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Chapter 1

Ventilation and Air Quality

401.01 Minimum Ventilation Requirements for Adequate Indoor Air Quality

All new and existing buildings which are air-conditioned must be mechanically or mixed mode ventilated and also must comply with the minimum requirements of latest edition of ASHRAE Standards 62.1, 62.2 and 170.

Occupancy density for each space shall be determined based on its activity and shall be in accordance with Dubai Municipality's requirements. If the occupancy density values are not mentioned then, default occupancy density values stated in the latest edition of ASHRAE Standards 62.1, 62.2 and 170 shall be considered.

401.02 Indoor Air Quality during Construction, Renovation or Decoration

For all the buildings under construction or renovation, building occupants and systems must be protected from airborne contaminants that are generated or spread during construction or renovation works, carried out inside the buildings. These contaminants include toxic substances or substances that are harmful to the human body, such as asbestos, lead, pesticides, heavy metals, mold, dust, fumes, paints, etc.

Unless it is required to provide ventilation during construction, the supply and return heating, ventilation and air conditioning (HVAC) system openings must be closed and protected from contamination. All duct and related air distribution component openings, must be covered with tape, plastic, sheet metal or other suitable methods to prevent dust or debris from collecting in the system.

If the HVAC system is used during construction or renovation, temporary return air filters must be installed with at least a Minimum Efficiency Reporting Value of 8 (MERV 8).

Prior to occupancy, all temporary return air filters must be removed and replaced with permanent filters having at least Minimum Efficiency Reporting Value of 8 (MERV 8).

401.03 Air Inlets and Exhausts

For all new and existing buildings, outdoor air intakes for all ventilation systems, including doors and operable windows, that are part of mixed mode ventilation system, must be located at a suitable distance from potential sources of contamination. This is to reduce the possibility of odor, smoke or other air contaminants entering the ventilation system. This must also be in compliance with Dubai Municipality's requirements or with the latest edition of ASHRAE Standards 62.1 and 62.2.

Exhaust air must be discharged in a way that it does not get drawn back into the building or the building ventilation system. It also must not become a nuisance to the building occupants or occupants for nearby buildings or to pedestrians.

401.04 Isolation of Pollutant Sources

All new and existing buildings having spaces that has activities producing hazardous fumes or chemicals, must provide dedicated air extraction systems for those spaces. The system must create negative pressure and exhaust the fumes or chemicals, to ensure it does not enter adjacent rooms.

Dangerous goods must be stored in accordance with Dubai Municipality's requirements.

401.05 Openable Windows

For all new buildings, openable windows must be provided in accordance with Dubai Municipality Building Regulations unless there is safety requirements restricting opening of these windows. These windows may be used in special cases like when use of air-conditioning or ventilation system is not required or during automatic switch off or during system break-down.

401.06 Indoor Air Quality Compliance - New Buildings

For all new buildings, suitable ventilation for the building occupants must be ensured and the air quality must be in accordance with the technical guidelines issued by Dubai Municipality.

The buildings must apply the following procedures:

A. Indoor air quality testing must be carried out prior to occupancy. The maximum limit for the indoor air contaminants stated in Table 401.06 (1), must not be exceeded. Report showing compliance with these requirements, must be submitted to Dubai Municipality.

Table (1) 401.06 - Schedule, Duration of Sampling and Maximum Limit for Contaminants

Sampling Schedule	Type of Samples	Maximum Acceptable	Sampling Duration
Pre-Occupancy	Formaldehyde	< 0.08 (ppm)	8 - hour continuous monitoring (8 hour time-weighted average [TWA])
	Total Volatile Organic Compound (TVOC)	< 300 micrograms/m^3	
	Suspended Particulates (<10 microns)	< 150 micrograms/m^3	

B. Air quality testing must be carried out by specialized companies or laboratories.

C. Air quality testing equipment must have initial and periodical calibration certificate. Calibration certification frequency shall either be annually or as per manufacturer specification and shall be from an external calibration facility, accredited by DM. The initial and periodical calibration certificates must be saved in a special register. The calibration certificate would be checked by DM to validate the accuracy of the readings. This also is a requirement for renewing the indoor air quality certificate of the building.

401.07 Indoor Air Quality Compliance - Existing Buildings

For all existing hotels, shopping malls, educational facilities, government buildings, healthcare facilities, mosques and worship buildings, theatres, cinemas or any other existing buildings as determined by DM in future, suitable ventilation system must to be provided for the building occupants. The provided system must ensure, the air quality provided is in accordance with the technical guidelines issued by Dubai Municipality.

The buildings must apply the following procedures:

A. Indoor air testing for the contaminants listed in Table 401.07 (1) must be carried out, to ensure the air quality in the building, is suitable for occupancy. The maximum limit for the indoor air contaminants provided in Table 401.07 (1), must not be exceeded.