



# MEV-B

## Continuous Mechanical Extract Ventilation Units

### Installation and Maintenance

#### Introduction

Nuaire's MEV-B and MEV-2B surface mounted domestic extract fans are designed to be installed in the main area to be served.

Other adjoining rooms can be linked to the unit by rectangular pvc ducting (by others) and ventilated. A typical installation would be in a domestic kitchen with secondary ventilation to toilet(s), utility room(s) and bathroom(s) etc.

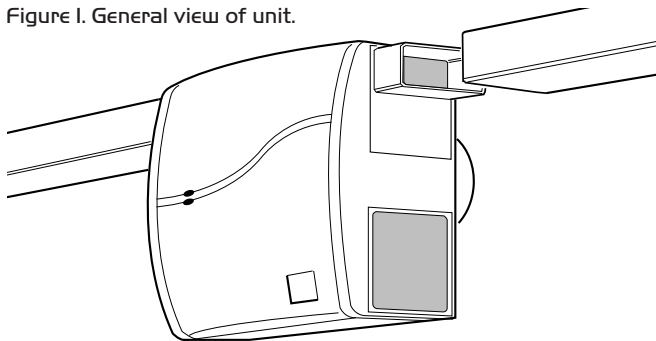
The unit is available in single and twin fan models coded B and 2B respectively.

The fans discharge air through a 125mm. dia. spigot on the rear face. Inlet is through filters located on the either side of the unit and/or filters in the remote grilles which can easily be removed for cleaning. Also provided are two subsidiary inlet spigots which are interchangeable with the inlet grilles in the unit and a choice of balancing plates which can be introduced under any of the inlet filters to adjust the airflow from each source.

Fig. 1 shows the subsidiary spigots fitted either side.

Two indicator LEDs are provided on the front cover to show fan status, GREEN for 'Normal / Boost' and RED for 'Fail'.

Figure 1. General view of unit.



The fan is designed to be wired direct to the mains supply through a fused spur isolator (by others) and run continuously in the NORMAL mode (which is the low speed or trickle ventilation setting). The degree of extract from each room served can be adjusted with the inlet grille balancing plates supplied. (See page 2).

The unit is provided with adjustment for the trickle (low speed or NORMAL) and high speed BOOST ventilation as standard. The NORMAL speed adjustment has a range of 0% to 50%. The unit is delivered with the NORMAL speed adjustment set to 0%. **Note: the NORMAL speed must be set to 25% by the installer.**

An adjustment of 50 -100% is provided for the BOOST duty setting to reduce performance if necessary.

The unit is delivered with the BOOST speed adjustment set to 100%. (See the adjustments information on page 4).

#### Coding

**MEV-B** Single fan unit.

**MEV-2B** Twin fan unit (with auto duty sharing and standby).

**MEV-B+** Dual fan unit (both fans continuous running).

#### Duty

Units are available with one or two fans and with the following free air duty:

##### 100 l/s (MEV-B & MEV-2B).

The MEV-B has a single fan and extracts 100 l/s.

The MEV-2B has two fans and extracts 100 l/s. The unit will switch to the 'standby' fan in the event of a fan failure.

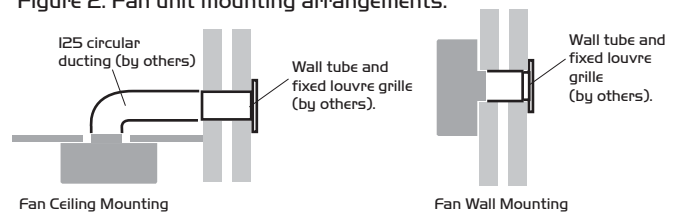
##### 150 l/s (MEV-B+).

The MEV-B+ has two fans which run continuously and deliver 150 l/s. In the event that one fan fails, the other will still deliver 100 litres as a single fan until the unit is serviced.

#### Typical mounting arrangements

The unit is designed for surface mounting onto a wall or ceiling.

Figure 2. Fan unit mounting arrangements.



Suggested layout arrangements with the fan serving multiple rooms are shown on page 3.

#### Installation

##### IMPORTANT

The installation must be carried out by competent personnel in accordance with the appropriate authority and conforming to all statutory and governing regulations, ie IEE, COHSE, HVCA etc.

Select a solid, non reverberant, mounting position (min. 50mm clearance from any sidewall and min. 50mm from ceiling for access to the top cover screw). The unit should be fitted with its filters and any chosen inlet spigots. All necessary passages for ductwork from the rear outlet and any inlet spigots as well as the electrical connections for the main unit and the remote switch, should be prepared.

It is assumed that compatible ductwork has been installed and ready to be connected to the 125mm dia rear outlet (and any rectangular inlet spigot if fitted) of the unit.

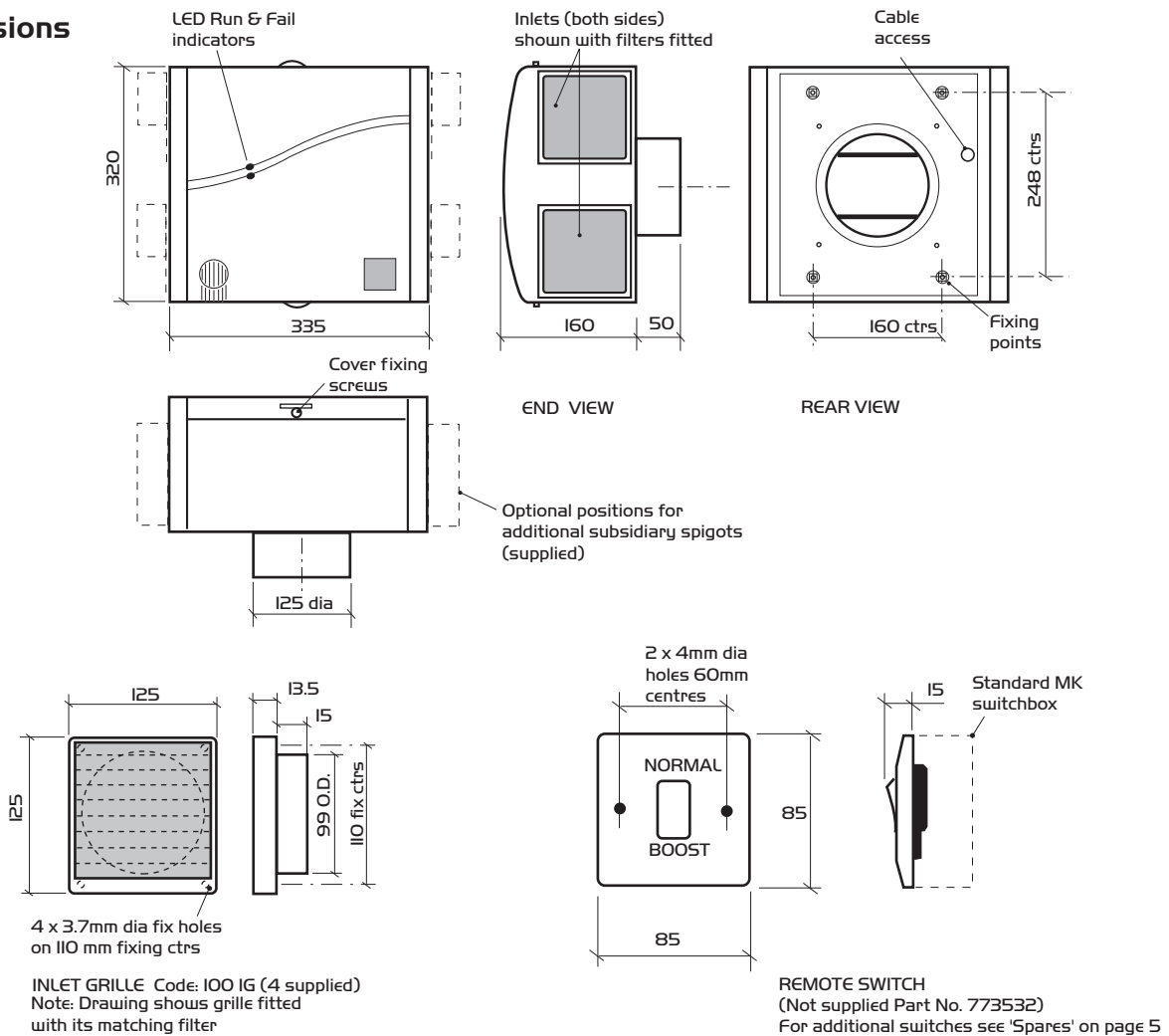
**Note the unit is not fitted with a backdraught shutter. In continuous operation a backdraught shutter is not required.**

##### IMPORTANT

Isolation - Before commencing work make sure that the unit is electrically isolated from the mains supply. **Note: internal input socket will be exposed and may be live with the fan module removed. See isolation notes.**

## Dimensions

Figure 3.



Remove the unit cover, retained by two M4 screws (see fig 3). Pull out the electronic control module approx. 15mm to disengage the electrical spade contacts (see figure 5).

**Note the unit control module speed adjustment on the control module (figure 7) must be set at 25% for low (NORMAL) speed.**

The standard setting as supplied from the factory for high BOOST speed is 100% and will give the optimum performance for most applications. See 'Adjusting the NORMAL and BOOST speeds'.

Unscrew the four, M5 x 35 captive blower retaining screws. Remove the blower assembly complete with the electronic control module (see figure 6).

Mark the four main unit fixing positions on the mounting surface. Drill and plug the surface to accept the unit fixings (the fixing centres are shown in figure 6).

**NOTE: For wall mounting ensure that the cable access is on the left (as shown in the drawing).**

Select a suitable location for the remote switch supplied. Prepare the mounting surface to accept the standard MK switch box and arrange the box in position. Wire the switch to the fan terminals 3 and 1 (these are low voltage terminals).

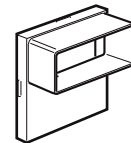
Offer the unit up to the surface and bring the mains wiring and remote switch wiring through the cable entry grommet provided in the back of the unit casing.

Connect the ductwork to the outlet spigot and fix the unit to the surface. Any subsidiary inlet ductwork can now be connected to the unit.

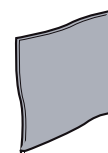
## Fitting a subsidiary inlet spigot

The subsidiary inlet spigots supplied will replace any of the four standard unit inlets. (See Figure 1).

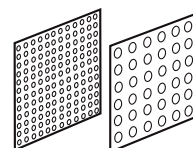
Select the inlet position required. With the front cover removed, press out the standard inlet grille. Locate the inlet spigot supplied into the aperture and press into position.



SUBSIDIARY INLET SPIGOT  
(Two supplied) To suit 110 x 60mm rectangular ducting (not supplied)

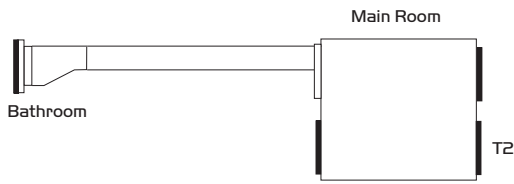


FILTERS (4 supplied)  
Note: suitable for remote inlet grilles or fan unit inlet grille

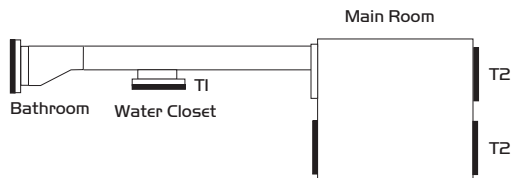


T1 T2  
BALANCING PLATES  
(4 x T1 and 4 x T2 supplied)  
Note: can be used under any inlet spigot filter

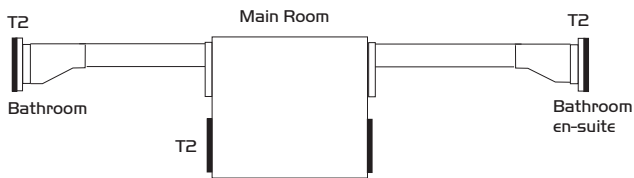
### Application arrangements using balancing plates supplied



T2 balancing plate fitted behind filter in one fan unit grille



T2 balancing plates fitted behind two filters in one fan unit grille. T1 balancing plate fitted behind filter in separate water closet



Main room and two bathrooms

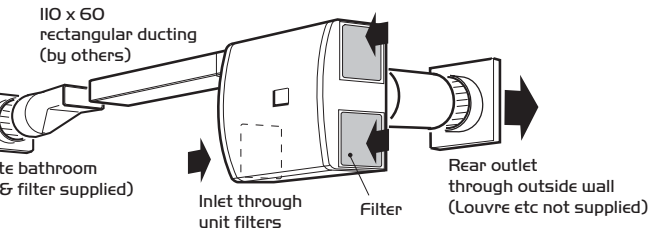


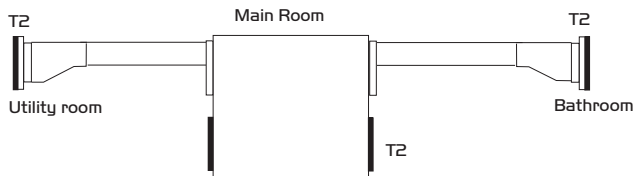
Figure 4. Basic layout serving main room plus an en-suite bathroom.

### Ducting lengths and bends

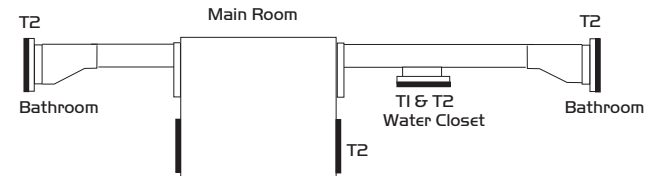
These should be kept to a minimum. Do not use flexible ducting. Do not use more than four 90° bends in any system.



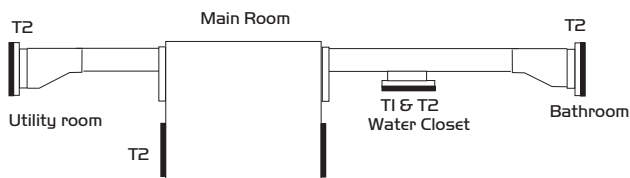
Main room with two bathrooms



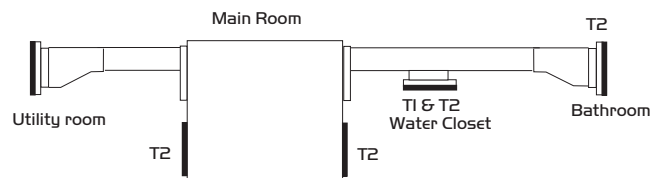
Main room with utility room and bathroom



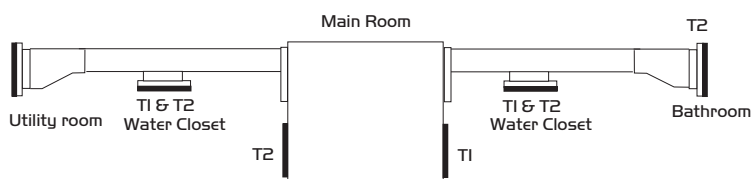
Main room and two bathrooms and water closet



Main room with additional utility room, en-suite bathroom and water closet



Main room with utility room, bathroom and water closet note alternative position of balancing plates



Main room with utility room, bathroom and two water closets note positioning of balancing plates

## Electrical connection

### IMPORTANT

Please ensure the unit is isolated before removing the cover.

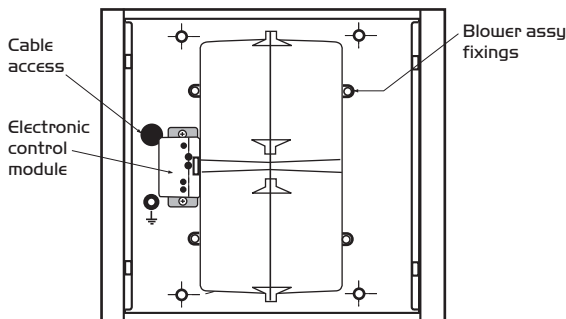
Note that the mains wiring for the unit **MUST** be from a fixed wiring installation.

The fan is designed to be wired direct to the mains supply through a fused spur isolator (by others).

It may be found easier to remove the terminal block and filter grilles and any inlet spigots from the case to wire in the unit (See figure 6).

**NB. The earth wire MUST be connected to the Earth post provided next to the block. (Figure 6). No earth is required to the terminal block.**

Figure 5. Internal view showing blowers and electronic module.



Refer to the electrical wiring diagram on page 5 when connecting the unit. When the wiring is completed the unit can be re-assembled as follows:

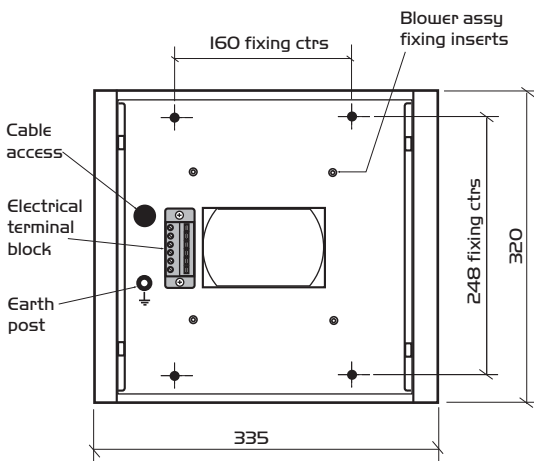
The blower assembly complete with the electronic control module can now be offered into the case. Push the module down to locate the spade terminals into the block before fixing the blowers to the back of the case. (Figure 5).

**Note: Do NOT overtighten the blower retaining screws as the fixing lugs may break if excessive force is used.**

**Warning: Before fitting the front cover ensure that the LEDs on the module correctly align with the two small holes in the cover.**

Refit any inlet grilles/spigots and ducting that was removed. Test / Run the unit.

Figure 6. Internal view showing terminal block etc.



## Adjusting the Full Speed (boost)

All the control functions and adjustments are located on the Electronic Control Module.

The 'Full Speed' adjustment is located on the Electronic Control Module (see figure 7). The adjustment range is 50 - 100% speed. Set to 100% for optimum performance.

**Note the screw adjustment is pre-set at the factory to full speed (100%).**

The performance of the unit can be reduced if required by rotating the screw anti-clockwise. (Fully anti-clockwise will give 50% of the available duty).

## Adjusting the Low Speed (normal) trickle ventilation

The 'Low Speed' adjustment (used for trickle ventilation) is located on the Electronic Control Module (see figure 7).

The adjustment range is 0 - 50% speed. **Note the screw adjustment is preset at the factory to zero and MUST BE SET TO 25%.**

The remote switch connection must be made in order to use the 'BOOST' facility. The switch terminals are numbered 3 and 1 on the terminal block. (See wiring diagram).

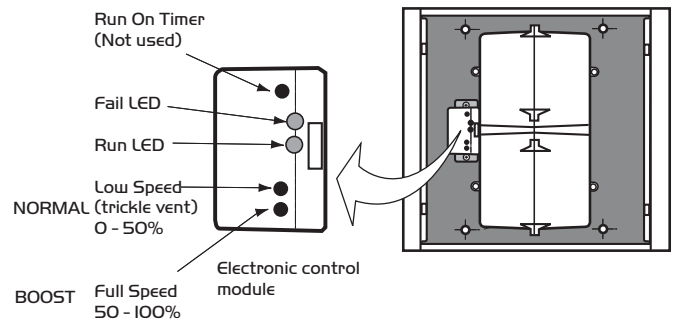
**Note: connection of a voltage source to these terminals will damage the control module.**

## Run On Timer (not used)

A Run On Timer adjustment is also located on the Electronic Control Module. Its function is not required for this unit.

**Note the unit is delivered with the run on timer screw set to zero. The run on facility is not required in these applications and should be left set at zero.**

Figure 7. Control adjustments on electronic module.



## Electrical Data

	Unit power consumption (watts) @ full speed	Full load current (amps).
MEVB	100 watts	MEV-B 0.39 amps
MEV-2B	100watts	MEV-2B 0.39 amps
MEV-B+	200watts	MEV-B+ 0.78 amps

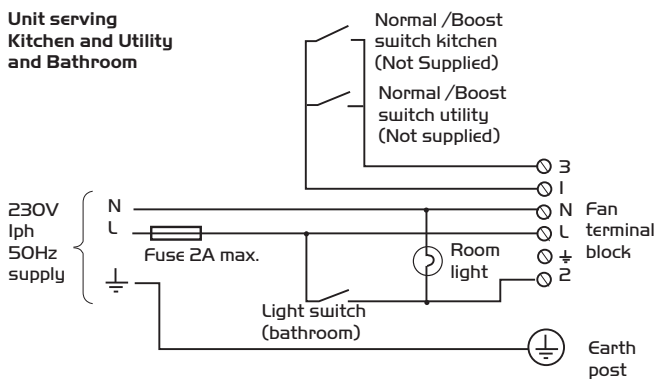
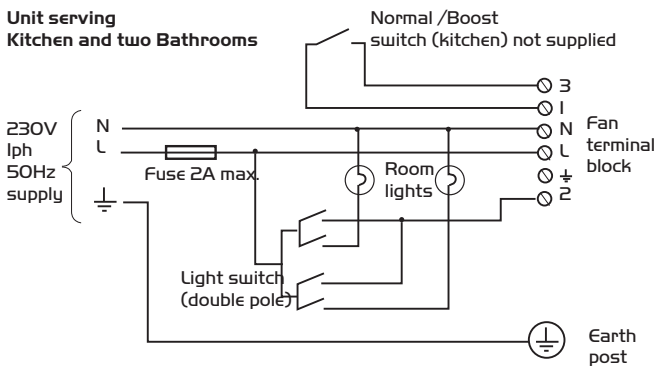
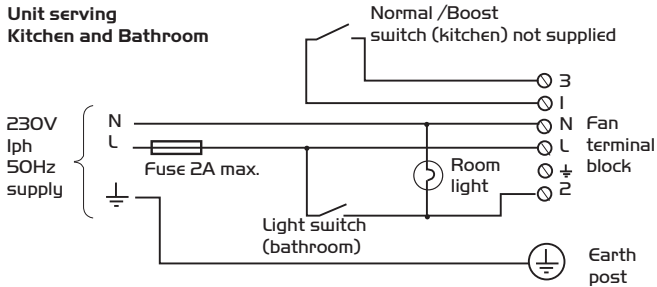
## Unit Wiring

Full speed operation with trickle ventilation (figure 8)

Wiring for full speed operation with trickle ventilation.

**Note:** Trickle vent (NORMAL) adjustment screw on Electronic Control Module must be set to a minimum of 25% and full speed (BOOST) set to 100%.

Figure 8. Wiring for various unit applications.



### IMPORTANT

Please ensure the unit is isolated before removing the cover.

## Spares

### MEV single and twin fans

ITEM	PART No.
Foam Filter	772275
Remote Switch	773532

### ELECTRONIC CONTROL MODULE

Single fan MEV-B	772270
Twinfan MEV-2B	772271

### BLOWER ASSEMBLIES

MEV-B single fan units	772273
MEV-2B twin fan units	772274

### IMPORTANT

Unit must not be switched off, product is designed to run continuously.

## Maintenance

### General

**Note:** Installation and maintenance of the equipment must be as directed in the instructions provided with the unit.

It is inevitable that some dust, fluff etc. will pass through the filter, and which, if allowed, will build up internally on motors and impellers, shortening the life of the unit and, in severe cases, leading to overheating of the motors.

Consequently, it is strongly recommended that all units are inspected and cleaned every six months. To clean the filter, remove from the unit and wash in tepid water to which a little mild detergent has been added. Shake out excess water and allow to dry naturally. Replace when dry.

### Isolation

Ensure that the unit is totally isolated from the electrical supply. This is particularly important when dealing with a run-on circuit as input socket terminals within these units remain live, even when the room light or other actuating switch is off. Take care therefore when working within the case with the fan module removed.

### Procedure for inspection and cleaning

At all times, take care not to damage, distort or disturb the balance of the impellers. Remove the cover and lift up the electronic module to disconnect the spade terminals. Remove the electronic module complete with the fan module after releasing the four fan module retaining screws. Inspect all parts. With a brush or dry cloth clean the backplate. Lightly brush away dust and dirt from the fan module. If stubborn debris persists, carefully remove with a suitable blade or scraper. Wash the cover in warm soapy water. Dry thoroughly. Refit the fan module and electronic module followed by the cover. Test/run.

## Replacement of Parts

Should any component need replacing Nuair keep extensive stocks for quick delivery. Ensure that the unit is electrically isolated, before carrying out any work.

When ordering spare parts, please quote the serial number of the unit and the ARC number of the purchase if possible. (This information will be available on the fan label).

## 3 Year Warranty

The 3 year warranty starts from the day of delivery and includes parts and labour for the first year.

The remaining 2 years covers replacement parts only.

This warranty is conditional on planned maintenance being undertaken.

## Service Enquiries

Nuair can assist you in all aspects of service. Our service department will be happy to provide any assistance required, initially by telephone and if necessary arrange for an engineer to call within 48 hours if possible.

**Technical Support**  
**029 2085 8400**



## DECLARATION OF INCORPORATION AND INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE

We declare that the machinery named below is intended to be assembled with other components to constitute a system of machinery. All parts except for moving parts requiring the correct installation of safety guards comply with the essential requirements of the Machinery Directive. The machinery shall not be put into service until the system has been declared to be in conformity with the provisions of the EC Machinery Directive.

**Designation of machinery:** MEV-B  
**Machinery Types:** Continuous Extract Ventilation Unit  
**Relevant EC Council Directives:** 2006/42/EC (Machinery Directive)  
**Applied Harmonised Standards:** BS EN ISO 12100-1, BS EN ISO 12100-2, EN60204-1, BS EN ISO 9001, BS EN ISO 13857  
**Applied National Standards:** BS848 Parts 1, 2.2 and 5

Note: All standards used were current and valid at the date of signature.

**Signature of manufacture representatives:**

Name:	Position:	Date:
1) C. Biggs 	Technical Director	8. 07. 11
2) A. Jones 	Manufacturing Director	8. 07. 11

## INFORMATION FOR SAFE INSTALLATION, OPERATION AND MAINTENANCE OF NUAIRE VENTILATION EQUIPMENT

To comply with EC Council Directives 98/37/EC Machinery Directive and 2004/108/EC (EMC).

To be read in conjunction with the relevant Product Documentation (see 2.1)

### 1.0 GENERAL

- 1.1 The equipment referred to in this Declaration of Incorporation is supplied by Nuairé to be assembled into a ventilation system which may or may not include additional components.  
 The entire system must be considered for safety purposes and it is the responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with due regard to current legislation and codes of practice.

### 2.0 INFORMATION SUPPLIED WITH THE EQUIPMENT

- 2.1 Each item of equipment is supplied with a set of documentation which provides the information required for the safe installation and maintenance of the equipment. This may be in the form of a Data sheet and/or Installation and Maintenance instruction.  
 2.2 Each unit has a rating plate attached to its outer casing. The rating plate provides essential data relating to the equipment such as serial number, unit code and electrical data. Any further data that may be required will be found in the documentation. If any item is unclear or more information is required, contact Nuairé.  
 2.3 Where warning labels or notices are attached to the unit the instructions given must be adhered to.

### 3.0 TRANSPORTATION, HANDLING AND STORAGE

- 3.1 Care must be taken at all times to prevent damage to the equipment. Note that shock to the unit may result in the balance of the impeller being affected.  
 3.2 When handling the equipment, care should be taken with corners and edges and that the weight distribution within the unit is considered. Lifting gear such as slings or ropes must be arranged so as not to bear on the casing.  
 3.3 Equipment stored on site prior to installation should be protected from the weather and steps taken to prevent ingress of contaminants.

### 4.0 OPERATIONAL LIMITS

- 4.1 It is important that the specified operational limits for the equipment are adhered to e.g. operational air temperature, air borne contaminants and unit orientation.  
 4.2 Where installation accessories are supplied with the specified equipment e.g. wall mounting brackets. They are to be used to support the equipment only. Other system components must have separate provision for support.  
 4.3 Flanges and connection spigots are provided for the purpose of joining to duct work systems. They must not be used to support the ductwork.

### 5.0 INSTALLATION REQUIREMENTS

In addition to the particular requirements given for the individual product, the following general requirements should be noted.

- 5.1 Where access to any part of equipment which moves, or can become electrically live are not prevented by the equipment panels or by fixed installation detail (eg ducting), then guarding to the appropriate standard must be fitted.  
 5.2 The electrical installation of the equipment must comply with the requirements of the relevant local electrical safety regulations.  
 5.3 For EMC all control and sensor cables should not be placed within 50mm or on the same metal cable tray as 230V switched live, lighting or power cables and any cables not intended for use with this product.

### 6.0 COMMISSIONING REQUIREMENTS

- 6.1 General pre-commissioning checks relevant to safe operation consist of the following:  
 Ensure that no foreign bodies are present within the fan or casing.  
 Check electrical safety. e.g. Insulation and earthing.  
 Check guarding of system.  
 Check operation of Isolators/Controls.  
 Check fastenings for security.  
 6.2 Other commissioning requirements are given in the relevant product documentation.

### 7.0 OPERATIONAL REQUIREMENTS

- 7.1 Equipment access panels must be in place at all times during operation of the unit, and must be secured with the original fastenings.  
 7.2 If failure of the equipment occurs or is suspected then it should be taken out of service until a competent person can effect repair or examination. (Note that certain ranges of equipment are designed to detect and compensate for fan failure).

### 8.0 MAINTENANCE REQUIREMENTS

- 8.1 Specific maintenance requirements are given in the relevant product documentation.  
 8.2 It is important that the correct tools are used for the various tasks required.  
 8.3 If the access panels are to be removed for any reason the electrical supply to the unit must be isolated.  
 8.4 A minimum period of two minutes should be allowed after electrical disconnection before access panels are removed. This will allow the impeller to come to rest.  
**NB: Care should still be taken however since airflow generated at some other point in the system can cause the impeller to "windmill" even when power is not present.**  
 8.5 Care should be taken when removing and storing access panels in windy conditions.

Technical or commercial considerations may, from time to time, make it necessary to alter the design, performance and dimensions of equipment and the right is reserved to make such changes without prior notice.

# Installation Guide and Checklist

## Decentralised Continuous Mechanical Extract Ventilation

(Version – 11 February 2011)

The Electric Heating and Ventilation Association have developed this guidance and checklist document in partnership with the Residential Ventilation Association (a HEVAC association), BRE and EST.

NOTE: This guide and checklist has been superseded for dwellings assessed under 'The Building Regulations 2010', specifically SAP 2009 and Approved Documents L and F. Completion of this document is therefore only required for dwellings assessed by SAP 2005.

Customer Details
Customer Name:
Address:
Telephone Number:
Date of Installation:
Name of Lead Contractor:
Design Project Number:

It should be noted that this guidance is not intended to replace product manufacturer installation instructions; it is a generic addition which defines good practice. Installers are advised to complete this form for each installation and keep a copy to provide to Building Control Officers in case requested.

## Introduction

This document is to be used in support of the SAP Appendix Q scheme which provides tested performance values for De-centralised MEV products.

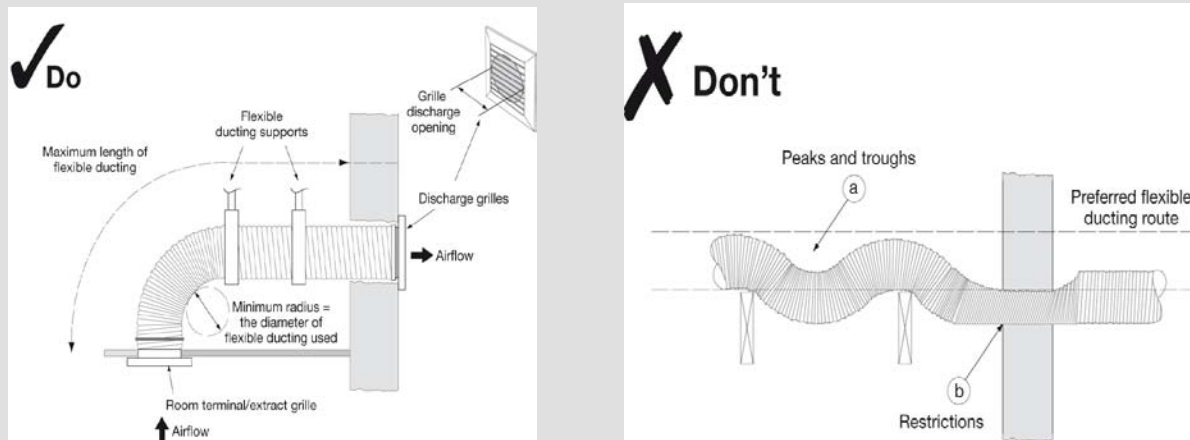
*Note that all checklist items must be answered YES in order for the SAP Appendix Q test figures to be used in 'As built' SAP calculations. If any checklist items are answered NO then SAP default figures must be used. Systems must be designed by a manufacturer designer and sized correctly to qualify for SAP Appendix Q figures.*

## SECTION 1: INSTALLATION GUIDANCE

1. Ductwork Installation	Decision Yes, No or N/A
<p>Have the ducts been installed with as little air resistance and leakages as possible (flexible ducts should be avoided)?</p> <p>Note: Refer to HVCA DW/143 document 'A Practical Guide to Ductwork Leakage Testing' for detailed guidance on air tightness. Rigid plastic ducting is recommended and flexible duct should only be used in very short lengths and mainly just to connect the ductwork to the units/diffusers or to overcome particular obstructions.</p>	
<p>If flexible ducting has been used, has it been pulled taut to minimise system resistance?</p>	
<p>Has the number of duct bends been minimised to ensure adequate air flow and least resistance? Bends should have a minimum radius at least the same as the diameter of the ducting used?</p> <p>Refer to Figure 1 if using flexible ducting</p>	
<p>Have the fans and ducting placed in unheated voids been insulated to reduce the possibility of condensation forming (see notes below)?</p> <p>Note: Ducts should be insulated with the equivalent of at least 25mm of insulating material with a thermal conductivity of 0.04W/mK. Where a duct rises vertically it may be necessary to fit a condensation trap in order to prevent backflow of any moisture in the product. Insulation should be applied to both warm and cold air ducts. Cold air ducts should be wrapped additionally with a vapour barrier outside the insulation. Ducts with cold air running in warm environments will condense on the outside of the duct.</p>	
<p>Have recommended duct jointing collars and components been used to ensure appropriate duct performance (duct runs should be as air tight as possible)?</p> <p>Note: All the joints should be sealed correctly either using duct tape or silicon.</p>	



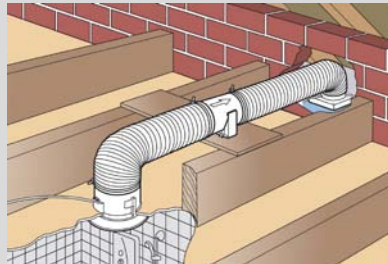
**Figure 1 Ductwork Visual Guide**



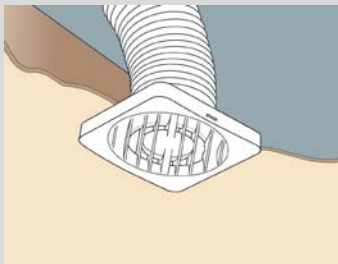
Source: Approved Document F (England & Wales) 2006

2. Unit Fixing	Decision Yes, No or N/A
Have the fans been fitted to a stable element of the building fabric (e.g. wall, ceiling or joist) using manufacturer recommended/supplied fixing instructions?	
Have all the fans been mounted and installed inline with the IEE wiring regulations?	
Has the unit been installed in a position that will permit access for maintenance purposes?	
Have all grilles or ductwork that penetrate the building's air barrier, as identified in the construction drawings, been sealed to ensure continuity of the air barrier?	
Have the grilles within the rooms been installed with a visible identification that they are SAP Appendix Q listed products  Note: This may either be on the cover itself or behind a cover that can be opened without special tools	

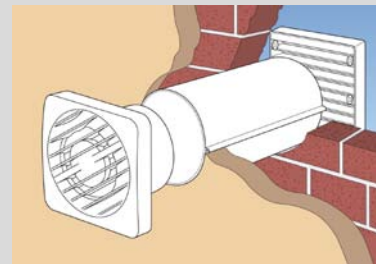
**Figure 2 Sample Mounting Position**



**Induct**



**In room**



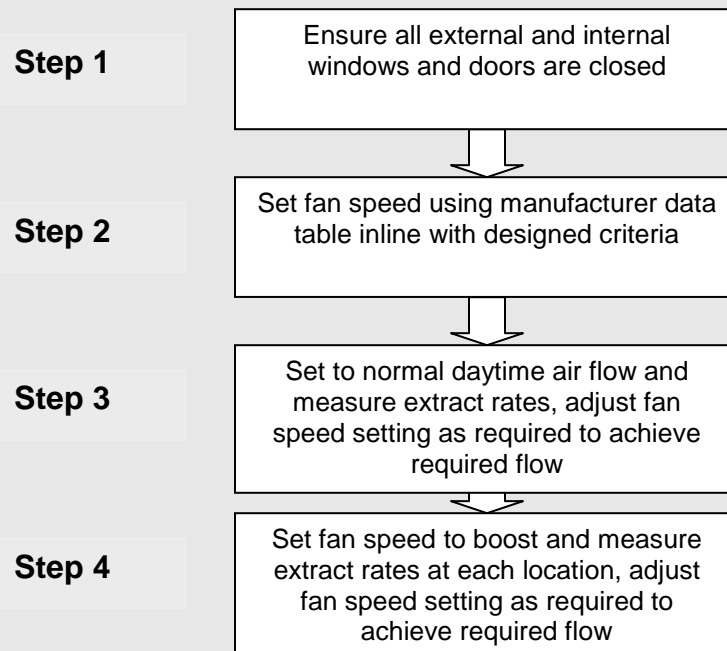
**Through Wall**

3. Electrical Connection	Decision Yes, No or N/A
Has the rating label been verified to establish suitability for the installation strategy and whether an earth is required (e.g. voltage, class I or II product status)?	
Has a local isolator been provided to enable the unit to be isolated for maintenance purposes?	
Has the unit been fused in accordance with its power rating?	

**SECTION 2: COMMISSIONING GUIDANCE**

1. System Balancing & Calibration	Decision Yes, No or N/A
<p>Has the air flow been checked using a proprietary device such as an anemometer (recommended)?</p> <p>Note: the need for background ventilators will depend on the air permeability of the dwelling, and this is not normally known at the design stage. Therefore, as a precaution, it is recommended that controllable background ventilators having a minimum equivalent area of 2,500mm<sup>2</sup> are fitted in each room, except wet rooms from which air is extracted. Where this approach causes difficulties (e.g. on a noisy site) seek expert advice</p>	
<p>Have the fan speeds been set following a defined process?</p> <p>Refer to figure 3 flow diagram</p>	

**Figure 3**



<b>2. Handover and Control/Maintenance Advice</b>	<b>Decision</b> Yes, No or N/A
Has the customer been supplied with suitable documentation detailing maintenance and operational requirements?	
Has the customer been advised not to seal natural air flows from room to room (e.g. avoid door seals and thick pile carpets)	
Has the customer been advised not to alter settings post-commissioning?	