Chapter 5: Facilities, Supplies, Equipment, and Environmental Health

5.2 Quality of the Outdoor and Indoor Environment

5.2.1 Ventilation, Heating, Cooling, and Hot Water

5.2.1.1: Ensuring Access to Fresh Air Indoors  

As much fresh outdoor air as possible should be provided in rooms occupied by children. Screened windows should be opened whenever weather and the outdoor air quality permits (1). When windows are not able to be opened, rooms should be ventilated, as specified in Standards 5.2.1.1-5.2.1.6. The specified rates at which outdoor air must be supplied to each room within the facility range from fifteen to sixty cubic feet per minute per person (cfm/p). The rate depends on the activities that normally occur in that room. Indoor air should be kept as free from unnecessary chemicals and fragrances as possible.
Ionizers or products that use UV lights are not recommended. Do not use air cleaner devices with ozonators, ultraviolet (UV) lights, or ionization features, since they are unnecessary and some produce ozone, which can be harmful and trigger respiratory problems such as asthma.

RATIONALE

The health and well-being of both the staff and the children can be greatly affected by indoor air quality. The air people breathe inside a building can be contaminated with germs shared between people, chemicals emitted from common consumer products and furnishings, and polluted outdoor air entering into the program.[1, 2]Additionally, the presence of dirt, moisture, and warmth encourages the growth of mold and other contaminants, which can trigger allergic reactions and asthma.[3]

Children's exposure to contaminated or polluted air (indoor and outdoor) is associated numerous health effects such as respiratory problems including increased asthma incidence, allergies, preterm birth, low birth weight, neurodevelopmental disorders, some cancers, IQ loss, and risk for adult chronic diseases .[2-5] Children are more vulnerable to air pollution because their organs (respiratory, central nervous system, etc.) are still developing and they breathe in more air relative to their weight than adults.[5]Air circulation is essential to clear infectious disease agents, odors, and toxic substances in the air.

Carbon dioxide levels are an indicator of the quality of ventilation. Higher Oxygen levels and lower Carbon Dioxide from fresh air promotes a better learning environment.[7] Air circulation can be adjusted by a properly installed and adjusted heating, ventilation, air conditioning, and cooling (HVAC) system as well as by using fans and open windows.

Qualified engineers can ensure heating, ventilation, air conditioning (HVAC) systems are functioning properly and that applicable standards are being met. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Website includes the qualifications required of its members and the location of the local ASHRAE chapter. The contractor who services the HVAC system should provide evidence of successful completion of ASHRAE or comparable courses.

COMMENTS

ADDITIONAL RESOURCES

- National Heart, Lung and Blood Institute.
  - How Asthma Friendly is your Child Care Setting?
- Asthma and Allergy Foundation of America. New England Chapter.
  -

ASTHMA – FRIENDLY CHILD CARE: *A Checklist for Parents and Providers*

The following organizations can provide further information on air quality and on ventilation:

- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
- The U.S. Environmental Protection Agency (EPA) Public Information Center
- The American Gas Association (AGA)
- The Edison Electric Institute (EEI)
- The American Lung Association (ALA)
- The U.S. Consumer Product Safety Commission (CPSC)
- The Safe Building Alliance (SBA)

TYPE OF FACILITY

Center, Early Head Start, Head Start, Large Family Child Care Home, Small Family Child Care Home

RELATED STANDARDS

3.1.3.2 Playing Outdoors
3.1.3.3 Protection from Air Pollution While Children Are Outside
5.2.1.2 Indoor Temperature and Humidity
5.2.1.3 Heating and Ventilation Equipment Inspection and Maintenance
5.2.1.4 Ventilation When Using Art Materials
5.2.1.5 Ventilation of Recently Carpeted or Paneled Areas
5.2.1.6 Ventilation to Control Odors
5.2.9.5 Carbon Monoxide Detectors

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NOTES

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