

New Construction

Construction Concept Development

Indoor Air Quality

The Council recognizes that the maintenance of acceptable temperature, relative humidity and adequate fresh air ventilation in school buildings is a primary objective in the creation and maintenance of an optimal learning and working environment.

The Council is committed to protecting human health and the environment. This commitment includes meeting or exceeding federal, state, local and other applicable environmental requirements. The Council is also committed to protecting the indoor air quality of its campuses for the safety, health and comfort of students, staff, and visitors.

Indoor Air Quality Program

The Executive Director or designee shall implement an indoor air quality program that provides for ongoing maintenance and facility reviews, in accordance with all applicable state statutes, necessary for the maintenance and improvement of the indoor air quality of all CREC facilities.

CREC shall report annually, in a manner as required, to the Commissioner of Education on the condition of its facilities, its long-range facilities program, and on its air quality program.

Every year, the Council shall provide for a uniform inspection and evaluation program of indoor air quality within each school/program building, using the Environmental Protection Agency's Indoor Air Quality Tools for Schools Program.

Heating, Ventilation and Air Conditioning Systems

Prior to January 1, 2025, and every five years thereafter, the Council shall provide for a uniform inspection and evaluation of the heating, ventilation, and air conditioning system within each school/program building. Such inspection and evaluation shall be performed by a certified testing, adjusting and balancing technician; an industrial hygienist certified by the American Board of Industrial Hygiene or the Board for Global EHS Credentialing; or a mechanical engineer.

Legal Reference: Connecticut General Statutes

10-220 Duties of boards of education (as amended by P.A. 23-167).

10-291 Approval of plans and site. Expense limit.

10-292 Review of final plans by Commissioner of Education. Exceptions; role of local officials.

Policy adopted: June 20, 2006
Revised: January 17, 2024

CAPITOL REGION EDUCATION COUNCIL
Hartford, Connecticut

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Guidelines For Indoor Air Quality in Existing Facilities

The inspection and evaluation program shall include, but not be limited to, a review, inspection or evaluation of the following:

1. the heating, ventilating, and air conditioning (HVAC) systems, including, but not limited to:
 - testing for maximum filter efficiency
 - physical measurements of outside air delivery rate
 - verification of the appropriate condition and operation of ventilation components
 - measurement of air distribution through all system inlets and outlets
 - verification of unit operation and that required maintenance has been performed in accordance with the most recent indoor ventilation standards promulgated by the American Society of Heating, Refrigerating and Air-Conditioning Engineers
 - verification of control sequences
 - verification of carbon dioxide sensors and acceptable carbon dioxide concentrations indoors; and
 - collection of field data for the installation of mechanical ventilation if none exist.
2. radon levels in the air and water;
3. potential for exposure to microbiological airborne particles, including fungi, mold, and bacteria;
4. chemical compounds of concern to indoor air quality, including volatile organic compounds;
5. pest infestation, including insects and rodents;
6. pesticide usage;
7. the presence and plans for removal of certain hazardous substances identified under federal law;
8. ventilation systems;
9. plumbing, including water distribution systems, drainage systems, and fixtures;
10. moisture incursion (leaks);
11. the facilities' overall cleanliness;
12. building structural elements, including roofing, basements, and slabs;

13. the use of space, particularly in areas designed to be unoccupied; and
14. the provision of indoor air quality maintenance training for building staff.

Heating, ventilation, and air conditioning systems shall be maintained in accordance with the prevailing maintenance systems, such as Standard 62. The Council directs the Executive Director or designee to ensure that such systems shall be operated continuously during the hours in which students or school personnel occupy school facilities except during periods of scheduled maintenance or emergency repairs or at other times when it can be demonstrated that the air supply system meets the Standards 62 requirements for air changes per hour.

A written report shall be made of the inspection and evaluation of the heating, ventilating, and air conditioning (HVAC) systems. The report shall include any corrective actions necessary to be performed to the mechanical ventilation system or the heating, ventilation and air conditioning infrastructure, including installation of filters meeting the most optimal level of filtration available for a given heating, ventilation and air conditioning system, installation of carbon dioxide sensors and additional maintenance, repairs, upgrades, or replacement. Any such corrective actions shall be performed, where appropriate, by a licensed contractor.

Records shall be maintained on the inspection and evaluation of CREC's facilities heating, ventilation, and air conditioning systems for a period of not less than five years. Such records shall be available for public inspection at a regularly scheduled Council meeting and on the CREC website and the website of each school/program. The reports and results of inspection and evaluation shall be submitted to the Department of Administrative Services using the prescribed form.

Indoor Air Quality in New or Renovated Facilities

In order to secure appropriate indoor air quality in CREC facilities, the Council believes that when new facilities are constructed and when existing facilities are renovated, the following guidelines shall be specified to the architect or design professional responsible for the construction project:

1. Adhere to the requirements defining minimum air circulation contained in the State Building Code which apply only when constructing new space.
2. The building/space meets or exceeds the ASHRAE (American Society of Heating, Ventilating and Air Conditioning Engineers) 62-1999 standard, "Ventilation for Acceptable Indoor Air Quality," which considers chemical, physical and biological contaminants that can affect air quality as referenced by the State Code adopted pursuant to C.G.S. 29-252.
3. Utilizing the ASHRAE 62-1999 standard, achieve a minimum ventilation rate per occupant of 15 cubic feet per minute (cfm) of outdoor air.
4. Design and placement of air handling equipment needs to be done in a manner where it is accessible to inspect and maintain the equipment; therefore, mechanical rooms are desirable versus exposed rooftop units or units hung above suspended ceilings.

5. With increased air flow requirements, attention must be given to the potential of air velocity noise within ductwork.
6. Fresh air intakes must be located, whenever possible, away from all types of vents and exhausts on roofs.
7. Air intakes and ventilation windows must be sufficiently distant from bus loops and loading docks.
8. Radon mitigation systems to provide a vapor barrier and protection from under-slab humidity should be a part of new school construction.
9. Attention must be given to the selection of carpeting, carpet adhesives and synthetic materials which may emit odorous and irritating volatile organic vapors degrading indoor air quality.
10. Reduce the potential of moisture intrusion through appropriately designed pitched roofs wherever possible.
11. Consider the economic feasibility of achieving dehumidification through air conditioning.
12. Install temperature control systems, which monitor temperature and other factors helpful in monitoring and diagnosing heating, ventilating and air conditioning (HVAC) systems.
13. When renovating an occupied building provide for the mechanical control of airborne pollutants associated with the construction process.

Regulation issued: June 20, 2006
Revised: November 15, 2023

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