

DOMESTIC VENTILATION CHECKLIST

Competent persons SAP Declaration

Version 1, December 2011

Inspection checklist and air flow measurement test sheet

This inspection checklist and air flow measurement test sheet is divided into three parts:

- **Part 1 (p3)** is for recording the particulars of the system, the installation address and the installer's details.
- **Part 2a (p4)** functions as an installation checklist.
- **Part 2b (p5)** is for recording the results of a visual inspection of the installation, and also acts as a pre-test checklist.
- **Part 3 (p6-8)** is the approved manner for recording the results of mandatory air flow tests on both intermittent and continuous mechanical ventilation systems in new dwellings, and is the sheet that must be given to the building control body (BCB).

The three parts should be completed in full, and a copy should form part of the Operation and Maintenance manual.

Checking design against measured air flow rates

For Systems 1, 3 and 4, the measured air flow rates should be recorded on Part 3: Air flow measurement test details, as part of the testing and commissioning procedures given in Tables 2, 6 and 8. The measured values will need to be compared with their respective design values. Compliance with the design will be met if the measured air flow rates for each are equal to, or greater than the design value. If any measured value is less than the design value, adjustment should be made to correct the system and all air flows re-measured until they meet the design values. If it is not possible to make adjustment to increase the air flow rate then a note to this effect should be made on the sheet. This may require the person with overall responsibility for the system to carry out remedial works to rectify the cause of the under-performance. The system will need to be re-tested to confirm that the design values have been met.

Instrument calibration

Measurement of air flows should be performed using equipment that has been calibrated at a UKAS calibration centre. Calibration should be performed annually for each air flow measurement device used to record final air flow rates in Part 3.

Demonstrating compliance

All three parts of the checklist and test sheet should be completed, with the relevant Parts 2 and 3 signed by a person who is responsible for the inspection and testing of the system that has been installed.

The three part form needs to be completed for each installation address and submitted to the SAP assessor. As a minimum, a copy of Part 3 should be submitted to the BCB and the manufacturer as evidence the installation has been correctly tested and commissioned (as relevant to the system installed).

Part 1 - System details and declarations

| 1.1 Installation Address Details | | |
|----------------------------------|--|--|
| Dwelling name/number | | |
| Street | | |
| Locality | | |
| Town | | |
| County | | |
| Post Code | | |

| 1.2 Installation Details | | | | | | |
|--|---|-------------|--|----------------|--|--|
| System classification* as defined by Approved Document F 2010 | | Tick | | | | |
| | 1. Background ventilation and intermittent extract fans | | | | | |
| | 2. Passive stack ventilation | | | | | |
| | 3. Continuous mechanical extract: <table border="0" style="margin-left: 20px;"> <tr> <td>Centralised</td> <td></td> </tr> <tr> <td>De-centralised</td> <td></td> </tr> </table> | Centralised | | De-centralised | | |
| | Centralised | | | | | |
| De-centralised | | | | | | |
| 4. Continuous mechanical supply and extract ventilation with heat recovery | | | | | | |
| Brand | | | | | | |
| Model and Model Qualifier | | | | | | |
| Serial number (where available) | | | | | | |
| Location of fan units | 1 | | | | | |
| | 2 | | | | | |
| | 3 | | | | | |
| | 4 | | | | | |
| | 5 | | | | | |

*Note. If a system has been installed that/not defined by Systems 1 to 4 in Approved Document F, further installation checks and commissioning procedures may be required. Seek particular guidance from the manufacturer for these systems.

Part 2a - Installation details

| 2.1 Installation Checklist - General (all systems) | | |
|--|-----|----------------|
| Has the system been installed in accordance with manufacturer's requirements? | Yes | No |
| Have relevant system installation clauses been followed as detailed in Tables 1, 3, 5, and 7 as applicable? | Yes | No |
| Type of ductwork installed (e.g. rigid, semi-rigid) | | |
| If any deviation from Tables 1, 3, 5 and 7, these should be detailed here. | | |
| Description of installed controls (e.g. timer, central control, humidistat, PIR, etc) | | |
| Location of manual/override controls | | |
| 2.2 Installation Engineer's Details | | |
| Name | | |
| Company | | |
| Address Line 1 | | |
| Address Line 2 | | |
| Telephone Number | | |
| Post Code | | |
| Signature | | |
| Competent Person Scheme/ Registration Number (if applicable) | | |
| Date of Installation (completion) | | |
| 2.3a Visual Inspections - General (all Systems) | | |
| Total installed equivalent area of background ventilators in dwelling? | | mm |
| Total floor area of dwelling? | | m ² |
| Does the total installed equivalent ventilator area meet the requirements given in Tables 5.2a, 5.2b, or 5.2c in ADF? | Yes | No |
| Have all background ventilators been left in the open position? | Yes | No |
| Have the correct number and location of extract fans/terminals been installed that satisfy Table 5.2a in ADF? | Yes | No |
| Is the installation complete with no obvious defects present? | Yes | No |
| Do all internal doors have sufficient undercut to allow air transfer between rooms (i.e. 10 mm over and above final floor finish)? | Yes | No |

Part 2b - Inspection of installation

| | | |
|---|------------|-----------|
| Has all protection/packaging been removed (including from 1 background ventilators) such that system is fully functional? | Yes | No |
| For ducted systems, has the ductwork installation been installed in such manner that air resistance and leakage is kept to a minimum? | Yes | No |
| Are the correct number and size of background ventilators provided that satisfy ADF? | Yes | No |
| Has the entire system been installed such that there is sufficient access for routine maintenance and repair/replacement of components? | Yes | No |

2.3b Visual Inspections- General (Systems 3 and 4 only)

| | | |
|--|------------|-----------|
| Have appropriate air terminal devices been installed to allow system balance? | Yes | No |
| Has the heat recovery unit (System 4 only) and all ductwork been effectively insulated where installed in unheated spaces? | Yes | No |
| Condensate connection is complete and drains to an appropriate location (System 4 only)? | Yes | No |

2.3c Other Inspections -General (Systems 1,3 and 4 only)

| | | |
|---|------------|-----------|
| Upon initial start up, was any abnormal sound or vibration experienced, or unusual smells detected? | Yes | No |
| Does the installation follow the design? | Yes | No |
| Have any variations from the design been agreed? | Yes | No |

2.3d Inspector's Details

| | |
|---|--|
| Name | |
| Company | |
| Address Line 1 | |
| Address Line 2 | |
| Telephone Number | |
| Post Code | |
| Signature | |
| Competent Person Scheme/Registration Number (if applicable) | |
| Date of Inspection (completion) | |

Part 3 - Air flow measurement test and commissioning details

| 3.1 Test Equipment | | |
|---|--|--------------------------|
| Schedule of air flow measurement equipment used, (model and serial) | | Date of last calibration |
| 1 | | |
| 2 | | |
| 3 | | |

| 3.2 Air Flow Measurements - System 1 only | | |
|--|-----------------------------|---|
| Fan Reference | Measured Extract Rate (l/s) | Design Extract Rate (l/s) Refer to Table 5.1a in ADF |
| Extract Fan 1 | | |
| Extract Fan 2 | | |
| Extract Fan 3 | | |
| Extract Fan 4 | | |
| Extract Fan 5 | | |
| For kitchen extract canopies, only the highest setting needs to be recorded. | | |

| 3.3 Air Flow Measurements (Extract) - Systems 3 and 4 only | | | | |
|--|--------------------------------------|--|-------------------------------------|---|
| Room Reference (location of terminals) | Measured Air Flow High Rate (l/s) | Design Air Flow High Rate (l/s) Refer to Table 5.1a in ADF | Measured Air Flow Low Rate (l/s) | Design Air Flow Low Rate (l/s) Refer to Table 5.1a in ADF |
| Kitchen | | | | |
| Bathroom | | | | |
| En Suite | | | | |
| Utility | | | | |
| Other... | | | | |
| Other... | | | | |
| Other... | | | | |

Part 3 - Air flow measurement test and commissioning details

| 3.4 Air Flow Measurements (Supply) - System 4 only | | | | |
|--|--------------------------------------|--|-------------------------------------|---|
| Room Reference (location of terminals) | Measured Air Flow High Rate (l/s) | Design Air Flow High Rate (l/s) Refer to Table 5.1b in ADF | Measured Air Flow Low Rate (l/s) | Design Air Flow Low Rate (l/s) Refer to Table 5.1b in ADF |
| Living Room 1 | | | | |
| Living Room 2 | | | | |
| (if present) | | | | |
| Dining Room | | | | |
| Bedroom 1 | | | | |
| Bedroom 2 | | | | |
| Bedroom 3 | | | | |
| Bedroom 4 | | | | |
| Bedroom 5 | | | | |
| Study | | | | |
| Other... | | | | |

| 3.5 Power Test - System 3 and 4 * | | | | | |
|-----------------------------------|----------------------------------|---|--|---|--------------------|
| Total Extract Flow Rate (High) | Total Extract Flow Rate (Low) | Total electrical power (watts on High) | Total electrical power (watts on Low) | Specific Fan Power (W/l/s – Power divided by Low Speed Flow) | Designed SAP Q SFP |
| | | | | | |

* MEASUREMENT OF FAN POWER

Instrument for power measurement

Power meter capable of measuring active (true) power at 10 W and above, with a resolution of; 0.1 W, and an accuracy of; 1.5% reading, ± 2 digits. The meter must be connected in-line with the fan box, typical CT or clamp type power meters will not provide sufficiently accurate measurements at low power levels.

Instrument calibration

UKAS and yearly.

Measurement

The total electrical power, supplied from the fused spur to the fan box, i.e. including all controls, must be measured when the system has been commissioning and the fans are running at the low air flow rate. This figure must be used for the calculation of Specific Fan Power, 3.5.

The total electrical power, supplied from the fused spur to the fan box, i.e. including all controls, must be measured when the system has been commissioning and the fans are running at the high air flow rate. This figure must NOT be used for the calculation of Specific Fan Power, 3.5.

Part 3 - Air flow measurement test and commissioning details

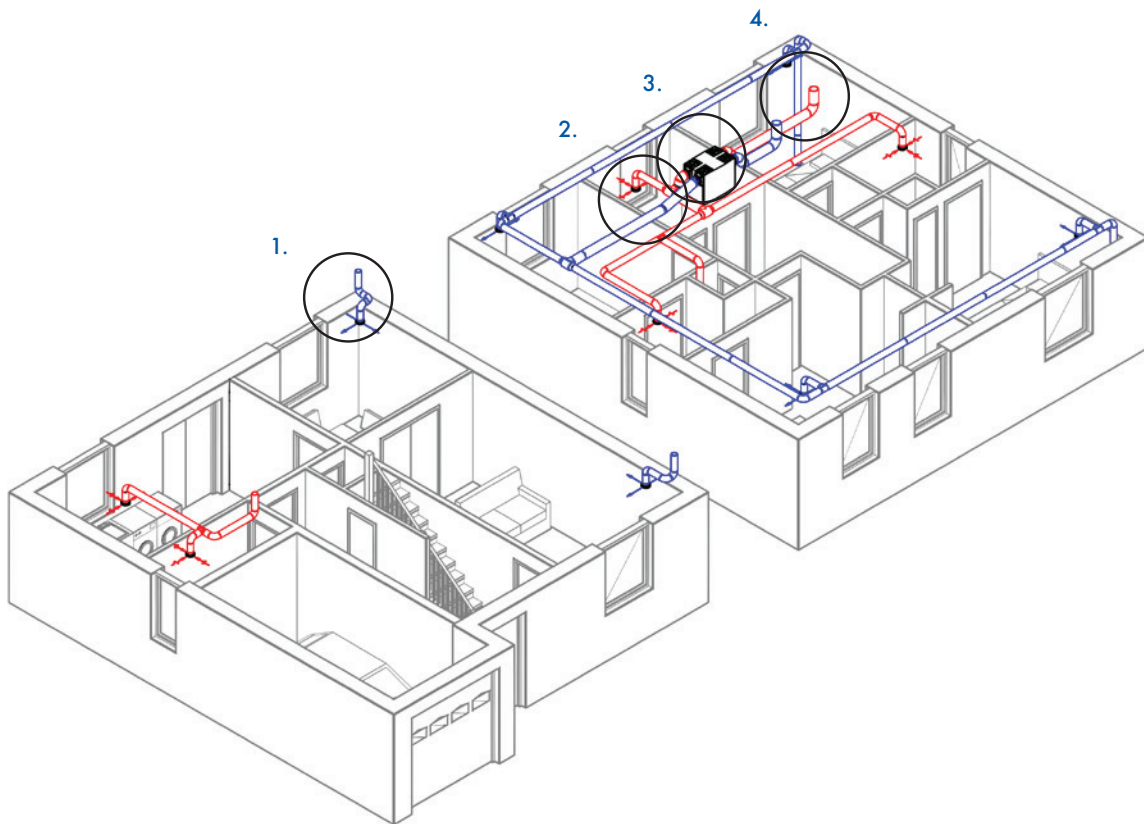
| 3.6 Commissioning - Systems 3 and 4 only | | |
|--|-----|----|
| Have controls been set-up in accordance with the manufacturer's recommendations? | Yes | No |
| Have all distribution grilles been locked to prevent unauthorised adjustment? | Yes | No |

| 3.7 Test Engineer's Details | |
|---|--|
| Name | |
| Company | |
| Address Line 1 | |
| Address Line 2 | |
| Telephone Number | |
| Post Code | |
| Signature | |
| Competent Person Scheme/Registration Number (if applicable) | |
| Date of Test | |

Design Guidance Scheme

To be used in conjunction with the Design Deviation Sheet detailing duct change rules.

Note, these images are for indication only.



1. SUPPLY (AND EXTRACT) GRILLES

- Never reduce diameter of supply grilles (or extract)

2. DUCTING

- Never deviate from main duct design
- Decreasing branch duct diameter has consequences if adding additional bends
- Never add flexible duct to design and do not exceed 300mm length

3. SUPPLY AND EXTRACT SPACING

- To prevent cross contamination of air, never change site specification of supply and extract to less than 300mm horizontal spacing

4. MAIN UNIT LOCATION/FIXING

- Re-location may exceed flexi duct rules and cause performance risk
- Location must ensure accessibility for filter clean/change
- Ensure fixing to a stable structure to prevent vibration/acoustic issues

5. RADIAL DUCTING/SIMI RIGID

- Radial ducting systems run individual semi-rigid ducts out from a central plenum
- Design deviations on radial systems need advice from the designer

Centralised Mechanical Ventilation Design Deviation Sheet

When deviating from the design of a central mechanical ventilation system, there are areas that can have an impact on the overall product performance. The table below gives some insight into what the impact of changes may be in order to promote the minimal changes from the approved design.

The most critical element of system design is duct layout, branches and bends, diameter and duct material used. No additional flexible ducting should be used to that specified in the design and should be no longer than 300mm, pulled tight to at least 90% of the overall length.

Branch ducting - branch ducts should be either of equal diameter to the main duct or may be reduced to a slightly smaller diameter. A reduction in diameter means anything more than 2 additional bends to that within the design can be classed as a major change. Alternatively going up a diameter size can enable 1 additional bend for every 1 metre of larger duct used.

The main central duct connects directly to the unit. As this section carries air from the whole installation, no changes should be made to its size. For the secondary ducts an increase in duct size as per the table below can allow for 1 additional bend for every 2 metres of larger duct used. in this way it is possible to extend duct lengths if required on site.

| Sizing downwards | | | Sizing upwards |
|------------------|------------|------------|----------------|
| Rectangular | 220 x 90mm | 204 x 60mm | 110 x 54mm |
| Round Ø | 150mm | 125mm | 100mm |

Radial ducting systems using semi-rigid ducting offer more flexible solutions, however design deviations need to be authorised by the designer.

Duct Dimensions

| Topic | Design Deviation Type | Potential Risk Impact | Assessment of Actual Risk |
|------------------------------|---|--|---------------------------|
| Ducting | Branch ducts - Increasing number of bends and/or total length in system by 10% or less | Minor risk with potential for increased resistance and reduced extract rates | |
| | Main ducts - Increasing number of bends and/or total length in system by 10% or less | Minor risk with potential for increased resistance and reduced extract rates | |
| | Branch duct - sizing downwards on duct sizes or increasing number of bends and/or total length in total system by more than 10% | Major risk with potential for increased resistance and reduced extract rates | |
| | Main duct -sizing downwards on duct sizes or increasing number of bends and/or total length in total system by more than 10% | Major risk with potential for increased resistance and reduced extract rates | |
| | Amending length of flexi duct to beyond 300mm | Major risk with potential for increased resistance and reduced extract rates | |
| | Changing fixing bracket intervals for flexible ducting to more than 600mm | Major risk with greater chance of troughing resulting in increased resistance and reduced extract rates. Also may result in acoustic problems. | |
| Main unit | Re-location of unit | Minor risk becoming major if the re-location results in increased flexible duct use or additional bends | |
| | Fixing of unit | Major risk potential if not fixed to a stable structure which may result in acoustic/vibration problems | |
| Supply and extract terminals | Changing specification of size downwards | Major risk potential as resistance can increase in the system | |
| | Changing location of terminals | "Minor risk - to coordinate with lighting. Major risk - if relocating against good practice" | |

Amendments

| Issue | Date | Detail of change |
|-------|----------|------------------|
| 1 | 23/12/11 | |