VALLABHBHAI PATEL CHEST INSTITUTE

University of Delhi
DELHI-110 007

VPCI/Admn.II/DRO/CIRCULAR/4/2020/ 325 May 28, 2020

CIRCULAR

Sub.: Guidelines for Running of Air Circulation, Air Cooling and Air Conditioning Equipments during COVID-19

Please find enclosed herewith a copy of Guidelines for Running of Air Circulation, Air Cooling and Air Conditioning Equipments during COVID-19 received from Central Public Works Department (CPWD).

All are requested to kindly follow the guidelines strictly as notified by the CPWD for effective management of COVID-19.

(P.R. Santhanam)
Joint Registrar

To

- All HODs
- Junior Engineer (Electrical)
- Nodal Officer, COVID-19

Copy to:-

- P.S. to Director - for information of the Director.
- Master Copy

Govt. of India
Central Public Works Department
O/o Chief Engineer (CSQ)(E)
A Wing, Room No.229,
Nirman Bhawan, New Delhi-110011
Ph. No. 011-23061418

No. CE CSQ(E)/COVID-19/2020/ 028

Dated 13-5-2020

OFFICE MEMORANDUM

In supersession of this OM No. CE CSQ(E) /COVID-19/2020/025 dated 22.04.2020, **"Guidelines for Running of Air Circulation, Air cooling and Air conditioning Equipments during COVID-19"** are enclosed here for the guidance of field Units of CPWD. Respective Administrative Heads of the Ministries/Departments shall be fully apprised and only after obtaining their concurrence, the decision to operate or not the AC/Air cooling system should be taken. Respective social distancing norms issued by Central Government from time to time may also be adhered to while these guidelines are implemented.

This issues with the approval of DG, CPWD

Encl: As above.

(C.K.Varma)
Chief Engineer CSQ(E)
13/5/2020

To,

SDGs/ADGs/CEs/SEs/EEs of CPWD (Through CPWD Website only)

सत्यमेव जयते

भारत सरकार

GOVERNMENT OF INIDA

केन्द्रीय लोक निर्माण विभाग

CENTRAL PUBLIC WORKS DEPARTMENT

GUIDELINES FOR RUNNING
OF
AIR CIRCULATION, AIR COOLING
AND
AIR CONDITIONING EQUIPMENTS
DURING
COVID-19

CPWD

महानिदेशालय, के0लो0नि0वि, निर्माण भवन, नई दिल्ली–110011

DIRECTORATE GENERAL, CPWD, NIRMAN BHAWAN, NEW DELHI -110011

Committee Composition for Developing the Guidelines

1.	Sh. Anant Kumar	ADG(Tech)	Chairman
2.	Sh. C.K.Varma	CE CSQ(E)	Member
3.	Sh. Vikas Rana	CE NDZ 1	Member
4.	Sh Rajiv. Sao	SE & PD, NAHAN	Member
5.	Sh. Vivek Gupta	SE(E),o/o CE & TA	Member
6.	Sh. S.P.Gupta	SE(E), Dir- ERP	Member
7.	Sh. Prashant Gupta	SE(E), Dir-PM & PG	Member
8.	Sh. Sanjiv Agarwal	EE(E), RML Hospital	Member
9.	Sh. Vishesh Swamiwal	EE(E), SCPD	Member
10.	Sh. Yogendra Kumar	EE(E), DED-101	Member
11.	Sh. S. Mandal	EE(E), Delhi PWD	Member
12.	Sh. M.V.Chalpati Rao	SE (E)O/o CE CSQ(E)	Member Secretary

Guidelines for Running of Air Circulation, Air cooling and Air conditioning Equipments during COVID-19

Introduction

Corona Infection through Air flow has become an issues summer has already started and monsoon season will begin soon. The thermal discomfort will therefore be maximum now onwards due to seasonal changes and there can be a possibility of its spread through air flow. Therefore, maximum caution should be exercised to minimise the chances of spread of corona virus through air flow in enclosed spaces like residences, offices, meeting places, assembly places etc. Below are some of the principles to be followed while using the air cooling and conditioning devices.

General Guiding Principles

1. Temperature- The temperature setting of all air conditioning devices should be in the range of 24-30 ^{0}C
2. Relative Humidity- should be in the range of 40-70%
3. Intake of Fresh Air- should be as much as possible
4. Recirculation of Air- should be avoided to the extent possible
5. Cross Ventilation- should be adequate
6. Replacement of air by using the facility of exhaust fans in the nearby area
7. Air Sanitisation- should be very frequent by regular cleaning and sanitisation of filters of indoor unit.
8. Observing Social Distancing norms, wearing of mask, avoiding direct contact of air flow, frequent surface decontamination are to be followed compulsorily.

A proper mix of the above principles should be followed depending upon the places and options available.

Options of Devices/Equipments Available

1. Fresh Airintake through open windows and other openings like doors etc.
2. Air circulation through Ceiling fans
3. Window fitted Desert coolers
4. Evaporative Type Air Cooling Plants/Ducted Air-Cooling Plants
5. Room ACUnits (Window/Split type)
6. VRV/VRF Plants
7. Central ACPlants supplying conditioned air through AHUs (Air Handling units)

Guidelines for operating Air Cooling/Conditioning devices

S.N.	Application Area	Air Cooling/Conditioning Options without aiding infection/contamination
1.	Controlled environment and	A. Window fitted Desert coolers/ Room ACs(Window/Split)/Fans aided by maximum Fresh air

	mild exposure such as Residences, Standalone workspaces/Offices	intake by opening of doors and or windows and supported by air replacement through exhaust fan facilities in the nearby areas. B. Temperature and Humidity range should be maintained as per General Guidelines wherever applicable.
2	Moderate risk of exposure and concentration such as meeting Rooms, Dispensaries etc.	A. Window fitted Desert coolers/ Room ACs (Window/Split)/ **VRV/VRF system (Indoor units)**/Fans aided by maximum Fresh air intake by opening of doors and or windows and supported by air replacement through exhaust fan facilities in the nearby areas. B. Temperature and Humidity range should be maintained as per General Guidelines wherever applicable.
3	Maximum exposure and concentration such as Institutions, Malls etc.	A. Window fitted Desert coolers/ Room ACs (Window/Split)/ VRV/VRF system (Indoor units)/Fans aided by maximum Fresh air intake by opening of doors and or windows and supported by air replacement through exhaust fan facilities in the nearby areas. B. Temperature and Humidity range should be maintained as per General Guidelines wherever applicable. C. It is advisable to avoid Central AC to the extent possible, in case same is not feasible then below mentioned point to be followed: I. AHUs are advised to run on maximum fresh air as possible. II. AHUs are advised to run at least 2 hours prior to office time and stop 2 hours after office time to ensure no contamination remains. This time may be increased at the discretion of maintenance in charge of the building. III. Heat Recovery Wheels wherever fitted should not be used and should be stopped completely.
4	Ultimate exposure and concentration such as General Hospitals, Isolation Facilities/Wards etc.	General guidelines issued by NCDC, MoHFW, Delhi A. Ensure adequate room ventilation. If room is air conditioned ensure 12 ACPH (Air Changes per Hour) and filtering of exhaust air. A negative pressure in isolation rooms is desirable for patients requiring aerosolization procedures (intubation, suction nebulisation). B. These rooms may have standalone air conditioning. These areas should not be a part of central air conditioning. C.Temperature and Humidity range should be maintained

		as per General Guidelines wherever applicable. D. If air conditioning is not available negative pressure could also be created through putting up 3-4 exhaust fans driving air out of the room. Note: For HVAC design for Hospital etc. guidelines mentioned at Sl. No. 9 of references to be used.

Equipment wise guidelines are also given at Annexure A.

References

1. *"Size of Coronavirus Particle PM2.5 and Bacteria,"* [Online], 10th April 2020, https://smartairfilters.com/wordpress/wpcontent/uploads/2020/02/Size-of-coronavirus-particle-pm2.5-and-bacteria-750x410.jpg.
2. Eykelbosh, Angela. "*COVID-19 Precautions for Multi-unit Residential Buildings.*"
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4. Joppolo, Cesare Maria, and Francesco Romano. "HVAC System Design in Healthcare Facilities and Control of Aerosol Contaminants: Issues, Tools, and Experiments." In *Indoor Air Quality In Healthcare Facilities*, pp. 83-94. Springer, Cham, 2017.
5. *"ASHRAE Position Document on Infectious Aerosols"*, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Atlanta, Georgia, April14, 2020.
6. *"ISHRAE COVID-19 Guidance Document for Air Conditioning and Ventilation"*,Indian Society of Heating, Refrigerating and Air Conditioning Engineers, April 13, 2020.
7. *"REHVA COVID-19 guidance Document"*, Representatives of European Heating and Ventilating Associations, April 3,2020.
8. *"COVID-19 Outbreak Guidelines for setting up Isolation Facility/Ward"*,National Cooperative Development Corporation, Ministry of Health and Family Welfare.
9. *ASHRAE, "HVAC design Manual for Hospital and Clinics, "Second Edition, Atlanta, GA: American Society for Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 2013.*

Disclaimer

The above guidelines are developed based on the available information and knowledge on the spread of Corona virus in different situations.

Annexure 'A'

Table-2 Equipmentwise Guidelines

S.N.	Equipment/Device	Operating guidelines	Remarks
1.	Ceiling Fan	Should run at low-medium speed with intake of fresh air as much as possible by keeping window and doors opening	It doesn't work at high temperature and humidity. Switch to options 2 /3.
2.	Window Fitted Room Cooler	A.Should run with intake of fresh air and arrangement of exhaust as far as possible. B. The water of the cooler as well as cooler pads must be disinfected at regular intervals.	A. To control high humidity in rainy season exhaust fan must be used. B. It does not work at high humidity. Switch to option 3 supplemented with option 4. C. Guidelines for prevention of Dengu must also be followed.
3.	Room AC(Window/Split)	Should run with temperature setting between 24-30degree C.	Use with windows partially open for fresh intake of air
4.	Exhaust Fan	Should run continuously for exhausting the hot air	For supplementing air circulation by all types of air cooling/conditioning devices like Ceiling fan, Air cooler, Room AC etc.
5.	Evaporative Type Air Cooling/Ducted Air Cooler	A. Should run with intake of fresh air and arrangement of exhaust as far as possible. B. The water, pads of the blower section and ducts must be disinfected at regular intervals.	A. It does not work at high humidity. Switch to option 3 supplemented with option 4. B. Guidelines for prevention of Dengu must also be followed.
6.	VRF/VRV System (High wall, Cassette type Units etc.)	Should run with temperature range of 24-30 degree C with maximum fresh air and supplemented by adequate exhaust	Wherever this system is installed, filters of indoor units to be disinfected frequently.