Dubai Municipality

Health and Safety Department

Environmental Health Section

Technical Guidelines for

Ventilation in School Classes

DM-HSD-GU101-VSC2

Contents

1. Introduction:

Ventilation is perhaps the single most important element of Heating, ventilation and air-conditioning - HVAC system. It influences air quality and energy efficiency, and proper ventilation controls odors, dilutes gases (such as carbon dioxide), and inhibits the spread of respiratory diseases. Air ventilation is a critical environmental health factor in educational facilities.

Poor Indoor Air Quality (IAQ) has reported a negative effect on the attention span of schoolchildren, leading to a noticeable drop in concentration when CO_2 levels are high.

There are also longer-term impacts on health, which can include headaches, coughs, and irritation of the eyes, nose, throat and skin.

2. Purpose:

To specify **minimum ventilation rates** and other measures intended to provide acceptable indoor air quality for students.

3. Scope:

3.1. This guidance applies to all spaces intended for students' occupancy, except those within single-family houses, multi family structures of three stories or fewer above grade, vehicles, and school bus.

3.2. This guidance does not prescribe specific ventilation rate requirements for spaces that contain smoking or that do not meet the requirements in the standard for separation from spaces that contain smoking.

3.3. Ventilation requirements based on chemical, physical, and biological contaminants that can affect air quality.

4. Definitions:

Mechanical ventilation:

Is the most effective way to provide fresh, filtered air into classrooms, The system that include (CO_2) sensors, the CO_2 sensors detect changes in pollution levels, automatically adjusting fan speed to ensure that air quality is reliably controlled, and drowsiness does not set in.

Ventilation Rate Procedure:

The prescriptive design procedure presented as Authorized regulation , in which outdoor air intake rates are determined based on space type/application, occupancy level, and floor area, shall be permitted to be used for any zone or system.

Breathing Zone Outdoor Airflow:

The outdoor airflow required in the breathing zone (classrooms) of the available space or spaces in a ventilation zone shall be not less than the value determined in accordance with **ASHRAE Standards 62.1.**

5. Ventilation criteria in school classes

As to the **DM regulation for classes in schools**, Area of not less than (1) square meter shall be allocated to each student within the classroom, and number of students per class should not exceed (25) students for Kindergarten classes, and not exceeding (30) students for the other stages.

According to the ASHRAE Standards 62.1 For (**Ventilation for Acceptable Indoor Air Quality**), the amount of the fresh air and ventilation rates that should be suppling to the kindergarten classes (ages 5-8) should not be less than **295 CFM.** Moreover, for the other stages (ages 9 plus) classes should not be less than **345 CFM.**

In addition, this amount of the flow rate of ventilation is changeable according to the **area size (m2)**.

6. References:

- ASHRAE Organization.

For any further information, please contact:

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