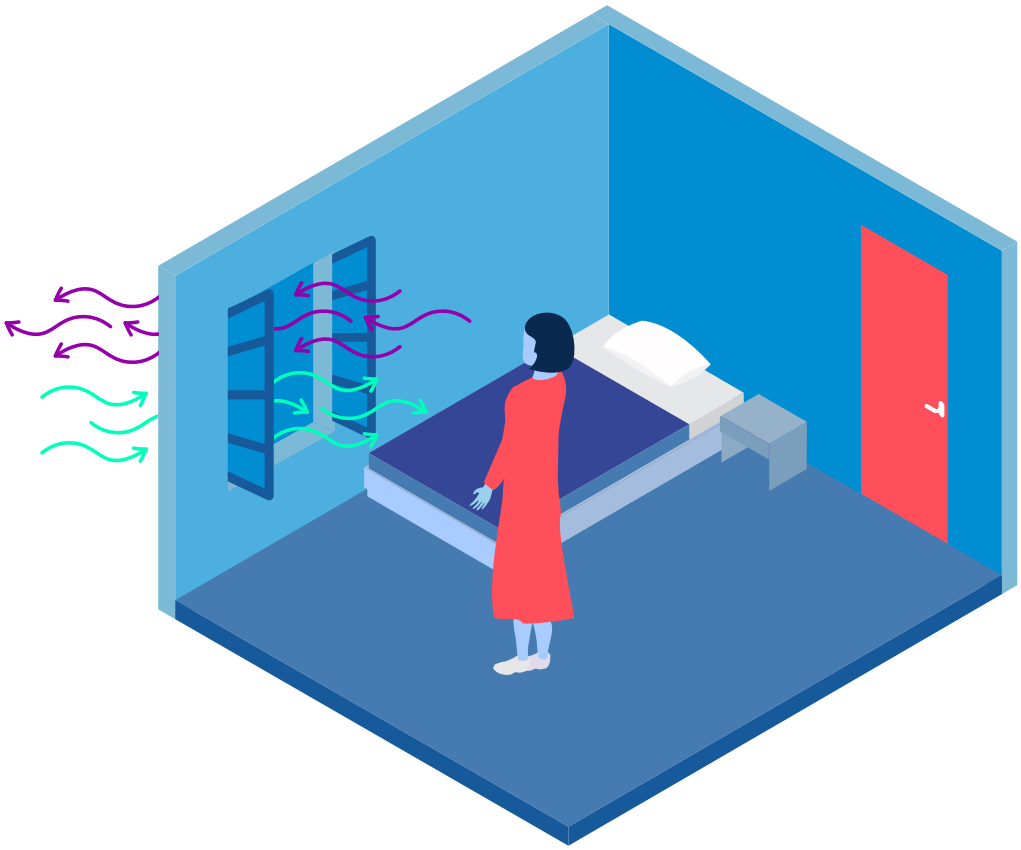
World Health Organization

Roadmap to improve and ensure good indoor ventilation in the context of COVID-19



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Abbreviations

ACH	Air Changes per Hour
AGP	Aerosol-Generating Procedures
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CADR	Clean Air Delivery Rate
ECAP	Environment and Engineering Control Expert Advisory Panel
HCW	Health Care Worker
HEPA	High-Efficiency Particulate Air
HVAC	Heating, Ventilation and Air Conditioning
IAQ	Indoor Air Quality
IPC	Infection Prevention and Control
MERV	Minimum Efficiency Reporting Value
PM	Particulate Matter
REHVA	Federation of European Heating, Ventilation and Air Conditioning Associations
WHO	World Health Organization

Glossary

Aerosol-generating procedures (AGP): Defined as any medical procedures that can induce the production of aerosols of various sizes (e.g. tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, dental procedures) *(1)*.

Age of air, local: The time it takes for supply air to reach a certain indoor point *(2)*.

Air changes per hour (ACH): Ventilation airflow rate (m^3/hr) divided by room volume. It indicates how many times, during 1 hour, the air volume of a space is fully replaced with outdoor air *(2)*.

Air cleaner: Device used for removal of airborne particulates and/or gases from the air. Air cleaners may be added to heating, ventilation and air-conditioning systems (HVAC) systems or stand-alone room units *(2)*. Single-space air cleaners with high-efficiency particulate air (HEPA) filters (either ceiling mounted or portable) can be effective in reducing/lowering concentrations of infectious aerosols in a single space. The effectiveness of portable HEPA filters will depend on the airflow capacity of the unit, the configuration of the room including furniture and persons in the room, the position of the HEPA filter unit relative to the layout of the room, and the location of the supply registers or grilles *(3)*. Note that air cleaners do not replace normal ventilation as they are only able to remove a particular part of the indoor air contamination.

Air conditioning: Form of air treatment in which temperature is controlled, possibly in combination

extracting air with the aid of powered air movement components, usually fans *(2)*.

Air extract, natural: The process of extracting air by means of wind forces or density differences or a combination of the two *(2)*.

Air, indoor: Air in the treated room or zone *(2)*. Air, mixed: The mixture of outdoor air and recirculated air *(2)*.

Air, outdoor: Controlled air entering the system or opening from outdoors before any air treatment *(2)*.

Air, recirculation: A part of extracted air which is not exhausted from the building, but it is recirculated back into spaces *(2)*. The air can be treated before being recirculated (thermal, air quality).

Air, supply: Air delivered by mechanical or natural ventilation to a space, composed of any combination of outdoor air, recirculated air or transferred air *(2)*.

Air transportation: Transportation of a specified airflow to or from the treated space generally by means of ducts. Along the ducts, devices for the purpose of treating the air (e.g. cleaning, heating, cooling, humidifying or dehumidifying, etc.) and known as air treatment devices, may be inserted *(2)*.

Clean air delivery rate (CADR) (m^3/hr): Usually used in relation to portable air cleaner devices. Cross ventilation: Cross ventilation occurs where there are ventilation openings on both sides of the space. Air flows in one side of the building/room and out the other side through, for example, a window or door. Cross ventilation is usually wind