (HVAC) should be to identify the impact on patients, providers, and others in the building in a worst-case scenario of system element failure. This Quick Reference Guide provides information to support completing, maintaining, and annually updating the Facility Demographic Report (FDR) required for your Accreditation Commission for Health Care (ACHC) Accreditation.

Risk assessment guides category designation(s) based on the National Fire Protection Association's *NFPA 99 Health Care Facilities Code*, 2012 edition, Chapter 4. This is documented in your Facility Demographic Report (FDR) and should be used to establish ongoing maintenance plans and emergency plans.

NFPA 99 Health Care Facilities Code, 2012 edition, Chapter 9 describes what makes up the heating, ventilation, and air conditioning (HVAC) system and the requirements that must be met. It also references relevant NFPA and American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) documents and guidelines such as:

- ASHRAE 170, *Ventilation of Health Care Facilities*.
- ASHRAE 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*.
- NFPA 45, *Standards on Fire Protection for Laboratories Using Chemicals*.
- NFPA 55, *Compressed Gases and Cryogenic Fluids Code*.
- NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilation Systems*.
- NFPA 110, *Standard for Emergency and Standby Power Systems*.

Adding the context of the referenced documents expands understanding of what must be installed and maintained in our buildings. An initial risk assessment is typically performed during the design process to determine the criteria to be met by the equipment. Once equipment is installed, it is the organization's responsibility to maintain that equipment and periodically evaluate for changes in those criteria. In NFPA 99 Chapter 9, the components are usually referenced collectively as HVAC Systems or Utility Systems and include equipment such as:

- Air Handling System.
- Air Conditioning Units.
- Package Units.
- Chilled Water System.
- Boilers/Steam System.

- Heating Hot Water Systems.
- Pumping Systems.
- Cooling Towers.

When determining which category an HVAC “system” should be assigned to, the answer gets clearer as you examine the components in greater detail. The list above may not be detailed enough. For example, air handling systems differ based on the service area function, the patient population, the local climate, and the criteria the equipment must meet. An air handling system for a surgical area might be rated for Category 1, whereas an air handling system for an inpatient unit might be designated Category 2 or 3.

At an even more granular level, there may be exceptions. Let’s take the air handling system for an inpatient unit. That system has other components, such as a humidifier, an Airborne Infection Isolation Room (AIIR) exhaust fan, and an exhaust fan serving the patient and staff bathrooms. Each of these pieces of equipment may require a different category, and these also might affect individual maintenance strategies.

Assigning categories of HVAC systems using the inventory process for plant equipment is required by Standard 11.06.09.¹ In an organization’s inventory, critical equipment (Category 1) will have been identified.

This assessment may lead an organization to applying the use of an Alternate Equipment Maintenance (AEM) Program. (See Standard 11.06.09.) For example:

	Category	Maintenance Strategy
AIIR Exhaust Fan	Category 1	Critical Equipment – Follow manufacturer’s requirements.
Exhaust Fan – Business Area	Category 3	Non-Critical Equipment – AEM approved. Strategy – Annual inspection, and repair upon failure.
Air Handler – Procedural Areas	Category 1	Critical Equipment – AEM approved. Strategy – Quarterly pre-filter changes, lubrication, inspection per manufacturer. Final filters changed based on pressure drop as measured by magnehelic gauge, inches recorded during quarterly pre-filter change.
Air Handler – Non-Clinical Areas	Category 3	Non-Critical Equipment – AEM approved. Strategy – Quarterly pre-filter changes, lubrication, inspection per manufacturer. Final filters changed based on pressure drop as measured by magnehelic gauge, inches recorded during quarterly pre-filter change.

Note that 11.06.09 does not exclude critical equipment from being included in an AEM Program. Instead, it addresses the worst-case-scenario methodology of a risk assessment in stating:

A hospital is expected to identify any equipment in its AEM program which is “critical equipment” for which there is a risk of serious injury or death to a patient or staff person should the equipment fail.

Key Points

- ACHC will no longer expect the organization to identify a category for HVAC as a single “system” on its FDR.
- The organization must have a plant equipment inventory readily available per 11.06.10 that includes a risk assessment for heating, cooling, ventilation, and process equipment and readily identifies critical equipment.
 - » Although Chapter 7 Information Technology and Communication Systems and Chapter 8 Plumbing were not formally adopted by the Centers for Medicare & Medicaid Services (CMS), best practice is to approach this equipment the same way. Organizations’ reliance on equipment in server rooms for Electronic Medical Records (EMRs) and Communication may identify certain items as “critical equipment.” Similarly, organizations may identify domestic water systems as “critical equipment.” Maintenance strategies for these systems and equipment are expected.
- The definition of “critical equipment” mirrors Category 1 as defined in NFPA 99-2012. It is equipment and/or a system for which there is a risk of serious injury or death to a patient or staff person should the equipment fail.

¹This standard reference refers to *Accreditation Requirements for Acute Care Hospitals*. For Critical Access Hospitals (CAHs), the relevant standard is 03.06.09. For Ambulatory Surgery Centers (ASCs), there is no plant equipment standard, but assessment of the HVAC system is addressed in **Standard 16.05.10 Health Care Facilities Code**.