

Always the best climate for

A COMFORTABLE NIGHT'S SLEEP

What's hot and what's not when it comes
to the Summer Bypass in MVHR units.

What's hot and what's not: MVHR Summer Bypass functions

As the weather warms up, a MVHR unit stops doing one of its fundamental jobs - to recover and reuse heat. The summer bypass function is now a crucial factor in helping reduce the discomfort due to excessive heat in the summer months - it's hot already, so we don't need additional heat entering the home unnecessarily. The way a summer bypass works has evolved considerably during recent years and today you can't just assume they work the same and are effective in helping reduce discomfort.

Here we explain the different methods and the potential impact on the comfort factor of a home.

What's important when looking at the Summer Bypass?

Ventilation Performance

Does the summer bypass ensure supply air to the dwelling is maintained?

Indoor Air Quality

Does the summer bypass function continue to provide good levels of filtration of incoming air?

Comfort

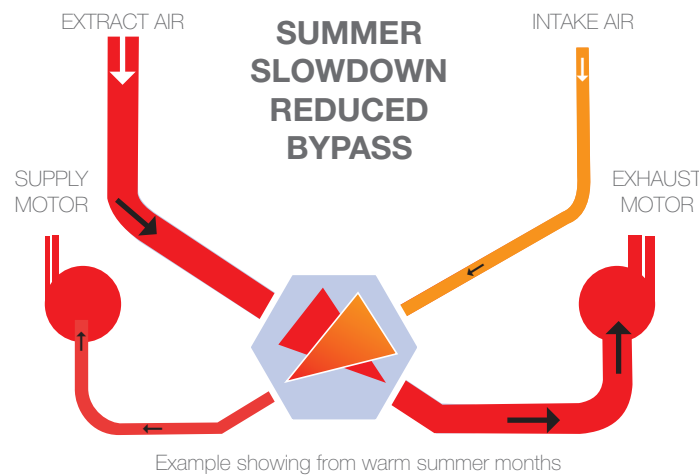
Does the summer bypass operation use the installed environment to open/close or pre-set activation points?

Method 1. Summer Slowdown

How does it work?

Functionality is based on limiting airflow rather than stopping heat recovery;

- Slowdown of supply air into the dwelling to reduce the level of tempered air entering the dwelling
- Activates automatically based on external temperature level e.g. 23°C



Considerations for performance, air quality, health and comfort:

- Slowing supply air to the dwelling reduces ventilation rates, impacting indoor air quality levels within the dwelling
- As the MVHR system needs balanced supply and extract, slowdown of supply air creates negative pressure. This leaves supply air to be drawn in through the facade of the building which is unfiltered - not good within AQMA Areas (Air Quality Management Areas) and for any people suffering with allergies
- Reduced supply air and flow around the home will not contribute to comfort levels for the end user

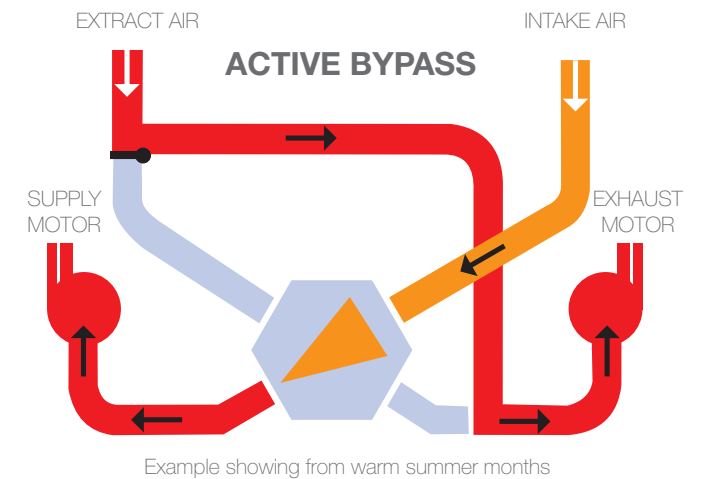
Method 2. Automatic Temperature Point Summer Bypass

How does it work?

- A solution whereby intake air physically bypasses the heat exchanger

A physical bypass of heat recovery shall be able to bypass at least 90% of air volume flow

- Usually activates based on automatic external temperature point e.g. 21°C



Considerations for performance, indoor air quality, health and comfort

How is the air being bypassed? Is the air path much smaller and so will impact performance?

- Does it have constant volume motors? The bypass channel is nearly always smaller therefore without constant volume motors, there will be a higher pressure drop within the system, potentially reducing the volume of air by over 50%

- Does the air pass through the filter when the summer bypass is activated? If not, this will have major impacts on IAQ and health

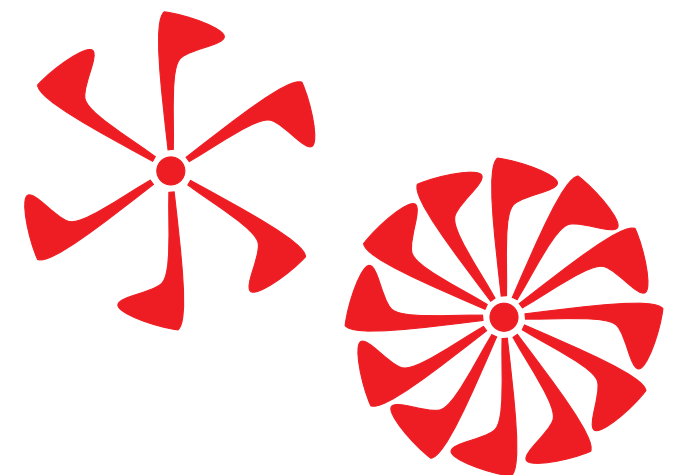
Important Note: The effects of poor air quality is compounded when the MVHR unit is oversized to combat overheating of the property, at airflow rates higher than is required to meet building regulations e.g. 2.5ach

++ Additional Supply Air Boost Feature

How does it work?

Some MVHR units offer additional supply air boosting where outside air can help contribute to reducing internal temperature and humidity levels e.g. during the evenings in the summer when outside temperature has fallen and can help reduce high internal temperatures.

This function can be named differently on units e.g. Temperature Passive, but provides benefit by utilising the passive cooling available when external conditions are at the right temperature.



If you are designing and specifying MVHR and need to discuss how summer bypass impacts comfort

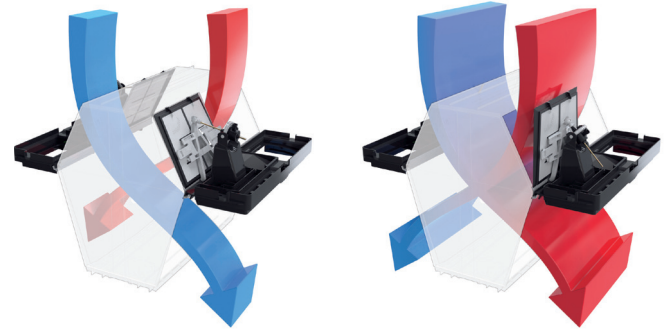
call Technical Services on **01276 408402** or email technical@zehnder.co.uk

Method 3. Innovative Modulating Summer Bypass

How does it work?

A modulating summer bypass maximises comfort to the nth degree by allowing the bypass to be open, closed or somewhere inbetween depending on how much heat recovery is required.

- Guided by an optimum comfort temperature which looks at both temperature and humidity
- Uses an intelligent algorithm to look at both **internal and external** conditions
- Adds a further layer of intelligence with historical data as our perception of comfort is often based on previous conditions
- Provide 'cold recovery' as further contribution to improve comfort levels in summer months



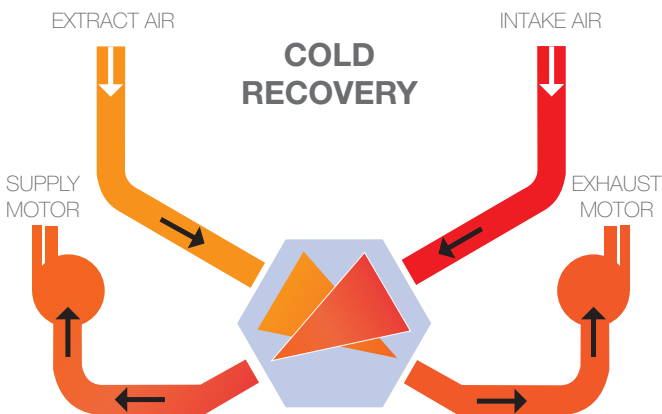
Modulating summer bypass can be partially/fully opened/closed at any time. Does not rely on temperature activation point.
Visit www.zehnder.co.uk to see inside

Temperature perception depending on the climate

Outside yesterday	Outside today	Inside
10°C	15°C = warm	18°C = pleasant
19°C	15°C = cold	20°C = pleasant

Here we compare 2 scenarios:
15°C is the same temperature, but does it always feel the same?

The modulating summer bypass takes this into consideration, modulating the amount of heat recovery required to maintain comfort



Benefits for the home and end user - air quality, performance and comfort

- Not tied to a fixed temperature point for on or off means it provides the best option for comfort for the end user throughout the year of predictably unpredictable UK weather
- Supply air is continuously filtered protecting IAQ levels all year round

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