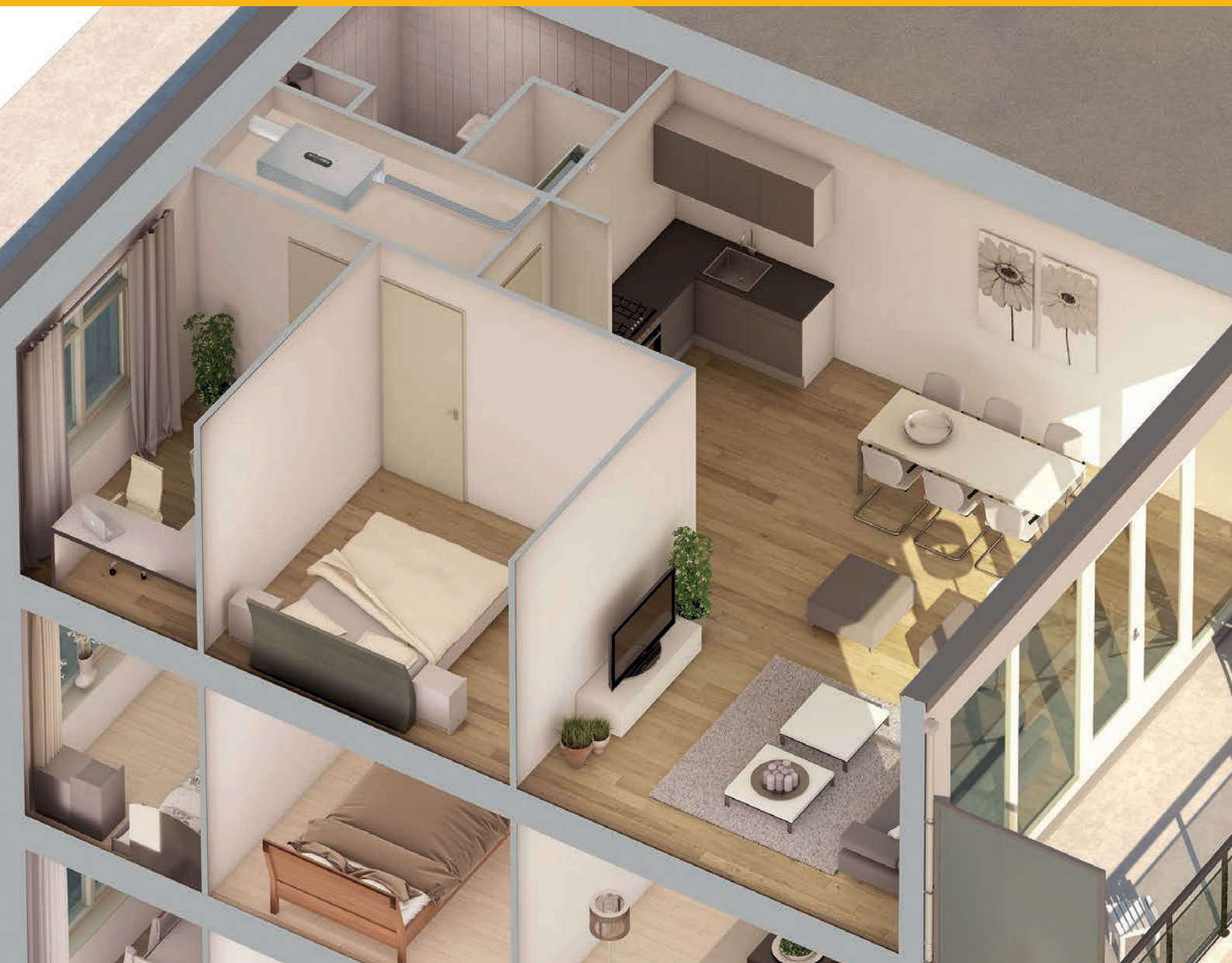


Ventilation Guidance Document



Contents

- 1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans.....06
- 2 Continuous Mechanical Extract Fans (Centralised or De-Centralised).....13
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- 4 Commissioning & Airflow Measurements.....19

FAST TRACK - OUR COMPLETE DUCTING SOLUTION

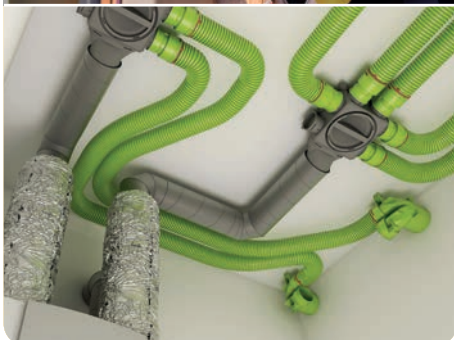
Don't blame the installers, just make it easier for them!

EnviroVent believes that quality ductwork should not be dependent upon highly qualified installers and regulatory measures.

Therefore, we introduced ventilation ductwork, which can be installed very easily and quickly, even by less qualified and experienced installers and is airtight by definition.

Ductwork is the Achilles heel of mechanical ventilation units:

- ⊗ Poorly designed ductwork results in high pressure drops.
- ⊗ Unsealed connections result in high air leakage.
- ⊗ Both result in higher energy consumption and noise hindrance, as the ventilation units have to work harder to ventilate 'right' (although some installers don't seal connections, they should).



Using non-hardening sealant, mechanical fixings and ideally tape to seal connections, can be:

- ⊗ Messy and wasteful
- ⊗ Takes a lot of time to do it properly, i.e. costly
- ⊗ Not only tape - two forms of mechanical fixing. Jubilee clips and rigid connectors for flex, plus a low modulus non-hardening sealant is also required
- ⊗ Makes it difficult to achieve a high and consistent quality airtight seal



Airtight mechanical connections are:

- ✔ Clean and there's no waste
- ✔ Extremely easy and quick to install - it only takes a couple of seconds
- ✔ Highest and most consistent quality airtight seal possible
- ✔ Sustainable airtight connection

APPROVED DOCUMENT F VOLUME 1, 2021 EDITION

1.79 Ductwork installations should be designed and installed to minimise the overall pressure losses within the system by taking all of the following steps.

- Minimising the overall length of duct.
- Minimising the number of bends required.
- Installing appropriately sized ducts for the air flow rate.

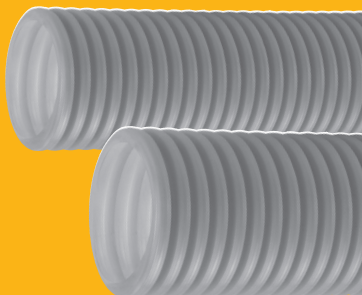
1.81 Duct connections should be both mechanically secured and adequately sealed to prevent leaks. Rigid connectors and jubilee clips should be used for flexible ducting to ensure a good seal.

The install should comply with all the relevant guidance in local regulations and should be installed by a competent person.

FAST TRACK DUCTING RANGES

FAST TRACK - SEMI RIGID DUCTING

FIXING: CLICK & CONNECT



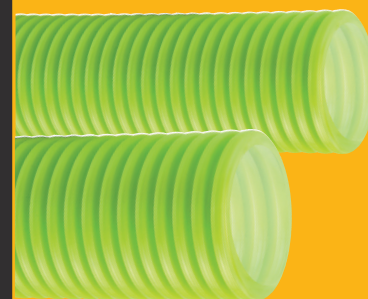
- Click and connect with antibacterial and antistatic lining
- Minimal energy consumption and noise hindrance
- 75mm and 90mm circular ducting options
- Two and three-way valve adaptors
- Acoustic damper option
- Airtight connections
- Different distribution box sizes with 8 [90mm] and 10 [75mm] spigots
- Ducting available in 50m rolls (grey)
- Stepped adaptors for connections to different ducting sizes
- Reduced installation time - no need for screws and glue
- Easy installation and removal for cleaning of ducts

FAST TRACK PLUS - SEMI RIGID DUCTING

FIXING: CLICK & CONNECT

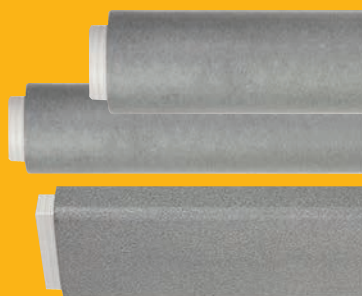
- Different distribution boxes available for greater flexibility
- Ducting available in 50m [circular] and 20/30m [oval] rolls
- Stepped adaptors for connections to different ducting sizes
- Reduced installation time - no need for screws and glue
- Easy installation and removal for cleaning of ducts

- Click and connect with antibacterial and antistatic lining
- Minimal energy consumption and noise hindrance
- 75mm and 90mm circular ducting options
- 102 x 50mm and 136 x 60mm oval ducting options
- Airtight connections
- Floor grilles for alternative installation options



FAST TRACK THERMAL - THERMAL DUCTING

FIXING: CLICK & LOCK



- Click and lock patented self-sealing connections
- 125mm and 160mm circular ducting options
- 204 x 60mm rectangular ducting option
- Airtight connections
- Ducting is available in 1m or 2m lengths, easily cut to size
- High thermal properties, minimising heat loss
- Connectors, bends, and t-pieces available
- No need for screws and glue
- Easy installation and removal for cleaning of ducts

FAST TRACK RIGID - SELF-SEAL COUPLERS

FIXING: SELF-SEAL

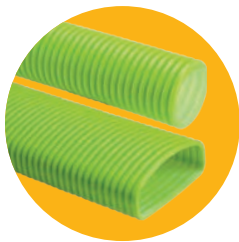
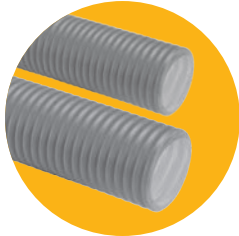
- 204 x 60mm rectangular option
- Reduces the installation time
- No need for screws and glue
- Easy removal for cleaning of ducts

- Self-seal couplers
- Push fit airtight connections
- For use with rigid 'trunk and branch' PVC ducting
- 125mm circular option



The Complete Semi-Rigid Solution

The Fast Track Range is a comprehensive portfolio of ductwork and parts to make complete, energy-efficient and easy to install ventilation systems. The semi-rigid ductwork is available in various circular and semi-circular dimensions.



Air Distribution Boxes with Semi-Rigid Ducting

- ▶ Plastic = lightweight, risk-free installation
- ▶ Airtightness Class C (EN 12237)
- ▶ Circular ducting: 75mm and 90mm
- ▶ Oval ducting: 102mm x 50mm and 132mm x 60mm (Fast Track Plus only)

Stepped mass flow ducting adaptors:

- ▶ Easy post-installation access to restrictors and for maintenance
- ▶ Ø125mm, Ø160mm & Ø200mm (Fast Track only)
- ▶ Ø125mm, Ø150mm, Ø160mm and Ø180mm (Fast Track Plus only)

FAST TRACK



125/160/200mm stepped adaptor



125/160mm side adaptor

FAST TRACK PLUS



125/150/160/180mm stepped adaptor

For more information about our range of ducting and ancillaries

**CALL US ON
01423 810 810**

Distribution Boxes

FAST TRACK

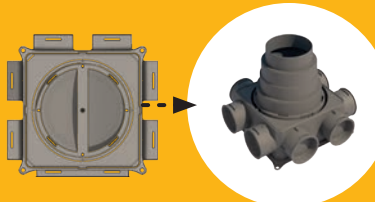
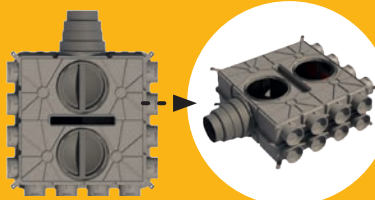
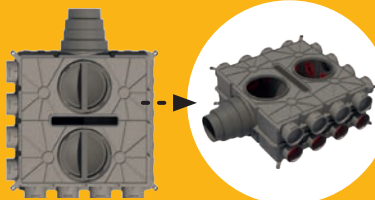
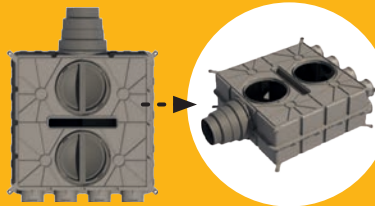


75mm 10 spigot distribution box



90mm 8 spigot distribution box

FAST TRACK PLUS



Configuration Example & Options

FAST TRACK ONLY



Vertical stack configuration



75mm three-way valve adaptor



90mm two-way valve adaptor



125mm acoustic damper



End cap



Connector



Horizontal stacking couplers



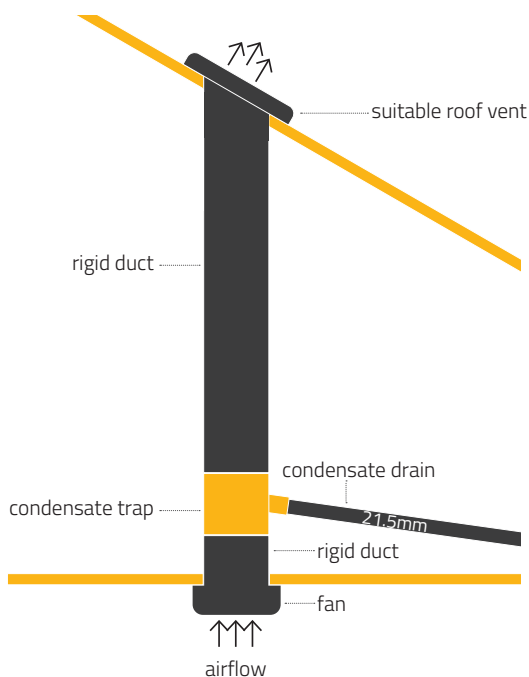
Vertical stacking couplers

1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.1 Ceiling Mounting Extract Fans - Install Guidance

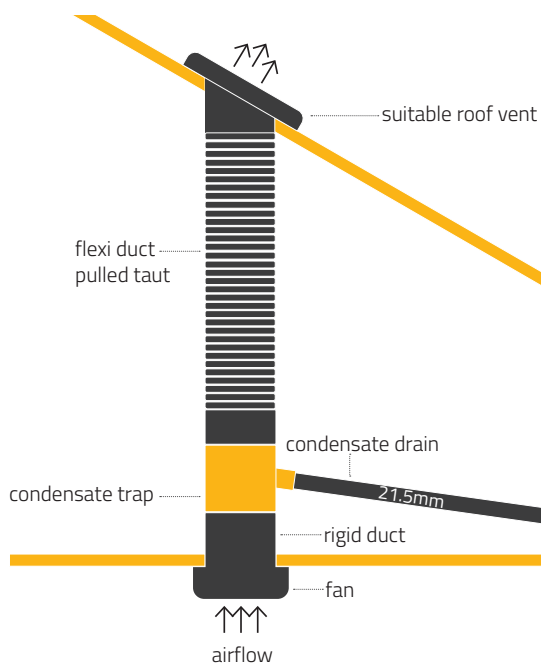
Ceiling mounted —→ roof vent (rigid)

All ducting in unheated areas needs to be insulated



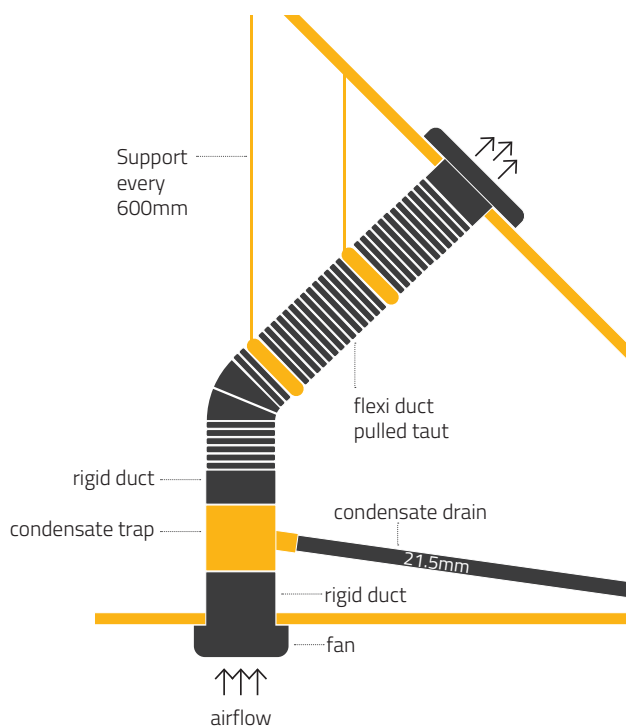
Ceiling mounted —→ roof vent (flexi)

All ducting in unheated areas needs to be insulated



Ceiling mounted —→ roof vent (flexi)

All ducting in unheated areas needs to be insulated

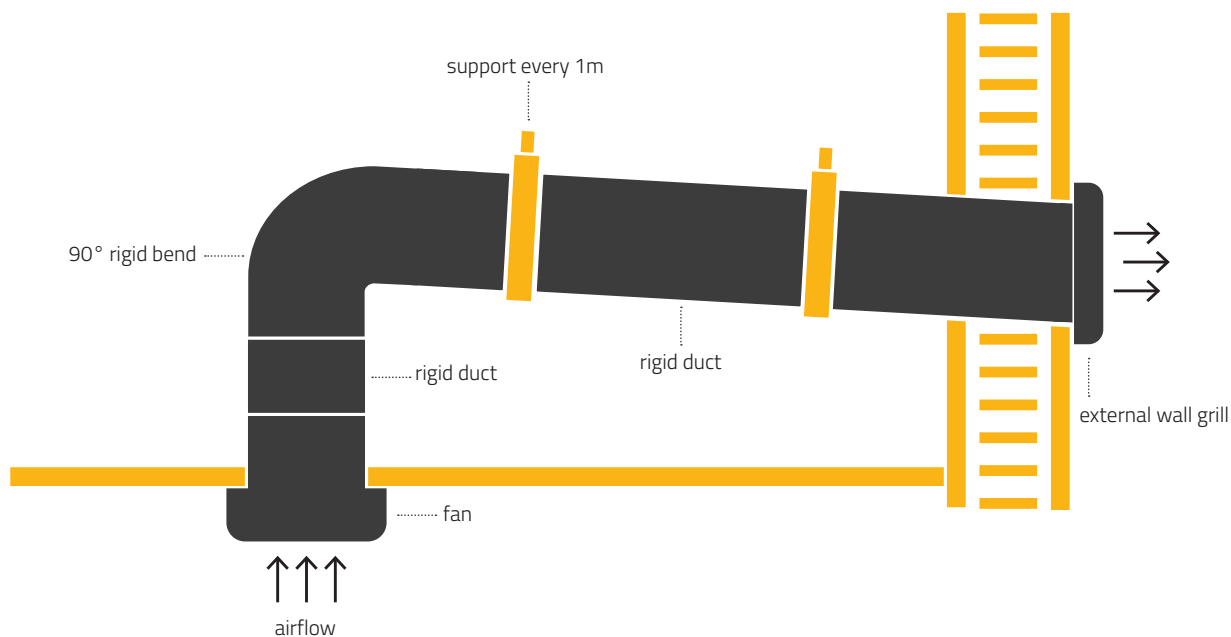


1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.2 Gable End Walls - Install Guidance

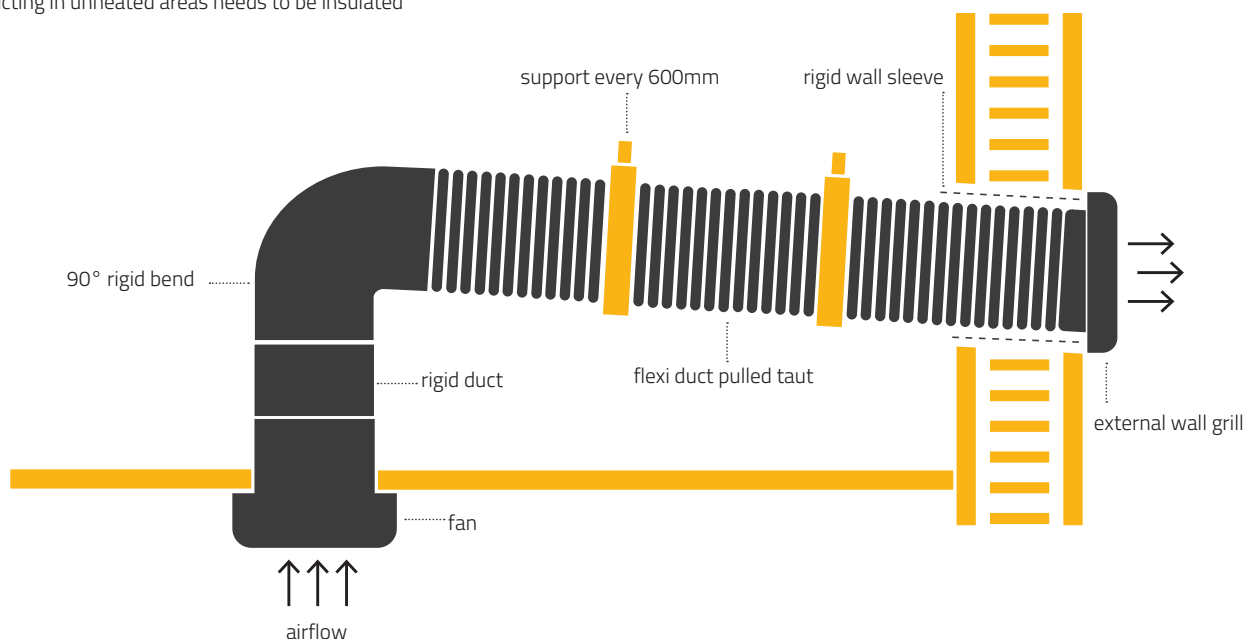
Ceiling mounted —→ Gable end wall (rigid)

All ducting in unheated areas needs to be insulated



Ceiling mounted —→ Gable end wall (flexi)

All ducting in unheated areas needs to be insulated

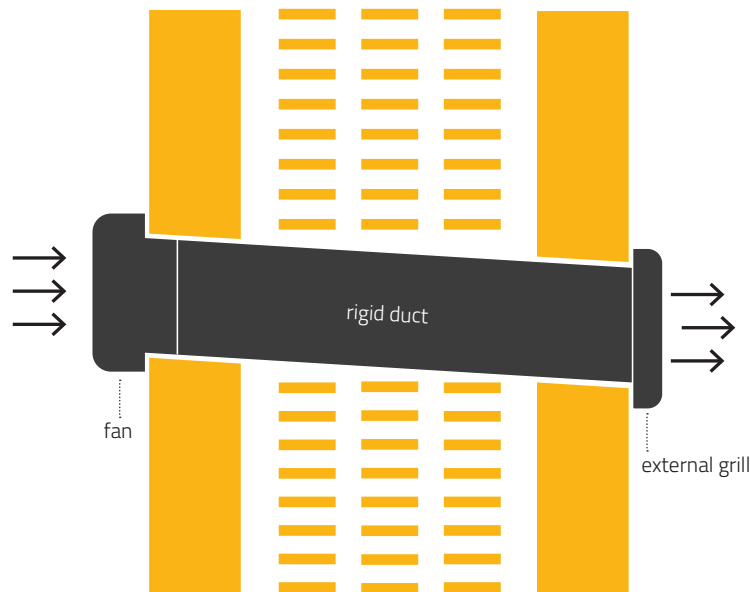


1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.3 Through Wall - Install Guidance

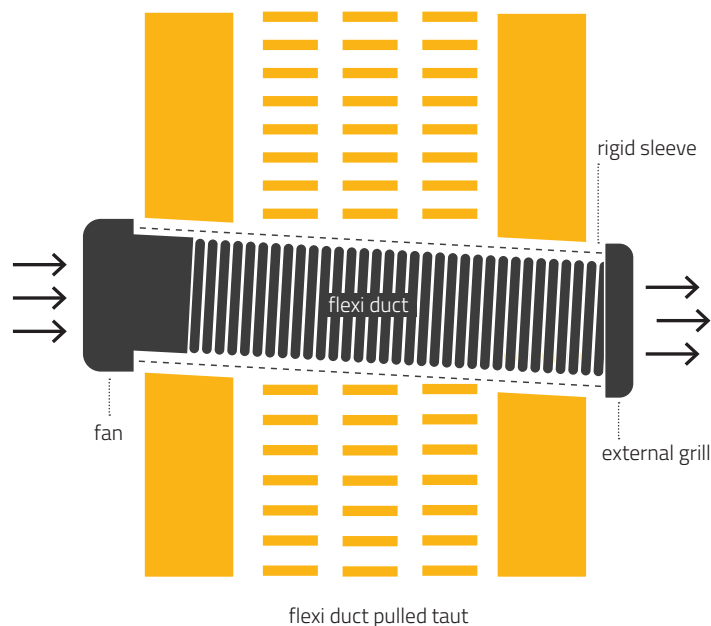
Through wall (rigid duct)

All ducting in unheated areas needs to be insulated



Through wall (flexi duct)

All ducting in unheated areas needs to be insulated



1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.4 Installation Guidance

- Ducting should be insulated where it passes through unheated area and voids (e.g. loft spaces) with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming.
- Vertical ducting requires a condensate trap.
- Connections of rigid ducts need to be glued and have a mechanical fix (screws).
- When coming off a ceiling mounted fan to horizontal duct a rigid bend must be used.
- Flexible ducting needs to be pulled taught and lengths kept to a minimum.
- Connections of flexible duct need a mechanical fix and tape.
- Flexible ducting needs to be fully taut, bends must be sweeping.
- Ensure flexible ducting is not distorted or squashed.
- Flexible ducting needs to be supported a minimum of every 600mm.
- Rigid ducting should be supported every meter or either side of a joint.
- Horizontal ducting should slope downwards away from the fan.



1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.5 Installation Guidance - Connecting Solid PVC Duct



Apply a smooth layer of non hardening sealant/acrylic around the inside edge



Carefully push fitting into duct



Apply a smooth layer of non hardening sealant/acrylic around the inside edge of the second piece of ducting



Carefully push the ducting on to the fitting

1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.5 Installation Guidance - Connecting Solid PVC Duct



Ensure ducting is fully pushed onto fitting



Apply a mechanical fix (i.e. 3-4 self tapping screws), ensure the ducting is not distorted



Apply tape to ensure the seal is maintained to help the connection while sealant sets

1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

1.5 Installation Guidance - Connecting Flexible/Standard/Acoustic



Carefully slide the flexible duct or inner sleeve over the connector



Apply a mechanical fixing (worm drive clip or jubilee clip)



If fixing insulated or acoustic duct, pull the insulation fully over the connection



Pull the outer sleeve fully over the insulation and inner sleeve. Connect using a mechanical fixing and then tape (Do not use tape only)

2 Continuous Mechanical Extract Fans (Centralised or De-Centralised)

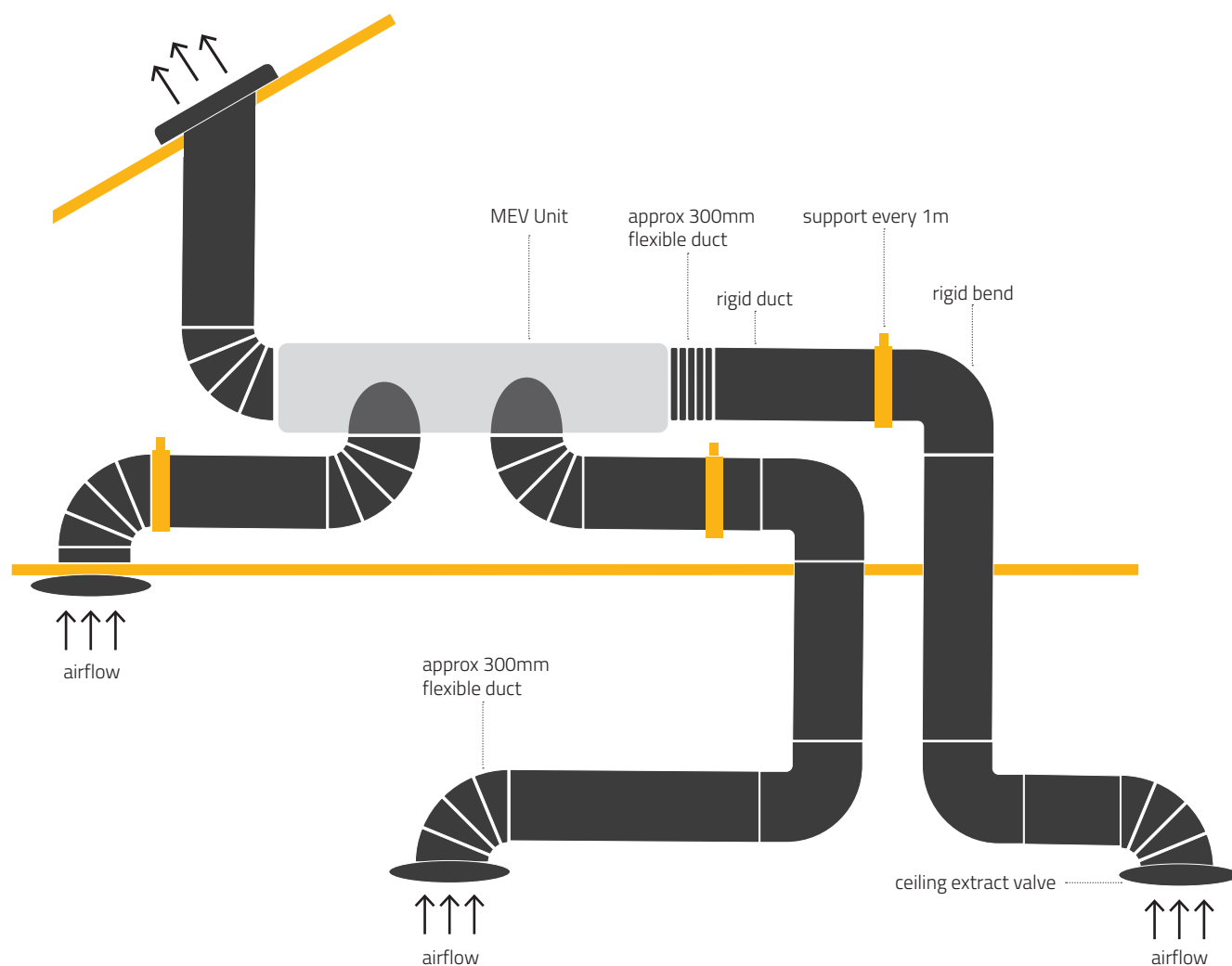
2.1 De-Centralised MEV (Individual Room Fans)

Please follow the Ventilation Guidance for connection of ducting.



2 Continuous Mechanical Extract Fans (Centralised or De-Centralised)

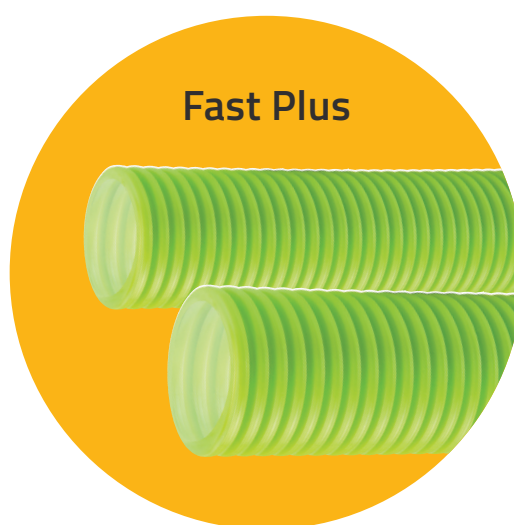
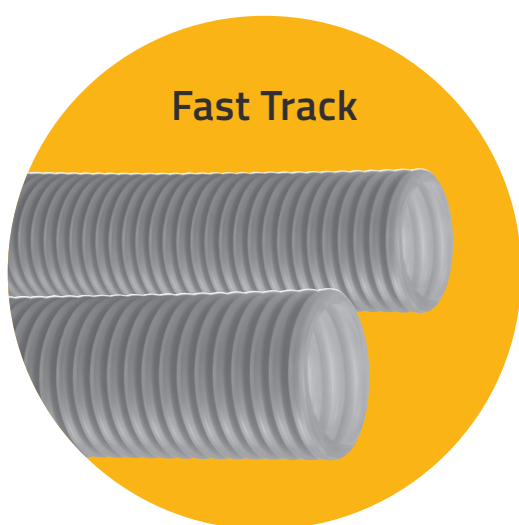
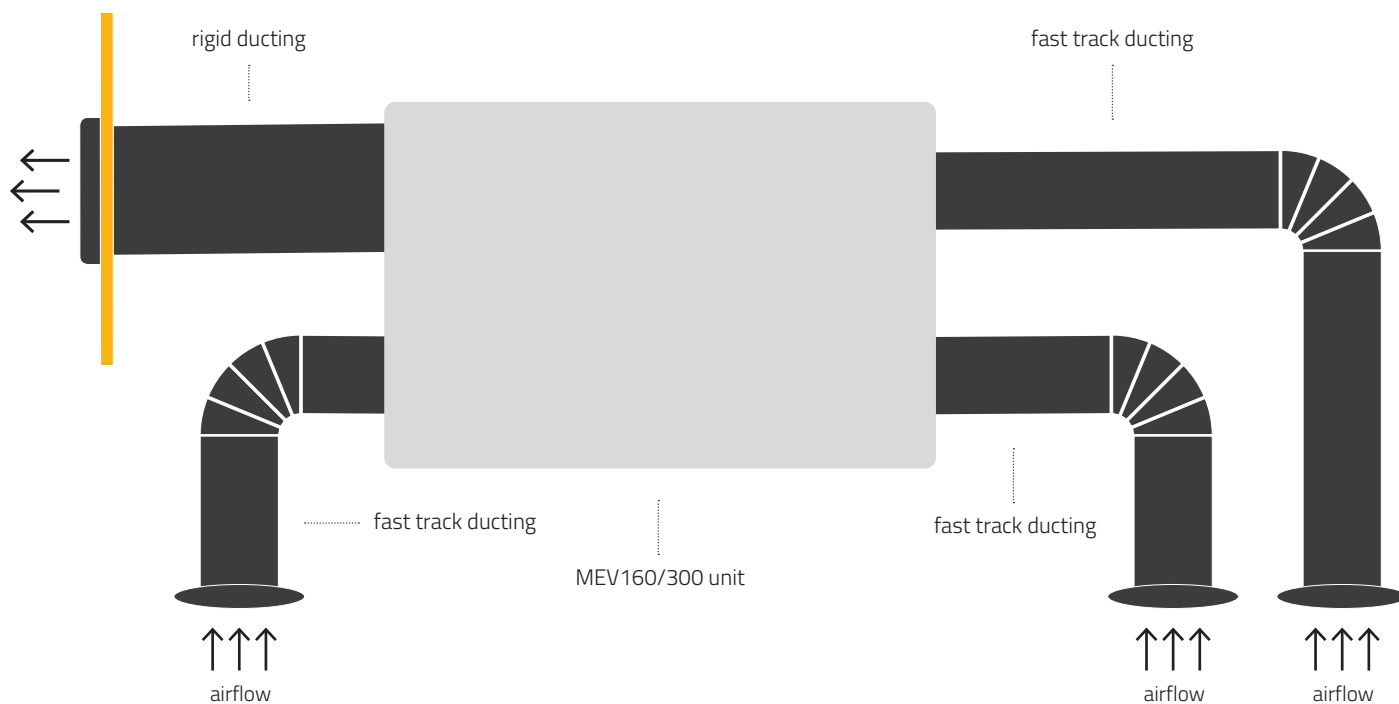
2.2 Centralised Mechanical Extract Ventilation



- Ducting should be insulated where it passes through unheated area and voids (e.g. loft spaces) with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming.
- NHBC Standards Section 8.3.5 requires that loft insulation be of at least 150mm with the thermal conductivity of the material being of 0.04 W/(m.K) .
- Self-seal connections should be used for connecting rigid duct and fittings to rigid duct.
- Flexible ducting needs to be pulled taught and lengths kept to a minimum.
- Flexible duct should only be used to connect ceiling valves and the MEV unit to rigid duct.
- Connections of flexible duct need a mechanical fix (tie wrap or clamp) and tape.
- Ensure flexible ducting is not distorted or squashed.
- Rigid ducting should be supported every meter or either side of a joint.
- Horizontal ducting should slope downwards away from the fan.
- Any deviation from designs need to be reported and checked by the manufacturer before installation.

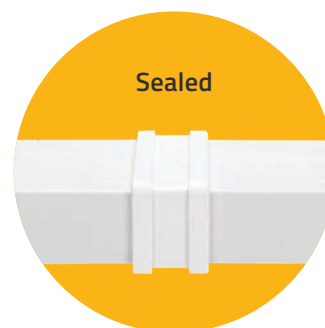
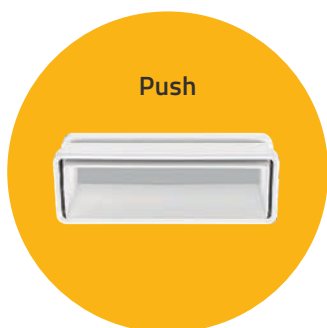
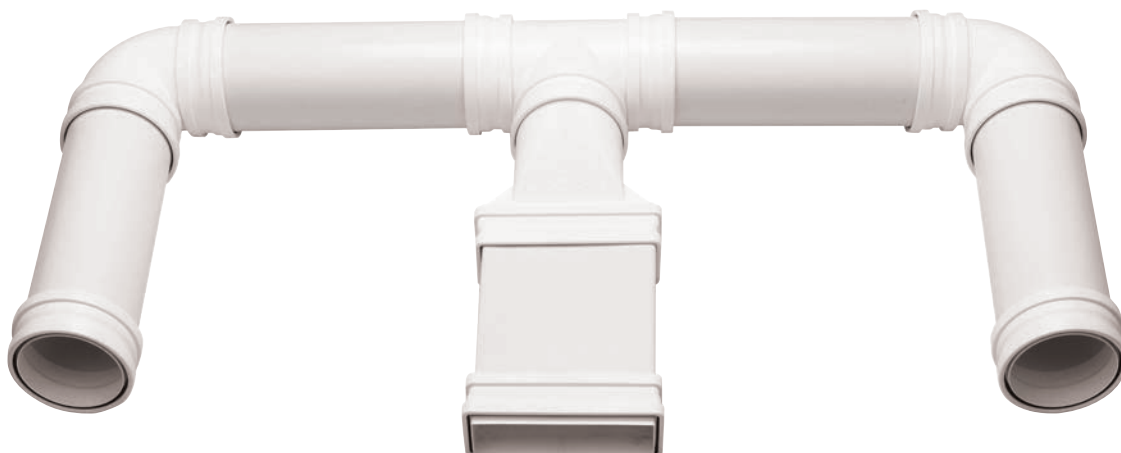
2 Continuous Mechanical Extract Fans (Centralised or De-Centralised)

2.3 Centralised Mechanical Extract Ventilation



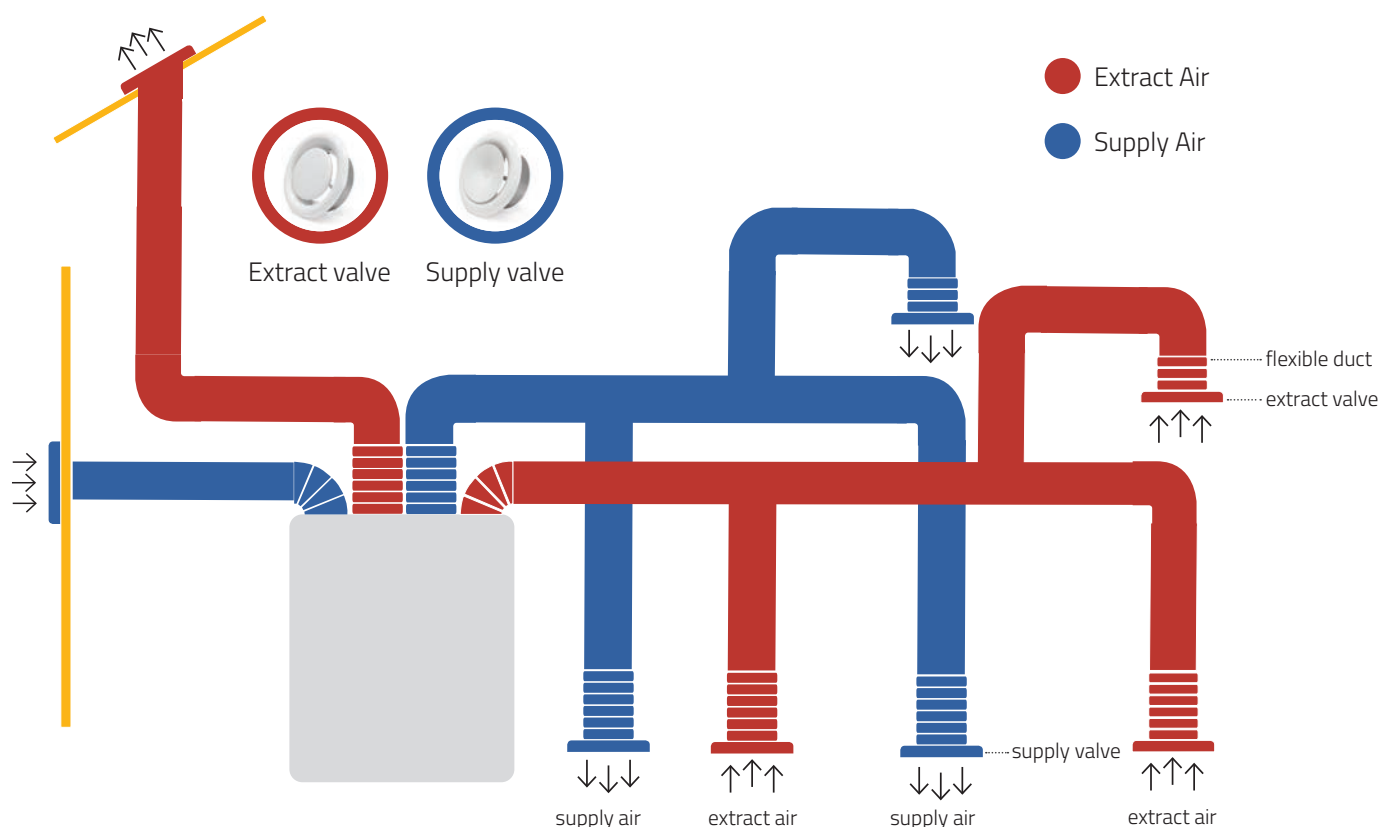
2 Continuous Mechanical Extract Fans (Centralised or De-Centralised)

2.4 Connections Of Rigid Duct Using Self Seal Connectors



3 Mechanical Ventilation with Heat Recovery

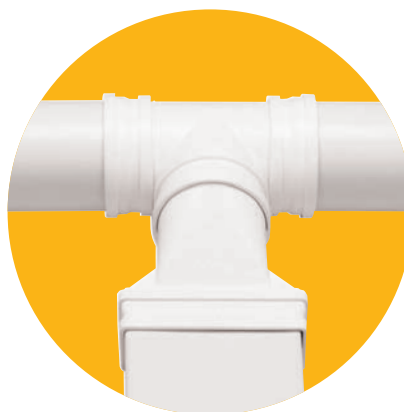
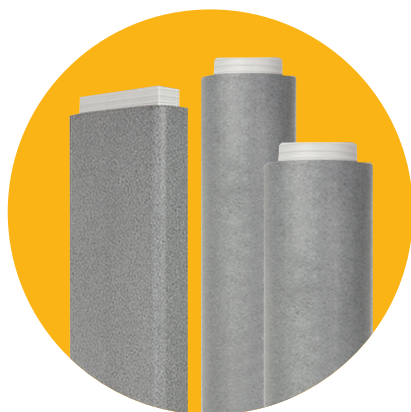
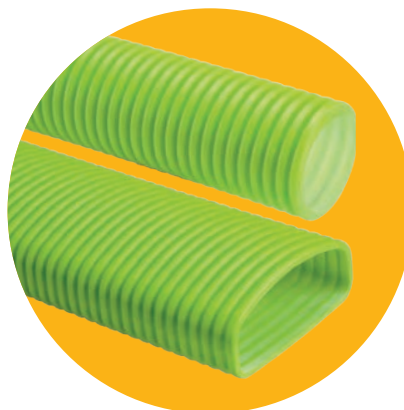
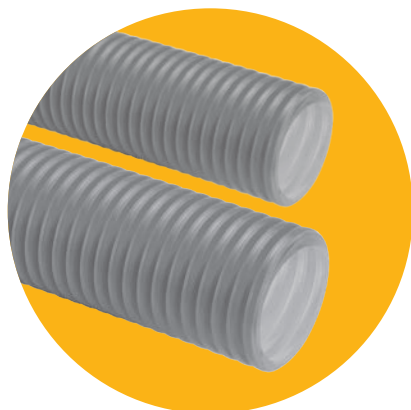
3.1 Trunk & Branch System



- Ducting should be insulated where it passes through unheated area and voids (e.g. loft spaces) with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming.
- NHBC Standards Section 8.3.5 requires that loft insulation be of at least 150mm with the thermal conductivity of the material being of 0.04 W/(m.K) .
- Ducting carrying air between the unit and atmosphere always need to be insulated, with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming. Acoustic flexible duct should not be used for this.
- Self-seal connections should be used for connecting rigid duct and fittings to rigid duct.
- Flexible ducting needs to be pulled taught and lengths kept to a minimum.
- Flexible duct should only be used to connect ceiling valves and the MVHR unit to rigid duct.
- Connections of flexible duct need a mechanical fix and tape. Ensure flexible ducting is not distorted or squashed.
- Rigid ducting should be supported every meter or either side of a joint.
- Horizontal ducting should slope downwards away from the fan.
- Use extract valves for extract rooms only.
- Use supply valves for supply rooms only.
- External supply and extract grills should have a separation on at least 1m, or as per the designs.
- Any deviation from designs need to be reported and checked by the manufacturer before installation.
- MVHR units require a condensate drain. A non-return valve needs to be fitted. The condensate must have a 5° fall and be terminated to an internal waste.

3 Mechanical Ventilation with Heat Recovery

3.2 Fast Track Systems



- Ducting should be insulated where it passes through unheated area and voids (e.g. loft spaces) with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming.
- NHBC Standards Section 8.3.5 requires that loft insulation be of at least 150mm with the thermal conductivity of the material being of 0.04 W/(m.K) .
- Distribution boxes within an unheated area will need to be wrapped in 25mm insulation.
- Ducting carrying air between the unit and atmosphere always need to be insulated, with the equivalent of at least 25mm of a material having a thermal conductivity of $<0.04 \text{ W/(m.K)}$ to reduce the possibility of condensation forming. Acoustic flexible duct should not be used for this.
- Ensure self-seal connections are made using seal ring and clip.
- Flexible ducting needs to be pulled taught and lengths kept to a minimum.
- Flexible duct should only be used to connect the MVHR unit to rigid duct or the distribution box. Connections of flexible duct need a mechanical fix and tape.
- Ensure flexible ducting is not distorted or squashed.
- Rigid ducting should be supported every meter or either side of a joint.
- EnviroVent Semi-Rigid (Fast Track) ducting should be supported at least every 2m.
- Horizontal ducting should slope downwards away from the fan.
- Use extract valves for extract rooms only.
- Use supply valves for supply rooms only.
- External supply and extract grills should have a separation on at least 1m, or as per the designs.
- Any deviation from designs need to be reported and checked by the manufacturer before installation.
- MVHR units require a condensate drain. A non-return valve needs to be fitted. The condensate must have a 5° fall and be terminated to an internal waste.

4 Commissioning & Airflow Measurements

4.1 Natural Ventilation with Background Ventilators & Intermittent Extract Fans

Commissioning should be completed for all systems and a commissioning certificate filled out for each individual property.

Commissioning should be done using 1 of the following methods:

A: Use a vane anemometer with proprietary hood calibrated annually by a UKAS accredited calibration centre to a tolerance of $\pm 5\%$.

B: Use a powered anemometer with proprietary hood calibrated annually by a UKAS accredited calibration centre to a tolerance of $\pm 5\%$. This method can be referred to as the preferred method.

- Ensure all intended background ventilators and other air transfer devices are open. These should be left open at all times.
- Ensure all internal doors and all windows are closed including the rooms where measurements are being carried out.
- Use an anemometer to measure the airflow of each individual fan, recording the measurements in l/s on the commissioning certificate. Use Approved document F table 1.1 (see below) or the designs to ensure the required airflow measurements are met



A: vane anemometer



B: powered anemometer

TABLE 1.1 - MINIMUM EXTRACT VENTILATION RATES FOR INTERMITTENT EXTRACT SYSTEMS

Room	Intermittent Extract Rate (l/s)
Kitchen (cooker hood extracting to the outside)	30
Kitchen (no cooker hood or cooker hood does not extract to the outside)	60
Utility Room	30
Bathroom	15
Sanitary Accommodation	6

Guidance BSRIA A Guide to Measuring Airflow rates 3rd Edition BG 46/2022 can be used for intermittent axial fans for a minimum bench mark (see table 3 below).

TABLE 3 - MINIMUM BENCHMARK METHOD

Fan Rating	Minimum Benchmark Performance
15 l/s	12 l/s
30 l/s	24 l/s
60 l/s	35 l/s

4 Commissioning & Airflow Measurements

4.2 Continuous Mechanical Extract Ventilation

- Ensure all intended background ventilators (if any) and other air transfer devices are open. These should be left open at all times.
- Ensure all internal doors and all windows are closed including the rooms where measurements are being carried out.

For individual room fans:

- Use an anemometer to firstly measure the airflow of each individual fan on the high speed (Boost), recording the measurements in l/s on the commissioning certificate. Then measure the airflow of each individual room fan on the low setting (Trickle). Check with airflow tables on the designs to ensure the required airflow measurements are met.
- Ensure all controls operate correctly.

For Centralised units:

The following guidance may be followed depending on the system fitted, also refer to manufactures instructions.

Adjustable terminals with a fixed (stepped) speed fan.

- The fan speed should be set to achieve the desired boost flow rate first.
- Open all terminals. The index terminal (the one furthest away) should be set to fully open.
- All other terminals are adjusted to the achieve the required flow rate.
- If the correct flow rates cannot be achieved at all terminals the fan speed should be increased.

- If all the terminals have been closed significantly then the fan speed should be reduced and the terminals rebalanced.
- Once the boost airflow rates have been achieved lock off the valves.
- For the trickle (Continuous low rate) measure the airflows and adjust the unit only to achieve the required flow rates. The valves should not be adjusted.

Adjustable terminals controllable speed fan.

- The fan speed should be set approximately to achieve the desired continuous flow rate. Open all the terminals ensuring the index terminal (the one furthest away) is set to fully open.
- All other terminals are adjusted to the achieve the required flow rate on boost.
- If the index terminal has to be closed to achieve the correct flow rates then reduce the fan speed and rebalance the terminals.
- Once the boost airflow rates have been achieved lock off the valves.
- For the trickle (Continuous low rate) measure the airflows and adjust the unit only to achieve the required flow rates. The valves should not be adjusted.
- Measure the power consumption of the unit and record on the commissioning certificate.
- Ensure all controls operate correctly.



4 Commissioning & Airflow Measurements

4.3 Mechanical Ventilation With Heat Recovery

Ensure all internal doors and all windows are closed including the rooms where measurements are being carried out.

Note: Background ventilators (trickle vents) are not required for MVHR systems.

Follow the guidance for centralised Mechanical Extract Ventilation units ensuring the below process for the order of commissioning is followed:

1. Extract Boost
2. Supply trickle
3. Supply Boost
4. Extract trickle

If the unit is a constant flow (constant volume) unit, follow the guidance below.

Adjustable terminals with a fixed volume flow fan.

- The fan speed should be set to achieve the desired high flow rate.
- Open all terminal ensuring the index terminal (the one furthest away) is set to fully open.
- All other terminals are adjusted to achieve the required flow rate.
- Adjustment of terminals achieves balancing only.
- The total flow rate is governed by the fan control setting.
- Care should be taken to ensure the terminals are not closed too much as this will only make the fan work harder as it maintains the constant volumetric flow rate.
- Set the airflow rate on the unit to the required low rate. The terminals shall not be adjusted.
- Record all airflows on the commissioning sheet.
- Once units are fully set up and commissioned ensure all controls operate correctly and record the power consumption.

