

Central Air-conditioning and Ventilation System Management Regulation During Epidemics

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Issued on 2020 - 02 -02

Released on 2020 - 02-02

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1 Central Air-conditioning Ventilation System operation principles

During an epidemic outbreak, central air-condition ventilation systems shall not be used in principle. Specific principles are as followed:

- The use of central air-conditioning ventilation systems should be stopped in crowded areas.
- In areas where central air-conditioning ventilation systems is required, the system should run on fresh wind mode to prevent cross-contamination from recycled air. The cold/heat source should be turn/kept on fresh wind mode 30 minutes before/after shut-down/start-up to ventilate. Wash, disinfect and maintain the central air-conditioning ventilation systems on a regular basis.

2 Central Air-conditioning Ventilation System Operating Regulations

2.1 Assessment and Troubleshooting

Building managers should organize related personnel to conduct assessment on the central air-condition ventilation systems

- Access the current situation and specifications of the unit. Familiarize with the ventilation system. Familiarize with the respective functional unit types and their connection with the service areas (rooms, hallways etc.)
- Ensure the air-conditioning devices are running within normal parametric and the control functions are normal.
- Ensure the system draws fresh air directly from outdoor (NOT from machine rooms, corridor, ceiling or other indoor areas). Ensure the air intake has a clean environment with no potential contaminant.
- Ensure the airflow system has no abnormal openings, cracks, gusts, short circuits etc.
- Ensure the unit valves and filters are functioning normally.
- Ensure the air filter, surface cooler, heater, humidifier, condensate tray and other dust and bacteria accumulating areas are cleaned and sanitized. Air filter should be cleaned or replaced on a regular basis.
- Check the air-conditioning vents for dust collection and mold formation and organize cleaning and disinfecting works accordingly.

2.2 Management measures for different air-conditioning systems

2.2.1 Air-conditioned areas with “cold/hot end unit + fresh air” system type (fan coil, variable refrigerant unit, split machine)

This type of air-conditioning system can be operated normally as designed. All fresh air conditioners should be put in operation.

Ensure the system draws fresh air directly from outdoor (NOT from machine rooms, corridor, ceiling or other

indoor areas). Ensure the air intake has a clean environment with no potential contaminant. Different air-conditioned rooms should follow their respective measures as listed below:

2.2.1.1 Exterior windows should be kept slightly open in air-conditioned rooms with exterior windows.

2.2.1.2 Air-conditioned rooms without exterior windows and ventilation systems should follow the below guideline:

——For building with each respective office rooms equipped with centralized fresh air system and each floor (including toilets or corridor) equipped with centralized mechanical ventilation system. The ventilation systems should be operating and the ventilation method for each office room should be followed as:

- a) Unless under special circumstances, it is recommended to keep the office doors open (or place blinds) to ensure the room enjoys the ventilation from the corridor.
- b) For office room that requires additional privacy (important meeting room, confidential workspace etc.), it is recommended to install ventilation units connecting the room and corridor(ventilation air volume should be smaller than the fresh air inflow to the room)/outdoor(cross-section area should be larger than the room fresh air duct).

——For rooms with centralized fresh air system but yet to install mechanical ventilation system, mechanical ventilation system can be added to enhance air flow. Under the supervision and authorization of the fire fighting department, some compound may use the smoke ventilation system to fulfill the ventilation requirement.

2.2.1.3 When an end unit is serving multiple rooms, the unit fan coil should be shut down or modified such that the unit serves only one room.

2.2.1.4 When a suspected case is discovered in a building, all indoor convection cold/hot end units (fan coils, indoor units) should be stopped immediately.

2.2.1.5 In the epidemic control period, fresh air system should suitably raise its air output temperature to provide the heat requirement for the building during working hours.

2.2.1.6 For systems without fresh air functions in unventilatable areas, all units are recommended to be turned off.

2.2.2 **Air-conditioned areas with all air system**

2.2.2.1 When the air-conditioning system can only support one room, follow the normal operation as designed. It is also recommended to increase the airflow provided that the room temperature does not fall below 16°C~18°C. To increase the airflow:

——Single fan system: ensure fresh air valves are completely open and close/reduce internal circulation valve.

——Duo fan system or single fan system with mechanical ventilation support: increase (or completely open) fresh air valve and ventilation valve and decrease (or close) internal circulation valve.

2.2.2.2 For air-conditioning units that serves multiple rooms, the system internal circulation valve should be closed and fully open the fresh air and ventilation valves during an epidemic.

2.2.3 Mechanically ventilated areas

2.2.3.1 To ensure air quality after the return of work, closed fresh air and ventilation systems is recommended to be turned on 1 to 3 days prior to the return day. During low temperature period, ensure the unoccupied rooms to reach temperature higher than 5°C.

2.2.3.2 For 30 minutes before working hours and 30 minutes after working hours, the air-conditioning and ventilation system (including heating coil and central air-conditioning hot water system) should be turned/left on for better air quality. Room temperature should be kept above 5°C.

2.2.3.3 Toilet and waste room ventilation should all be turned on and maintain a negative pressure with the normally populated areas.

2.2.3.4 Underground carpark ventilation systems should be operating as per normal. In case of a serious outbreak, the operation hours should be extended accordingly.

2.2.3.5 Air ventilation should be increase in living water tanks/rooms and drinkable water processing rooms.

2.3 Strengthen inspection and cleaning

—Inspect air intakes to for wastes and contaminants. Remove hazards upon discovery.

—Report to management if fresh air intake, outlet and water drainage pipes experience short-circuit due to their close placement.

—For air-conditioning system with wet film humidifier, check if any debris is one the film and clean/replace accordingly.

—Fan coil, indoor unit filters should be cleaned monthly. For units inside the air-conditioning system machine room, the protective seal should be checked and cleaned monthly. For irreplaceable parts, replace the parts accordingly. Inspection, cleaning/replacement frequency should be adjusted up if the seriousness of the epidemic increases.

—Filter cleaning/replacement should be performed within their respective machine room. If filters need to be removed from the machine rooms for cleaning/replacement/disposal, the filters must be placed in a plastic bag. Cleaning should NOT be performed in populated work areas. Reinstallation work after cleaning/replacement should maintain their sealing requirements.

—Condensate trays should be inspected and cleaned according to management regulation.

—Regularly inspect the bi-directional heat recovery unit for debris accumulation. Cleaning parameters follow detail in <WS/T 396- 201 2; Central air-conditioning and ventilation system cleaning and disinfection regulation in public places>.

- Duct cleaning parameter: supply air duct, internal circulation duct and fresh air duct.
- Component cleaning parameter: air processing unit surface, condensate tray, humidifier, dehumidifier, coil units, fan, filter etc.
- Open water-cooling tower