


Ventilation Inspection Checklist			<b>Lancashire</b> County Council 
<b>School</b>	Mount Carmel RC High School	<b>Name of person(s) undertaking the inspection checklist</b>	Mr X Bowers & Mr B Georgy
<b>Date checklist completed</b>	7 <sup>th</sup> March 2022	<b>Review dates</b>	TBC

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 is 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. The checklist considers **every** room within the building to identify and assess the suitability of the ventilation.

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 are recommended as appropriate review dates.

## 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<sub>2</sub> monitoring.
- For either type ensure it comes on an hour before occupancy at a nominal speed.
- If it has a CO<sub>2</sub> 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)**

**Determining sufficient Ventilation**

**For rooms with mechanical or air con systems:**

There must be no recirculation or transfer of air between one room to another.

**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 social distancing.
- 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	Transfer/Recirculation of air? Yes/No	Comments
Main Entrance	N		External doors regularly opened
Reception	N & MAC	N	Has both external opening windows and air conditioning
Meeting Room 1 & 2	MAC	N	Does not have external opening windows. Has air conditioning
Reprographics	MAC	N	Does not have external opening windows
LRC	MAC	N	Several air conditioning units and it is a large space
PDE Office	N		Several external opening windows
CFY Office	N		Has one external opening window and 2 more are to be fitted
XBS Office	N		Several external opening windows
CME Office	N		Several external opening windows.
Staff Room	N		Several external opening windows
Staff Toilets	N		Several external opening windows
Chapel	N & MAC	N	Has both external opening window and air conditioning
Finance Office	N		Several external opening

			windows
BGY / HWD Office	N		Several external opening windows
Pastoral Toilets	N		The boys toilets have a window, however there are no longer doors from the corridor resulting in a better air flow
KS4 Pastoral Office	N		Several external opening windows
G18	N		Several external opening windows
G19	N		Several external opening windows
KS 3 Pastoral Office	N		Several external opening windows
Pastoral Intervention Room	N		Several external opening windows
Science Toilets	N		There are no longer doors from the corridor resulting in a better air flow
G1 – G6	N & MSE	N	Has both several external opening windows and air conditioning
G7	N & MAC	N	Has both several external opening windows and air conditioning
SFG Office	N		Has external opening window
Science Prep Room	MAC	N	Does not have external opening windows
KGY Office	N		Has external opening windows
Data & Exams Office	N		Has external opening windows
G8	MAC	N	Does not have external opening windows but has air conditioning
G9	N & MAC	N	Has both several external opening windows and air conditioning
G10	N		Has external opening windows

	G11 – G13	N & MAC	N	Has both several external opening windows and air conditioning
	DT Prep Room	N		Has external opening windows
	TGO Office	N		Has external opening windows
	DT Toilet	N		Has external opening windows
	G14	N & MAC	N	Has both several external opening windows and air conditioning
	G15 & G16	N		Several external opening windows
	G17	N & MAC	N	Has both several external opening windows and air conditioning
	Site Supervisor Office	N		Several external opening windows
	12 Star Diner & Sandwich Area	N		Several external opening windows
	Kitchen Serving & Preparation Area	MEO	N	Extraction Fans
	Kitchen Office	N		Has external opening windows
	Reflect	MAC	N	Does not have external opening windows. Has air conditioning
	Gym	N		Several external opening windows
	Girls & Boys Changing Rooms	MEO	N	Extraction Fans. Pupils continue to wear PE kit to school reducing time in changing areas.
	Hall	N		Several external opening windows
	Sports Hall	MEO	N	Extraction Fans
	F1 – F14	N & MAC	N	Has both several external opening windows and air conditioning
	F 3 Staff Room	N		Several external opening

	SEN & Nurture	N		windows Several external opening windows
	First Floor Link Corridor	N		Several external opening windows
	Pastoral Toilets	MEO	N	Extraction Fans
	Rosla Block Office	N & MAC	N	Has both several external opening windows and air conditioning
	S1 – S10	N & MAC	N	Has both several external opening windows and air conditioning
	2 Offices in S7	N		Several external opening windows
	Second Floor Link Corridor	N		Several external opening windows
	IT Managers Office	N & MAC		Has both several external opening windows and air conditioning

Rooms with Insufficient or No Ventilation		
	List all rooms with insufficient or no ventilation Room No.	Comments
<b>Indicators of insufficient ventilation:</b> <ul style="list-style-type: none"> <li>Room feels stuffy or has a lingering odour.</li> <li>Room is small with limited outside air supply.</li> <li>Room is landlocked with only internal doors and no</li> </ul>	Staff Work Room	Door to the library to be kept open at all times. Only ITT staff to use this area.
	LRC Kitchen	Not used regularly and if so only used by one person at a time.
	LRC Office	No meetings are to be held in here and the room should

<p>external windows/grills/vents.</p> <p><b>Consider what the rooms will be used for and by who.</b> More ventilation is recommended in rooms where there is:</p> <ul style="list-style-type: none"> <li>• physical activity.</li> <li>• raised voices including singing.</li> <li>• vulnerable people including the elderly.</li> <li>• members of the public.</li> <li>• regular changes in occupancy.</li> <li>• inability to maintain other measures such as social distancing.</li> </ul>		only be used one person at a time.
	LRC Managers Office	No meetings are to be held in here and the room should only be used one person at a time
	Chapel Office	Has windows to the chapel. This office should only be used by one person at a time and no meetings should be held in this office.
	JHL Office	No meetings are to be held in here and the room should only be used one person at a time. JHL to use Rosla block office for meetings.
	CBT Office	No meetings are to be held in here and the room should only be used one person at a time.
	Academic Mentors Office	Although the room is big enough for social distancing there are no external windows. The room should only be used two people at a time and door always open. Discussions with pupils and / or parents should take place in the 12 Star Diner or meeting room.
	DT Staff Room	No meetings are to be held in here and the room should only be used one person at a time. The door should be always open.
	PE Office	Although the room is big enough for social distancing there are no external windows. Only 2 members of staff should be in the room at any 1 time. Social distancing should be maintained at all times. The door must be always open. No meetings to be held.
	SEN Admin Office	No meetings are to be held in here and the room should only be used one person at a time.
	Rosla Toilets	Although they are in individual booths, we need to look at an alternative and therefore these toilets are to be locked.
	Lift	These areas are not frequently used and when in use is for a minimal amount of time. These areas should only be used by two people at a time. Face masks to be worn at all times.
	All Store Rooms / Cleaners Cupboards / IT Server Room & Electronics Room	These areas are not frequently used. These areas should only be used by one person at a time.


**Actions/Control Measures to Consider**

You need to do all you can to ensure there is sufficient ventilation in each room within your building. The following provides examples of simple measures that can be taken to increase the ventilation in each room. Any control measures should also be documented in your building/COVID secure risk assessment.

- Where necessary prohibit use of any rooms until further action is taken to improve ventilation.
- If you have a CO<sub>2</sub> monitor, check levels of CO<sub>2</sub> 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 is required to improve natural ventilation in the area. Your Building Services Engineer or Appointed Building Consultant will be able to advise on any action required or advise on the purchase of CO<sub>2</sub> monitors.
- Turn off ventilation systems where they recirculate indoor air from one room/area to another.
- Set mechanical ventilation to come on an hour before occupancy and an hour after or CO<sub>2</sub> setpoint lowered to 400ppm.
- Restrict room occupancy in small rooms with limited outside air supply.
- Increase supply of outside air in stuffy rooms or those with lingering odours.
- Open windows along stairs and corridors. Ensure you maintain fire safety and security measures.
- 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.
- Open windows at least 15 minutes prior to room occupation.
- In cooler weather open windows on vents to reduce loss of heat but to maintain air flow.
- In cooler weather open high level windows in preference to those lower down to reduce draughts whilst maintaining air circulation.
- Relocate room occupants away from open windows/draughts.
- Consider whether internal doors need to be closed to prevent recirculation of air from one room/area to another, or whether internal doors need to be open to increase the total volume flow rate of outside air. This will depend on the layout of the building. Take care not to compromise fire safety measures and security measures.



Wherever the opening an external door to provide a source of ventilation to a room could compromise safeguarding and fire safety, Premise Managers are required to consider the continuing use of the room. If use of the room is essential, do not compromise safety, seek guidance from your Building Services Engineer or Appointed Building Consultant.
Inform staff of the measures in place and the importance of maintaining them.
Review locking up procedures to ensure all windows are closed at the end of the day.
Fan convection heaters can be used <b>if</b> a suitable supply of outdoor air is available to dilute levels of airborne pathogens.
If external doors are opened for ventilation, ensure this does not compromise security or safeguarding.
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.

If Premise Managers are unsure of the type of ventilation systems installed they can seek technical guidance from their Building Services Engineer, or contact [duty.engineer@lancashire.gov.uk](mailto:duty.engineer@lancashire.gov.uk). Premise Managers who do not buy into the LCC Design & Construction Property Maintenance Service Level Agreement, retain the statutory responsibility to appoint a suitably skilled, trained, qualified and insured responsible person and are advised to seek their professional advice on this matter.

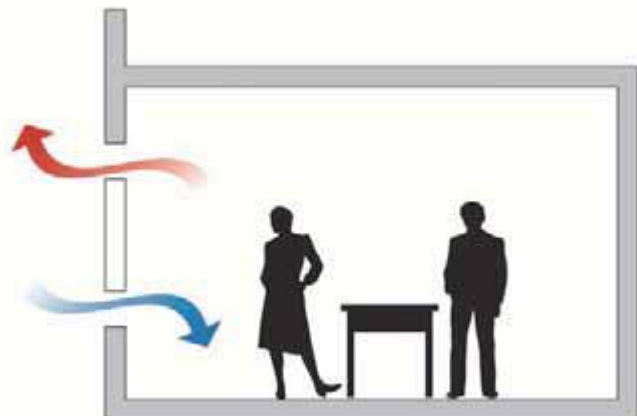
The HS&Q Team may be able to offer support in completing the checklist as part of your health and safety SLA visit. Please contact your nominated Health & Safety Officer or email [health.safety@lancashire.gov.uk](mailto:health.safety@lancashire.gov.uk) to discuss.

The following section should be used to identify any action required.

Room/Area/Zone	Level of risk High/Medium/Low	Action required	By whom and timescale	Completed


## Examples - for reference only

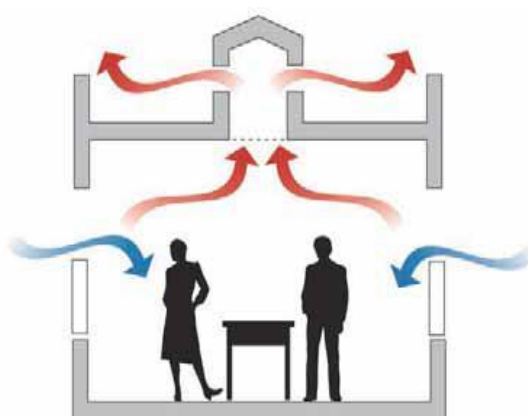
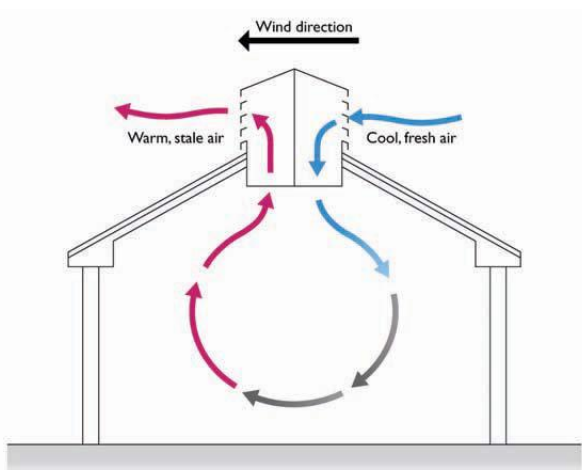
### Natural Ventilation (N)



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.

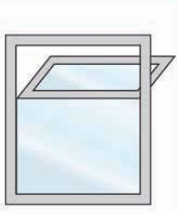


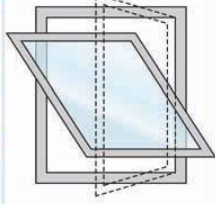

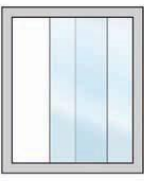




Cross Ventilation, could also draw fresh air from a central corridor or atrium. See Mechanical Supply Only below.



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

<p><b>Bottom-hung inward opening fanlight</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊😊😊</td></tr> <tr><td>Relative cost</td><td>Medium</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>May obstruct blinds. Good sound control.</p> 	Air flow	😊😊	Ventilation control	😊😊😊	Weather protection	😊😊😊	Night ventilation	😊😊😊😊	Relative cost	Medium	BMS controllable	Yes	<p><b>Centre pivot</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊😊</td></tr> <tr><td>Relative cost</td><td>Medium</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>May obstruct blinds preventing adequate glare control for users of computer screens. Can reflect external noise.</p> 	Air flow	😊😊😊😊	Ventilation control	😊😊	Weather protection	😊😊😊	Night ventilation	😊😊😊	Relative cost	Medium	BMS controllable	Yes
Air flow	😊😊																								
Ventilation control	😊😊😊																								
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Night ventilation	😊😊😊																								
Relative cost	Medium																								
BMS controllable	Yes																								
<p><b>Upper fanlight and outward opening casement</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊😊😊</td></tr> <tr><td>Relative cost</td><td>High</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>Upper fanlight can be motorised. Good all round performance.</p> 	Air flow	😊😊😊	Ventilation control	😊😊😊😊	Weather protection	😊😊😊😊	Night ventilation	😊😊😊😊	Relative cost	High	BMS controllable	Yes	<p><b>Tilt and turn</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊</td></tr> <tr><td>Relative cost</td><td>High</td></tr> <tr><td>BMS controllable</td><td>Yes*</td></tr> </table> <p>*BMS controllable in one plane only. Complex.</p> 	Air flow	😊😊😊	Ventilation control	😊😊😊	Weather protection	😊😊😊	Night ventilation	😊😊	Relative cost	High	BMS controllable	Yes*
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<p><b>Top-hung outward opening casement</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊😊</td></tr> <tr><td>Relative cost</td><td>Medium</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>Can reflect noise into room. Secure night vent. May need a governor to restrict opening.</p> 	Air flow	😊😊😊	Ventilation control	😊😊	Weather protection	😊😊😊😊	Night ventilation	😊😊😊	Relative cost	Medium	BMS controllable	Yes	<p><b>Horizontal sliding sash</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊</td></tr> <tr><td>Relative cost</td><td>Low</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>No obstruction of internal blinds. Tall openings enable localised stack effect.</p> 	Air flow	😊😊😊😊	Ventilation control	😊😊	Weather protection	😊😊	Night ventilation	😊😊	Relative cost	Low	BMS controllable	Yes
Air flow	😊😊😊																								
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<p><b>Side-hung casement</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊</td></tr> <tr><td>Night ventilation</td><td>😊</td></tr> <tr><td>Relative cost</td><td>Medium</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>Poor security when open. Rain can enter.</p> 	Air flow	😊😊😊	Ventilation control	😊😊	Weather protection	😊😊	Night ventilation	😊	Relative cost	Medium	BMS controllable	Yes	<p><b>Vertical double sash</b></p> <table border="0"> <tr><td>Air flow</td><td>😊😊😊😊</td></tr> <tr><td>Ventilation control</td><td>😊😊😊</td></tr> <tr><td>Weather protection</td><td>😊😊</td></tr> <tr><td>Night ventilation</td><td>😊😊</td></tr> <tr><td>Relative cost</td><td>Low</td></tr> <tr><td>BMS controllable</td><td>Yes</td></tr> </table> <p>No obstruction of internal blinds. Localised stack effect.</p> 	Air flow	😊😊😊😊	Ventilation control	😊😊😊	Weather protection	😊😊	Night ventilation	😊😊	Relative cost	Low	BMS controllable	Yes
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BMS controllable	Yes																								

## Mechanical Ventilation

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

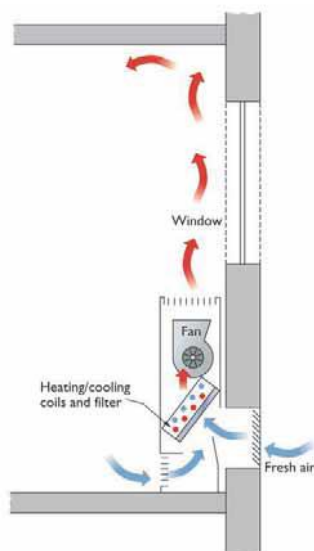
**Mechanical – Extract only (MEO)** – typically used in kitchens, bathrooms/toilets, sluice rooms, etc., and reliant on windows, doors, etc being open, or having been fitted with transfer grilles, should security be an issue. Typical examples, a wall mounted fan or a canopy over catering equipment, alternatively 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 of 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.

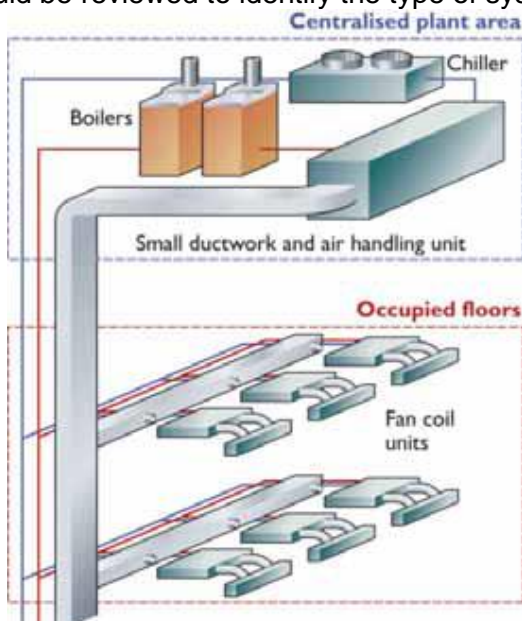
**Mechanical - heat recovery (MHR)**

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.

