Ventilation Inspection Checklist			Lancashire County Council
Premise/School	Morecambe Road School	**Name of person(s) undertaking the inspection checklist**	Fiona Gill
Date checklist completed	9th May 2022	**Review dates**	18th October 2022

This inspection checklist has been developed based on increasing evidence that ventilation is one of the key ways to reduce the spread of Coronavirus. It should be used in conjunction with the county councils guidance on simple steps to good ventilation available on the intranet and the school portal and the premises local COVID-19 secure workplace risk assessment. Completion of the checklist requires consideration of **every** room within the building to identify and assess the suitability of the ventilation. Examples of ventilation types are provided at the end of this document.

The checklist will be reviewed twice a year to take account of the change in seasons or in the event of any changes/upgrades etc in ventilation systems. October and March will be the appropriate review dates.

This risk checklist will be distributed to all room users and published on the school website with the Whole School COVID Risk Assessment.

Please report any questions or concerns to the School Business Manager

Ventilation Types

Natural

Air flow through openings such as doors (ideally external) and windows.

- Ensure windows are opened regularly to allow sufficient air flow, ideally leave them open a little throughout the day.
- Doors should be opened when possible to ensure sufficient air flow or to purge the air after periods of high occupancy.
- In each case please consider the security of the building.
- If the room has automated windows/vents, ensure the controls are set to operate during occupied hours.

Mechanical – air conditioning

This type of ventilation may only condition the air and recirculate it within the same room. Such a system could be left to run, as this will prevent stagnation, but it may not be immediately obvious whether the system draws in fresh outside air to dilute any airborne pathogens. Premise Managers should consider the use of and access to the room and consult their Building Services Engineer or Appointed Building Consultant if they are unsure.

Mechanical - supply and extract

Outside air drawn into ducting by fans and inside air extracted out by fans.

- Consider how this is controlled. E.g. switched on as and when needed, on a timer or on demand via CO_2 monitoring.
- For either type ensure it comes on an hour before occupancy at a nominal speed.
- If it has a CO_2 monitor, ensure the set point has been lowered to operate the ventilation at to 400ppm.

Mechanical – extract only

Commonly used for toilet blocks and wet rooms. This type of ventilation should be set to run continuously during opening hours.

Mechanical - heat recovery

Extracts heat from indoor air to warm incoming outside air. Might recirculate a portion of the indoor air back into the room.

This type of ventilation is suitable for use, as long as it doesn't serve other rooms and there is the ability to increase the amount of outside air in the room.

Specialist localised exhaust ventilation

This includes cooker hoods, local exhaust on workshop machinery and fume hoods.

Do not use specialist localised extract ventilation systems without some additional means of supplying fresh air such as ability to open windows.

Rooms with Sufficient Ventilation

Identify the type of ventilation in each room, if there is more than 1 type, identify each:

Natural **(N)**
Mechanical - supply and extract **(MSE)**
Mechanical - heat recovery **(MHR)**
Mechanical – extract only **(MEO)**
Mechanical – air conditioning (drawing in outside air) **(MAC)**
Specialist localised exhaust ventilation **(SLEV)**
No ventilation **(NV)**
Not known **(NK)**

***Transfer and recirculation:**
For rooms with mechanical or air con systems there must be **NO** recirculation or transfer of air between one room to another. If air is recirculated or transferred between rooms seek advice from your Building Services Engineer.

Indicators of insufficient ventilation:

- Room feels stuffy or has a lingering odour.
- Room is small with limited outside air supply.
- Room is landlocked with only internal doors and no external windows/grills/vents.

When determining if the ventilation is sufficient, consider what the rooms are used for and by whom.
More ventilation is recommended in rooms where there is/are:

- physical activity.
- raised voices including singing.
- vulnerable people including the elderly.
- members of the public.
- inability to maintain other measures such as limiting social contact.
- regular changes in occupancy.

List all rooms where there is an obvious and effective source of ventilation including corridors and stairways and identify the ventilation type

Room No.	Ventilation Type	*Air is **NOT** transferred between rooms or recirculated in one room	Comments
3	MAC	✓	Air cleaning unit available. See also control measures below.
4	MAC	✓	Air cleaning unit available. See also control measures below.
5	MAC	✓	See control measures below
6	N + MAC	✓	
7	N + MAC	✓	
8A	N + MAC	✓	
8/9	N + MAC	✓	
15	N + MAC	✓	See control measures below
23	N + MAC	✓	
28	N	✓	
29	N	✓	
33	N + MAC	✓	
37	N + MAC	✓	
40	N + MAC	✓	See control measures below
42	N + MAC	✓	See control measures below
43	N + MAC	✓	See control measures below
45	N + MAC	✓	See control measures below
50	N	✓	
51	N	✓	
52	N	✓	
55	N	✓	Air cleaning unit available.
57	N	✓	Air cleaning unit available.
59	N	✓	Air cleaning unit available.
60	N	✓	
62	N	✓	

	63	N	✓	

Rooms with Sufficient Ventilation

Identify the type of ventilation in each room, if there is more than 1 type, identify each:

Natural **(N)**
Mechanical - supply and extract **(MSE)**
Mechanical - heat recovery **(MHR)**
Mechanical – extract only **(MEO)**
Mechanical – air conditioning (drawing in outside air) **(MAC)**
Specialist localised exhaust ventilation **(SLEV)**
No ventilation **(NV)**
Not known **(NK)**

***Transfer and recirculation:**
For rooms with mechanical or air con systems there must be **NO** recirculation or transfer of air between one room to another. If air is recirculated or transferred between rooms seek advice from your Building Services Engineer.

Indicators of insufficient ventilation:

- Room feels stuffy or has a lingering odour.
- Room is small with limited outside air supply.
- Room is landlocked with only internal doors and no external windows/grills/vents.

When determining if the ventilation is sufficient, consider what the rooms are used for and by whom.
More ventilation is recommended in rooms where there is/are:

- physical activity.
- raised voices including singing.
- vulnerable people including the elderly.
- members of the public.
- inability to maintain other measures such as limiting social contact.
- regular changes in occupancy.

List all rooms where there is an obvious and effective source of ventilation including corridors and stairways and identify the ventilation type

Room No.	Ventilation Type	*Air is **NOT** transferred between rooms or recirculated in one room	Comments
68	SLEV	✓	See control measures below
103	N + MAC	✓	
111	N + MAC	✓	
112	N + MAC	✓	
PPA Room	N + MAC	✓	
Staff Room	N + MAC	✓	See control measures below
The Lodge	N	✓	
Site Shed	N	✓	
Garden Rooms	N	✓	
The Hub	N	✓	
Parent Mtg Rm	MAC	✓	
The Hall	N + MAC	✓	
New Build	N + MSE	✓	

Actions/Control Measures to Consider Simple measures that can be taken to increase the ventilation in each room.
CO_2 monitors are available to check levels of CO_2 in areas suspected of having poor ventilation. Where levels are consistently measured at more than 1500ppm, this is an indicator of poor ventilation and action will be required to improve natural ventilation in the area..
Set mechanical ventilation to come on an hour before occupancy and an hour after or CO_2 setpoint lowered to 400ppm.
Increase supply of outside air in stuffy rooms or those with lingering odours.
Open windows in the Hall and corridors.
Increase natural ventilation rates without compromising thermal comfort by carrying out intermittent airing of the room/space and partial window opening.
Open windows and vents frequently taking account of security and any hazards to people walking outside by an open window.
In cooler weather open windows on vents to reduce loss of heat but to maintain air flow.
Relocate room occupants away from open windows/draughts.
Restrictors should not be removed from windows unless a separate risk assessment is completed to consider other risks such as falls from height or people walking into open windows on the ground floor and security etc.
Desk, ceiling or foot stand fans should not be used in poorly ventilated areas. Fans may be used only in rooms with a good source of outside air as they can help circulate air flow and prevent stagnation. Where fans are used, they must be cleaned on a regular basis.

Room/Area/Zone	Level of risk High/Medium/Low	Action required	By whom and timescale	Completed
All Areas	High	Read below notes on Achieving Good Ventilation in Buildings. Watch the video from HSE regarding ventilation	All Room Users May Half Term	
All Areas	Medium	Ensure to maintain fire safety and security measures. Fire release units can be fitted onto internal doors – request to Site Supervisor via EVERY	All Room Users May Half Term	
All Rooms Above	Medium	Premise Staff to open windows and or sky light windows in the morning, at least 15 minutes prior to room occupation.	Site Supervisor Immediate	

The Hall	Medium	On arrival in the morning, Site Supervisor to fully open high-level windows in the Hall. Windows to be on permanent opening until building closure.	Site Supervisor Immediate	
Rooms 3, 4 and 5	High	Site Supervisor to open internal door in the morning to allow air circulation before occupancy.	Site Supervisor Immediate	
Rooms 15 and PPA Room	High	Site Supervisor to open roof vents fully or partially dependent on weather	Site Supervisor Immediate	
Rooms 40, 42, 43 and 45	High	CO2 monitors to be installed and rotated to record air quality – action will be taken dependent on results. All control measures to be robustly put in place.	Site Supervisor and Room Users Immediate	
Rooms 40, 42, 43 and 45	High	When possible, open up internal doors (fully or partially) and set Hall doors to open to allow circulation of air from open Hall windows	Room Users Immediate	
Rooms 68	High	Kitchen staff to open external door and use the SLEV which draws on external air	Kitchen Staff Immediate	
Staff Room	High	Open roof vent on arrival in mornings, fully or partially dependent on weather.	Site Supervisor and Room Users Immediate	

Achieving Good Ventilation in Buildings

One of the key measures to reducing the spread of Coronavirus is ensuring there is an adequate supply of fresh air or adequate ventilation in buildings.

"Dilute"

Draw in fresh air by opening windows and external doors.

Is your building poorly ventilated? Avoid using stuffy or stagnant rooms.

Look after your Ventilation or Air Conditioning Plant – have your plant serviced regularly and set to provide you with full fresh air.

Use your Ventilation plant for longer. Increasing operating times will increase dilution rates.

To avoid the chill, dress appropriately for the weather and time of year.

Everyone has a part to play.

Dilution is the solution

Simple Steps for Good Ventilation

Despite Coronavirus restrictions easing, one of the key control measures remains to ensure an adequate supply of fresh air enters all occupied rooms and workplaces. Good ventilation helps to reduce the risk of spreading coronavirus, by diluting the amount of air borne pathogens.

Here are some simple steps to improve ventilation in the workplace:-

- **Check all areas of your workplace to identify areas of poor ventilation.**
  Any rooms that feel stuffy or uncomfortable are probably not well ventilated.
  We exhale carbon dioxide (CO_2) when we breathe out. Periodically checking levels of CO_2 can also help to identify poorly ventilated areas. As a general rule, if the means of ventilation isn't obvious, then potentially the room is poorly ventilated.

- **Maximise fresh air in the workplace.**
  Natural ventilation: Open windows and doors to maximise air flow into the building, where this is safe and practical, be aware of the potential for collision in respect of low level windows to anyone outside and the security risk of windows and doors left open in unoccupied parts of the building. In extreme cold or wet weather, even partial opening is better than not opening at all.

  Mechanical ventilation: Have your maintenance contractor adjust any ventilation or air conditioning system that normally runs with a recirculation mode, to run on full fresh, outside air wherever possible.
  Extend system operation times to increase dilution of the air in the building.
  Even if the building is shut, e.g. overnight or at the weekend, consider leaving systems running, at lower fan speeds, to avoid stagnation.
  Systems that recirculate air between spaces or rooms occupied by different groups of people should be isolated.

- **Adjust temperature controls and operating times.** As we enter the cooler months, adjusting heating controls to extend operating times will help maintain comfortable internal temperatures. Alternatively advising occupants to add an extra layer of clothing, to account for the weather, will have the same effect.

- **Continue to use natural ventilation.** During cooler months, windows could be partially opened, but remember to open windows and external doors fully prior to, or between periods of occupation, e.g. at either end of the working day, at meal breaks, etc., to enable fresh air to be drawn in, refreshing the workplace prior to reoccupation.

- **Stay Secure.** Ensure rooms are secured by closing windows and doors when unsupervised and at the end of the working day.

- **Review your arrangements.** Employers have a duty of care to provide a safe working environment. It is recommended that use of the workspace, in relation to ventilation, maximum numbers of staff, circulation of staff and the systems and procedures for maintaining good hygiene, are reviewed on a regular basis including during changes in seasons and weather. Employers are encouraged to seek professional advice on key topics, where such knowledge isn't available within the organisation.
  The duty of care also extends to Employees, who have a responsibility to help ensure their workplace and surroundings are safe, which includes ensuring they are adequately ventilated and complying with their employer's instructions.

CO_2 Monitoring

CO_2 monitoring equipment is available and rotated in school. The readings will be recorded daily and monitored by management.

Room/Area Users must also open windows when internal air quality becomes compromised. Staff, pupils and other building users are encouraged to dress appropriately for the weather and season.

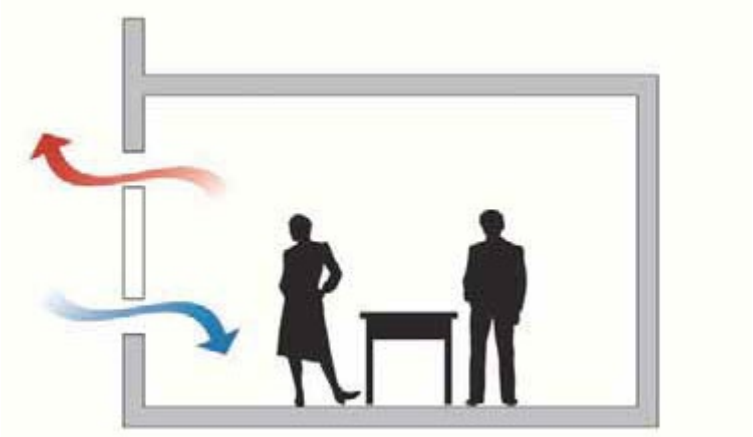
Free guidance can be obtained from the HSE

Copy and paste to this link: https://www.youtube.com/watch?v=6RGxWMaP8PA on ventilation.

Any issues or concerns please raise with the School Business Manager.

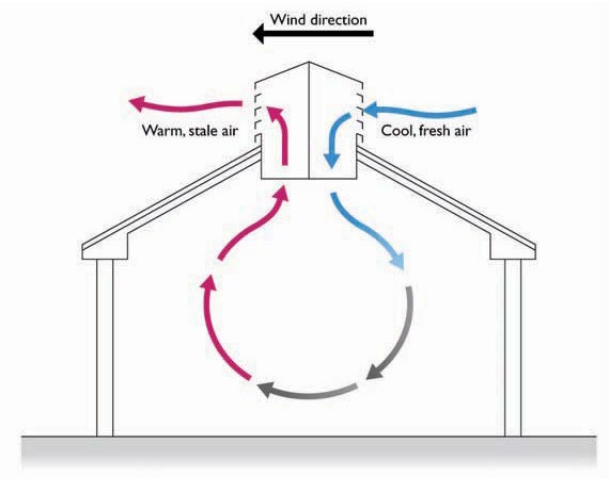
Examples - for reference only

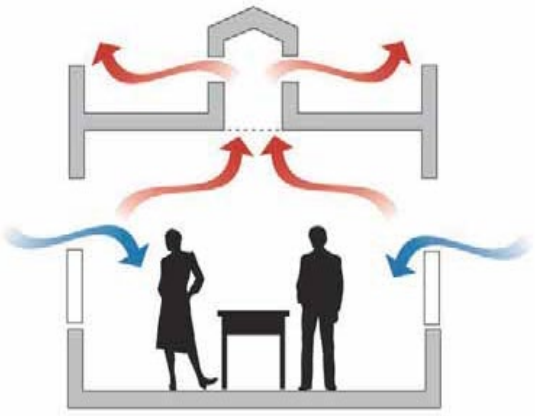
Natural Ventilation (N)



Single sided ventilation – via opening window, drawing air in by natural convection currents. This air will typically mix with warm air rising from radiators, etc.

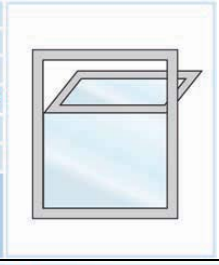
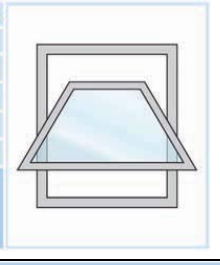
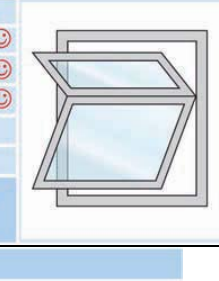
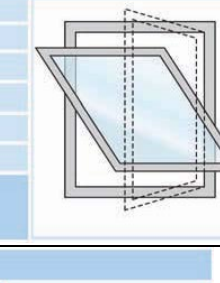
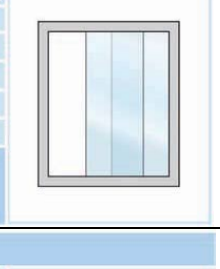
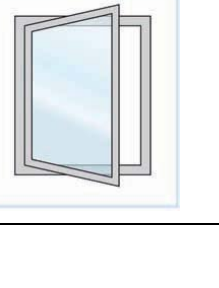
Cross Ventilation, could also draw fresh air from a central corridor or atrium. See Mechanical Supply Only below.





Passive Ventilation, such as "Windcatcher" on the left and "Stack" effect on the right, use a combination of natural convection and wind speed to draw fresh air in. They can also incorporate supply fans, to supplement supply air when wind direction or strength fluctuates and typically include external weather sensing, and automated controls. "As Installed Records" and Service Records should be reviewed to identify the type of system in use

Typical Window Styles

Bottom-hung inward opening fanlight		Centre pivot	
Air flow	☺☺	Air flow	☺☺☺☺
Ventilation control	☺☺☺	Ventilation control	☺☺
Weather protection	☺☺☺	Weather protection	☺☺☺
Night ventilation	☺☺☺☺	Night ventilation	☺☺☺
Relative cost	Medium	Relative cost	Medium
BMS controllable	Yes	BMS controllable	Yes
May obstruct blinds. Good sound control.		May obstruct blinds preventing adequate glare control for users of computer screens. Can reflect external noise.	
Upper fanlight and outward opening casement		**Tilt and turn**	
Air flow	☺☺☺	Air flow	☺☺☺
Ventilation control	☺☺☺☺	Ventilation control	☺☺☺
Weather protection	☺☺☺☺	Weather protection	☺☺☺
Night ventilation	☺☺☺☺	Night ventilation	☺☺
Relative cost	High	Relative cost	High
BMS controllable	Yes	BMS controllable	Yes*
Upper fanlight can be motorised. Good all round performance.		*BMS controllable in one plane only. Complex.	
Top-hung outward opening casement		**Horizontal sliding sash**	
Air flow	☺☺☺	Air flow	☺☺☺☺
Ventilation control	☺☺	Ventilation control	☺☺
Weather protection	☺☺☺☺	Weather protection	☺☺
Night ventilation	☺☺☺	Night ventilation	☺☺
Relative cost	Medium	Relative cost	Low
BMS controllable	Yes	BMS controllable	Yes
Can reflect noise into room. Secure night vent. May need a governor to restrict opening.		No obstruction of internal blinds. Tall openings enable localised stack effect.	
Side-hung casement		**Vertical double sash**	
Air flow	☺☺☺	Air flow	☺☺☺☺
Ventilation control	☺☺	Ventilation control	☺☺☺
Weather protection	☺☺	Weather protection	☺☺
Night ventilation	☺	Night ventilation	☺☺
Relative cost	Medium	Relative cost	Low
BMS controllable	Yes	BMS controllable	Yes
Poor security when open. Rain can enter.		No obstruction of internal blinds. Localised stack effect.	

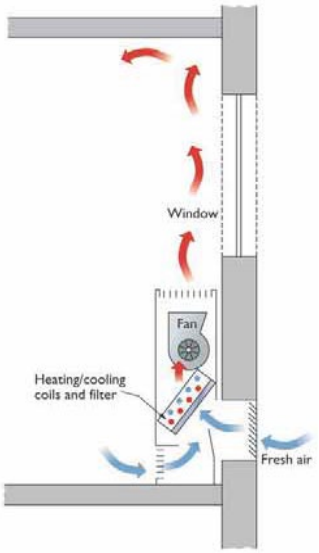
Mechanical Ventilation

Some mechanical systems can be concealed with the building fabric, ceiling spaces etc, but there will be elements on show

Mechanical – Extract only (MEO) – typically used in kitchens, bathrooms/toilets, sluice rooms, etc., and reliant on windows, doors, etc being open, or having been fitted with transfer grilles, should security be an issue. Typical examples, a wall mounted fan or a canopy over catering equipment, alternatively the fan may be positioned remotely, to reduce noise and only the grille will be visible, on the wall or ceiling.

Mechanical - Supply Only –, as per this example of a large supply fan unit, used to provide air to a central atrium or corridor. Or smaller fans, installed in a wall or window to provide extra ventilation to the room, e.g. a kitchen. In some instances, the controls for the fan will enable it to be switched between supply to extract, in which case the fan should be left in the supply mode.

Additionally, Supply Only fans can be incorporated into units to provide cooling / heating to rooms, as the diagram below.



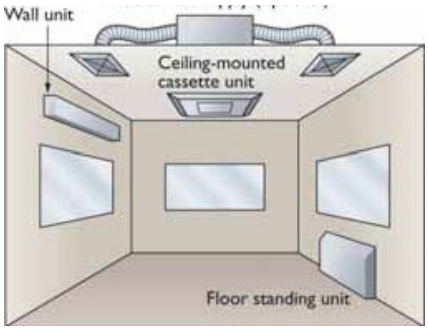
Mechanical - Supply and Extract (MSE), For ducted systems, typically concealed within a ceiling voids, only the grilles or diffusers will be visible.
Typical supply diffuser:-



Typical extract grilles are simpler in design, as per the Extract Only example above.

The diffuser and grilles will be distanced from each other to draw air across the room.
Equally, the most basic system may not be ducted, or even concealed and would simply consist or a supply fan at one end of the room and an extract fan at the other.
Large rooms may be serviced with Air Handling Unit (AHU), which has both supply and extract fans within the same enclosure. Typically, the AHU will be remote from the room, possibly even roof mounted, with a series of rectangular ducts connected.

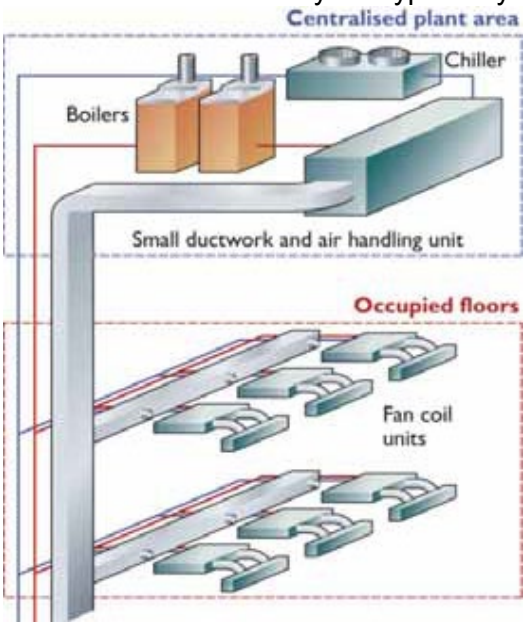
Mechanical – air conditioning – split system – no outside air.
These units recirculate the conditioned air back into the room and as such the occupation of the room should be limited. Such units should continue to run to prevent stagnation of the air. Periodically opening the door to the room will assist and introduce fresh air.
Such units will also have an external condenser unit and may also include the capability for heat recovery.




It should be noted that locations with Air Source, Ground Source Heat Pumps will have visually similar external equipment and the Service Records should be consulted to determine the type installed.

Mechanical - heat recovery (MHR)
Installations are generally concealed and therefore the layout of supply and extract grilles will resemble MSE and MAC systems. The waste heat from the extract air passed over a heat exchange matrix inside the unit, to temper the fresh supply air, thus creating free heating. These systems should be adjusted to minimise recirculated air and Service Records should be reviewed to identify the type of system in use.

Mechanical – air conditioning (drawing in outside air) (MAC)
As with MSE and MHR, MAC systems have characteristic multiple ceiling mounted diffusers and grilles and are generally used for larger open workspaces. The bulk of the system will be centralised plant, remote from the workplace, ducted to smaller units for local distribution and control of volume and temperature. Various other types of local units can be used, to suit particular applications, however the principle of a centralised supply and distribution to local outlets is the same. This diagram only shows the internal Supply Air ducting, for clarity. Service Records should be reviewed to identify the type of system in use.



Specialist localised exhaust ventilation (SLEV) – typically used in workshops with an extract canopy or hood above each machine, welding bays, etc.