

सीएसआईआर - राष्ट्रीय वांतरिक्ष प्रयोगशालाएं  
CSIR - NATIONAL AEROSPACE LABORATORIES  
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**परिपत्र CIRCULAR**

Sub.: Guidelines for running of Air-conditioning and other allied equipment during COVID – 19 pandemic – reg.

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The guidelines for running of Air-Conditioning & other allied equipment during COVID – 19 pandemic as per MoHA recommendation and as per the SOP of CPWD is attached.

This issues with the approval of Director, CSIR – NAL.

*malkh*  
03/07/2020  
[ मल्लिका पी कुमार / Mallika Kumar ]

**प्रशासन नियंत्रक / Controller of Administration**

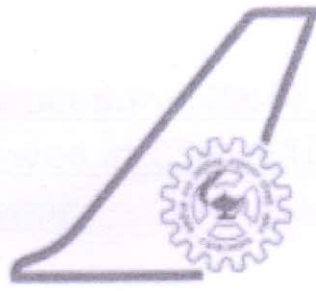
Encl : as above

To :

1. All concerned

Copy to:

Head, KTMD - With a request to host the same on Internet & Intranet for information of all.



**(Council of scientific and industrial research)**

**सीएसआईआर-नेशनल एयरोस्पेस लैबोरेटरीज**

**CSIR-National Aerospace Laboratories**

**Bengaluru – 560017**

**Electrical Section**

***GUIDELINES FOR RUNNING OF  
AIR – CONDITIONING & OTHER  
ALLIED EQUIPMENTS DURING  
COVID-19 PANDEMIC***

**Reference: As per MoHA Recommendation the guidelines & SOP of CPWD shall be followed for Air-conditioning / Ventilation.**



## **Standard Operating procedure (SoP) for operation of Air-conditioners to be followed at CSIR-NAL as preventive measure from COVID – 19 Pandemic:**

**1.0 All the users shall follow these guidelines strictly during operation of room air-conditioning units such as window / wall mounted split units / ceiling mounted cassette units installed at various Room / Lab / conference hall / discussion room / meeting hall.**

### **General Air-conditioning facility**

- 1.1 All type of split type air-conditioning facilities shall be disabled. Except air-conditioners required for special equipments & testing facilities etc., shall be put into service after compliance of CPWD guidelines with the approval of competent authorities. In this context, the user department who needs air-conditioning may send their request to Head, Electrical with justifications to get approval from C.A.
- 1.2 Ceiling fans / wall mounted fans / pedestal fans have to be procured & provided on need basis wherever necessary after due inspection by Head, Electrical. Since, other general facilities air-conditioners were disabled.
- 1.3 The air-conditioned units shall be allowed to run empty at **least 60 minutes** before usage & after usage by keep opening of doors & windows as much as possible.
- 1.4 The temperature at conditioned area as to be set as follows:

✓ Server rooms	27 ° C & above
✓ Work stations	26 ° C & above
✓ Special equipments lab facilities	24 ° C & above
✓ Clean Room	25 ° C & above
- 1.5 Intake of fresh air shall be as much as possible. Hence, it is suggested to keep the window partially opening & open the door frequently, since these types of AC units do not have fresh air arrangement.
- 1.6 Recirculation of air should be avoided to the maximum extent possible.
- 1.7 Cross ventilation should be adequate by opening of windows frequently if available.
- 1.8 Avoiding direct contact of airflow and frequent surface decontamination should be followed compulsorily.
- 1.9 The user should make arrangement to carry out **sanitization very frequently before & after usage** of Room / Lab / conference hall / discussion room / meeting hall.
- 1.10 Wearing mask, frequent washing / sanitisation of hands and maintaining social distance to be followed as per. MoHA guidelines.



### 1.11 Clean room facility.

- 1.11.1 Before entering inside clean room hand sanitize to be carried out.
- 1.11.2 The persons working in Clean room must wear N95 mask & surgical gloves continuously along with other standard dresses (cotton based) inside the clean room.  
**The concerned user division has to prepare their SoP for their day-to-day activities.**
- 1.11.3 Every day morning before commencement of work the clean room must be cleaned with sanitize solution.
- 1.11.4 HVAC system shall be kept under operation **1 hour** before commencement of work.
- 1.11.5 Switching off the plant after **1 hour** running without any activities.
- 1.11.6 Monitoring all the staff movement & activities by ensuring all the above by installing CCTV in clean room.
- 1.11.7 All the above guidelines shall be monitored & verified by Supervisor / Inspector / facility in-charge during operation of clean room.

## 2.0 Standard procedure to be adopted to carry out preventive maintenance of various type of Air-conditioning systems such as centralized plant / ductable / VRF / VRV / split having wall mounted or ceiling mounted cassette / window Air-conditioners before bring into operation & during operation.

- 2.1 Preventive maintenance shall be carried out as per manufacturer's recommendations as per schedule for all type of air-conditioners.
- 2.2 Sanitize of air-conditioning system shall be carried out by engaging professionals before bringing the system into operation by using **Isopropyl alcohol or hydrogen peroxide** based solvents.
- 2.3 Cleaning / Replacement of Air filters to be taken up as and when required.
- 2.4 Relative humidity (RH) shall be in the range of 40 % to 70%.
- 2.5 Intake of fresh air shall be increased as much as possible and re-circulation of air shall be avoided to the extent possible.
- 2.6 Cross ventilation by opening window in the conditioned area shall be made available wherever available.
- 2.7 Observing social distancing norms, wearing of mask, avoiding direct contact of air flow & frequent surface decontamination shall be carry out compulsorily.

## 3.0 General Start-up Guidance (Indoor Units):

- 3.1 Preventive maintenance on all the units shall be carried as noted under 2.1above.
- 3.2 Sanitize of air-conditioning system shall be carried out by engaging professionals before bringing the system into operation by using **Isopropyl alcohol or hydrogen peroxide** based solvents.



- 3.3 **Condensate drain pan:** Disinfecting / treatment of condensate drain pan using UV treatment or 1% sodium hypochlorite solution.
- 3.4 **Coils:** Cleaning of coils using the same protocol as that of the filter as specified above.
- 3.5 **Ducts:** Air distribution ducts shall be cleaned by an appropriate method that may include sanitize.
- 3.6 **After completion of all the above process, start-up shall be followed as follows:**
- 3.6.1 Open all the doors and windows inside the conditioned area & plant room.
- 3.6.2 Run the fresh air system at the maximum intake of air setting.
- 3.6.3 Start and run the exhaust systems if available.
- 3.6.4 Start the air conditioning system in fan mode only, and run it for minimum of **2 hours** with doors open and exhaust system operational.
- 3.6.5 Install the cleaned & sanitized filters.
- 3.6.6 Start the AC in normal mode and run for **2 hours** with doors open and then close the doors and windows.
- 3.6.7 The fresh air & ventilation system shall keep on throughout the cycle.
- 3.7 **Cassette Units:** Check & replace or clean Filters, wipe and disinfect all air contact surfaces, check and disinfect drain pan, clean the coils, check & secure fresh air connectors to cassette unit if available.
- 3.8 **Wall mounted Hi - Wall Units:** Check & replace or clean filters, wipe and disinfect all air contact surfaces, check & disinfect drain pan, & clean the coils.
- 3.9 **Tower Units:** Follow same guidance as for Hi Wall Units
- 3.10 **Ducted Units:** Check and replace or clean filters, check and disinfect drain pan, clean the coils. The UVGI (Ultra violet germicidal irradiation) system may be made available for larger ducted units, to keep Coils clean. Add a TFA (treated fresh air) unit if required. **(Note: The UVGI systems will be made available only for clean room application, since the other ductable systems are smaller length).**
- 3.11 **Air Handling Units (AHU):** Fresh air shall be made available with an inlet duct and provide fan if not available. MERV 13 or higher filters may be fitted on the Air Handling Unit if provision made available in the existing system or a filter of higher filtering capability may be retrofitted into an existing system if the fan and motor capacities are adequate to handle the higher pressure drop. Replace TFA (treated fresh air) unit if required to avoid fresh air quantity impacts on cooling performance.

#### 4.0 Clean room Facility:

- 4.1 The Internal surface of air flow path (Washable Filters, Cooling Coil, Condensate Drain Tray, Blower, Internal surface of AHU & Grilles) are to be completely sanitized / disinfected by using chemical as described in the guidelines to the best possible as a first step before switch on the system.
- 4.2 Sanitize of air-conditioning system shall be carried out by engaging professionals before bringing the system into operation by using **Isopropyl alcohol or hydrogen peroxide** based solvents.
- 4.3 Cleaning / replacement of air filters shall be carried out periodically. Also if any upgraded filters suitable for existing air-conditioners system to be explore in the market and action may be initiated for replacement.
- 4.4 Subsequently, the entire surface areas in all directions of lab wall / ceiling / partitions are to be sanitized / disinfected before the facility to allow for using by end user.
- 4.5 Clean room facilities shall bring into operation after completion of preventive maintenance compliance with CPWD guidelines and installation of UVGI lamp to kill germs in the airflow path before it gets into cooling coil for clean room installations.
- 4.6 Increasing the fresh air quantity by opening maximum possible % of fresh air (FA) damper installed in AHU and providing exhaust fan in the return air path to exhaust equivalent amount of air if required (this air to be exhausted at an elevated height to avoid contamination of ground level air) to maintain the room pressure as per the original design to reduce concentration of re-circulation air. (This shall have an impact on the existing room temperature at higher level & could hamper on the lab activities. If the higher temperature not acceptable, enhance the cooling coil & condensing unit capacity.

#### 5.0 General Start-up Guidance (Outdoor Units):

All the condensing units, chillers, cooling towers, pumps, fans that shall be cleaned, checking refrigerant line / water line, make up refrigerant if required, physically inspection of any leakage, strainer cleaning if applicable and check water quality where exposed to environment especially in cooling tower sumps.

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