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Department of Environment and Natural Resources
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OCT 19 2020

MEMORANDUM

FOR/TO : All DENR Central Office Officials and Employees

FROM : **The Undersecretary**
Legal, Administration, Human Resources and Legislative Affairs

SUBJECT : **GUIDELINES ON VENTILATION TO AVOID THE TRANSMISSION OF CORONAVIRUS DISEASE 2019 (COVID-19)**

In line with the continuing efforts of the DENR to prevent, contain and mitigate the transmission of Coronavirus 2019 (COVID-19), which poses a serious threat to the health and safety of all DENR personnel and consistent with the Department of Health (DOH)'s Memorandum 2020-0429 on 08 October 2020 entitled "Guidance on Ventilation for COVID-19 Mitigation", which provides administrative and engineering controls for the improvement of ventilation and air quality in enclosed space, comfort rooms, and vehicles to lessen the transmission of the Coronavirus disease 2019 (Covid-19), all DENR Central Office officials and employees are hereby directed to abide by the following guidelines:

1. For indoor spaces, employees should not be situated directly in the flow of air coming from fans and air-conditioning units as these may facilitate the transmission of the virus by directing air from infected individuals to others in the room;
2. Open-air spaces must be prioritized in choosing activities. If the activity cannot be moved into an open-air setting, doors and windows should stay open to facilitate airflow;
3. When toilets are used, toilet seat lids must be closed while flushing to minimize the release of droplets into the air after flushing; and
4. For vehicles, natural ventilation and open-air is recommended, and as much as possible, avoid using the recirculated air option for the car's ventilation during passenger transport. Utilize the car's vents to bring in fresh outside air and/or lower the vehicle window.

For your information and guidance.


ATTY. ERNESTO D. ADOBO JR., *CESO I*



MEMO NO. 2020-517



Republic of the Philippines
Department of Health
OFFICE OF THE SECRETARY

August 6, 2020

DEPARTMENT MEMORANDUM

No. 2020- 0429

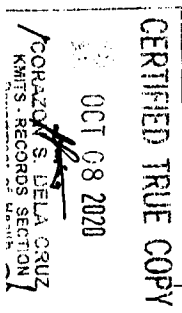
TO: ALL UNDERSECRETARIES AND ASSISTANT SECRETARIES; DIRECTORS OF BUREAUS, SERVICES AND CENTERS FOR HEALTH DEVELOPMENT; MINISTER OF HEALTH - BANGSAMORO AUTONOMOUS REGION IN MUSLIM MINDANAO; EXECUTIVE DIRECTORS OF SPECIALTY HOSPITALS AND NATIONAL NUTRITION COUNCIL; DIRECTOR GENERAL OF PHILIPPINE INSTITUTE OF TRADITIONAL MEDICINE AND ALTERNATIVE HEALTH CARE; CHIEFS OF MEDICAL CENTERS, HOSPITALS, SANITARIA AND INSTITUTES; PRESIDENT OF THE PHILIPPINE HEALTH INSURANCE CORPORATION; DIRECTORS OF PHILIPPINE NATIONAL AIDS COUNCIL SECRETARIAT AND TREATMENT AND REHABILITATION CENTERS AND ALL OTHERS CONCERNED

SUBJECT: Guidance on Ventilation for COVID-19 Mitigation

I. BACKGROUND

The Coronavirus disease (COVID-19) is considered to be mainly transmitted via droplet and contact transmission. While evidence regarding airborne transmission of COVID-19 requires further study, ensuring adequate ventilation is a recommended precaution in enclosed spaces. The characteristics of ventilation include the rate, the type of system, the contaminants in indoor air and the physical characteristics of the indoor environment. Altering these factors may minimize the risk of pathogen transmission in a given space through ventilation optimization practices.

This issuance was created mainly to address possible administrative and engineering controls that can be utilized in enclosed, indoor spaces to improve ventilation and lessen transmission of pathogens. The Department of Health (DOH) recognizes that further research is still needed to develop evidence-based decisions regarding community-based minimum public health standards to mitigate COVID-19. Nevertheless, the Department, in its efforts to continuously update the current non-pharmaceutical interventions (NPIs) against the disease, has developed this interim document to discuss ventilation, administrative and engineering controls, and their role in reducing viral transmission in this pandemic.



II. DEFINITION OF TERMS

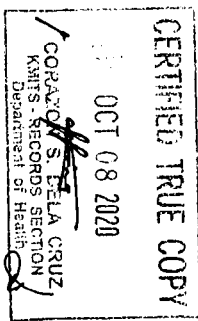
- A. **Airborne transmission** - refers to disease transmission through infectious agent caused by the dissemination of droplet nuclei or aerosols which can traverse longer distances and remain suspended in the air over prolonged periods of time
- B. **Engineering Controls** - refer to physical interventions or modifications in spaces or environments, that are meant to prevent the transmission of infectious diseases (e.g. use of physical barriers, exhaust ventilations, etc.)
- C. **Administrative Controls** - refer to procedural interventions or modifications in policies, standards, and processes, that are meant to reduce the frequency and severity of exposure to infectious diseases (e.g. hygiene and disinfection protocols, temperature scan, work shifting, etc.)
- D. **High-Occupancy Buildings** - refers to publicly-accessed commercial properties such as stores, hotels, schools, shopping malls, restaurants, office buildings etc.
- E. **Ventilation** - refers to the intentional introduction of fresh air into a space while the stale air is removed. It is done to maintain the quality of air in that space.

II. IMPLEMENTING GUIDELINES

Engineering Controls are installed in spaces in order to separate individuals from possible pathogens and minimize transmission in the environment as much as possible. Administrators, employers, owners of public buildings as well as homeowners may utilize these engineering and administrative controls to improve ventilation in their respective spaces, as they deem fit. It should be noted, however, that improvements in ventilation are space-specific and measures should be adjusted accordingly. Consultation with heating, ventilation and air-conditioning (HVAC) specialists and industrial hygienists is recommended. Specialised settings such as hospitals, factories, laboratories, etc. are likewise subject to expert advice and pertinent guidelines.

A. Administrative and Engineering Controls to Improve Ventilation and Air Quality in Enclosed Rooms

- a. In choosing where to conduct activities, **open air spaces should always be prioritized**. When an activity cannot be moved into an open air setting, opening windows and doors should be put into practice to facilitate the flow of outdoor air into the space, when possible. However, ensure that opened windows/doors are not near sources of air pollution such as carbon monoxide, sulfur/nitrous oxide and particulate matter usually coming from internal combustion engines and other sources of pollution.
- b. **Individuals should not be situated directly in the flow of air** coming from fans and air-conditioners. Electric fans and air-conditioning units may facilitate transmission of the virus if it directs air from infected individuals to others in the room.
- c. Ensure that exhaust ventilation adequately provides the needed air exchange rate. Common signs of poor air exchange include inadequate temperature, increased humidity, poor air movement and other ventilation related problems.



- d. Device settings that encourage recirculated air where no ventilation takes place should be avoided as much as possible. If this is not possible, air cleaning and disinfection procedures may also be used. In non-hospital settings where ventilation is greatly recirculated or access to outside air is not feasible, filters such as high-efficiency particulate air (HEPA) filtration air purifiers can be used to clean recirculated air provided that the unit is adequate for the size of the room in which it is installed in. Ensure proper maintenance by following manufacturer recommendations of these devices.
- e. Check the HVAC systems prior to reopening for risks involved after a prolonged period of no use. These systems should also be regularly maintained.

B. Controls to Improve Ventilation and Air Quality in Comfort Rooms

- a. Installed exhaust fans should be kept open continuously as much as possible.
- b. When toilets are used, it is advised to close the toilet seat lid while flushing if available. This aims to minimize the release of droplets into air flows after flushing.

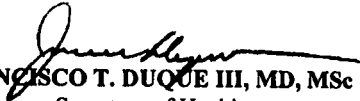
C. Controls to Improve Ventilation and Air Quality in Vehicles

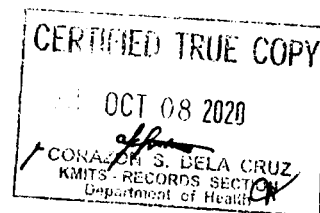
- a. Natural ventilation and access to open air is recommended.
- b. Avoid using the recirculated air option for the car's ventilation during passenger transport. Utilize the car's vents to bring in fresh outside air and/or lower the vehicle windows.

In addition to this, a list created by the Federation of European Heating, Ventilation and Air Conditioning Association highlights the practical engineering controls which can be applied to existing HVAC systems in high-occupancy buildings (Annex A). Furthermore these systems should be maintained regularly.

Lastly, in any setting, controls such as reducing the number of people in a given area and the practice of physical distancing should be observed. The limitations on the number of people allowed in a given space are likewise affected by the design of ventilation logistics and use in that same space.

Dissemination of the information to all concerned is requested.


FRANCISCO T. DUQUE III, MD, MSc
Secretary of Health



Annex A: Practical High Occupancy Building Operations Measures to Improve Ventilation During an Epidemic¹

1. Provide adequate ventilation of spaces with outdoor air
2. Switch ventilation on at nominal speed at least 2 hours before the building opening time and set it to lower speed 2 hours after the building usage time
3. At nights and weekends, do not switch ventilation off, but keep systems running at a lower speed
4. Open windows regularly (even in mechanically ventilated buildings)
5. Keep toilet ventilation in operation 24/7
6. Instruct building occupants to flush toilets with closed lid
7. Avoid open windows in toilets to maintain the right direction of ventilation
8. Switch air handling units with recirculation to 100% outdoor air
9. Inspect heat recovery equipment to be sure that leakages are under control
10. Adjust fan coil settings to operate so that fans are continuously on
11. Do not change heating, cooling and possible humidification setpoints
12. Carry out scheduled duct cleaning as normal (additional cleaning is not required)
13. Replace central outdoor air and extract air filters as normal, according to the maintenance schedule
14. Regular filter replacement and maintenance works shall be performed with common protective measures including respiratory protection
15. Introduce an Indoor Air Quality (IAQ) sensor network that allows occupants and facility managers to monitor that ventilation is operating adequately.

¹ Federation of European Heating, Ventilation and Air Conditioning Association. REHVA COVID-19 guidance document, August 3, 2020