



JOHNSON & STARLEY

AERECO
HUMIDITY CONTROLLED
PASSIVE + MECHANICAL
VENTILATION



NHBC APPROVED





JOHNSON & STARLEY AERECO

**Whole House Ventilation Systems help prevent condensation
and the damage this can cause.**

PROBLEMS

Consider the following:-

Does air in the dwelling really need to be renewed?

Do current housing ventilation techniques satisfactorily meet householders requirements?

Considerable advances in construction and insulation coupled with the need to conserve valuable heat energy has led to a situation where houses are

virtually sealed against the elements. The downside of this progress is that dwellings can no longer 'breathe' naturally and condensation damage has become a massive and expensive problem in both private and public housing stock. Condensation attacks both the external and internal fabric of the dwelling and creates an indoor living environment that affects the health and well being of the occupants.



SOLUTIONS

Logic says that ventilation systems are necessary and that current extractors and ventilation systems solve only specific problems in certain areas. Ventilation requirements vary at any given time, therefore a system is required that adapts to the changes in lifestyle and climatic conditions.

A JOHNSON & STARLEY AERECO Humidity Controlled System is the Solution

A Johnson & Starley AERECO ventilation system responds to humidity. Incoming air is drawn into the inlets situated in the main rooms then circulated into the extract rooms — taking the stale air with it. The air throughout the dwelling is renewed and the polluted air is extracted to atmosphere.

ADVANTAGES

- A Johnson & Starley AERECO system ventilates only when required.
- Promotes energy savings
- Adapts to lifestyle and climatic variations
- Creates a comfortable, healthier indoor environment
- Easy to maintain

BUILDING REGULATIONS

Since 1990 Building Regulations for England and Wales have, for the first time, set standards for Domestic Ventilation which accepts that correctly designed and controlled ventilation is essential to comfort and health.

JOHNSON & STARLEY AERECO system is an energy efficient, simple and reliable solution that meets the requirements of Approved Document F.1. The system also complies with BS5250 Section 7.1.

A LOW COST, LOW MAINTENANCE VENTILATION SYSTEM THERE ARE NO MOVING PARTS

PSV ducts of rigid or fully expanded flexible material, may be: STRAIGHT or OFFSET and may terminate with either DUCT TERMINAL or RIDGE TERMINAL.

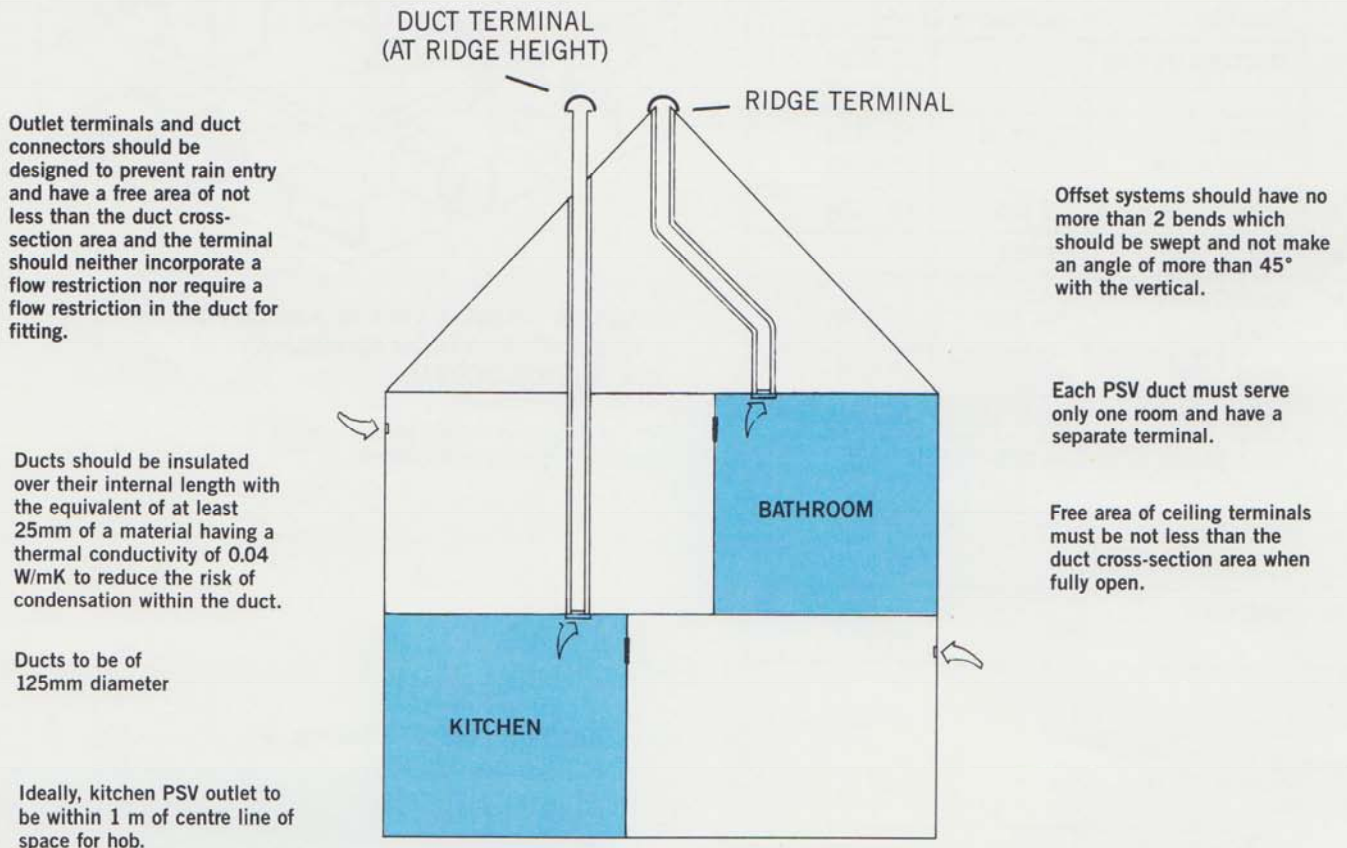


Figure 1.

Diagram showing straight and offset PSV systems

The diagram above refers to single dwellings. PSV systems may be installed in blocks of flats, but it is recommended that they are restricted to those of 4 storeys or less.

AIR INLETS

One humidity-sensitive air inlet must be provided in each dry room in an outside wall or window. Air inlets should not be installed in wet rooms as this will cause short circuiting of the air extract from dry rooms.

The inlets modulate between fully open and minimum opening depending on internal humidity levels.

Select wall or window vent as convenient for installation.

AIR TRANSFER GRILLES

The system must permit air transfer from dry rooms to wet rooms, either directly or via hallways or corridors, in such a way as to ventilate all spaces. The installation of air transfer grilles (in doors or through walls above doors as convenient) is recommended, but these may not be required if there is adequate air transfer opening around room doors (2 mm gap around door).

A LOW COST, LOW MAINTENANCE, CENTRAL VENTILATION SYSTEM WITH BOOST FACILITY

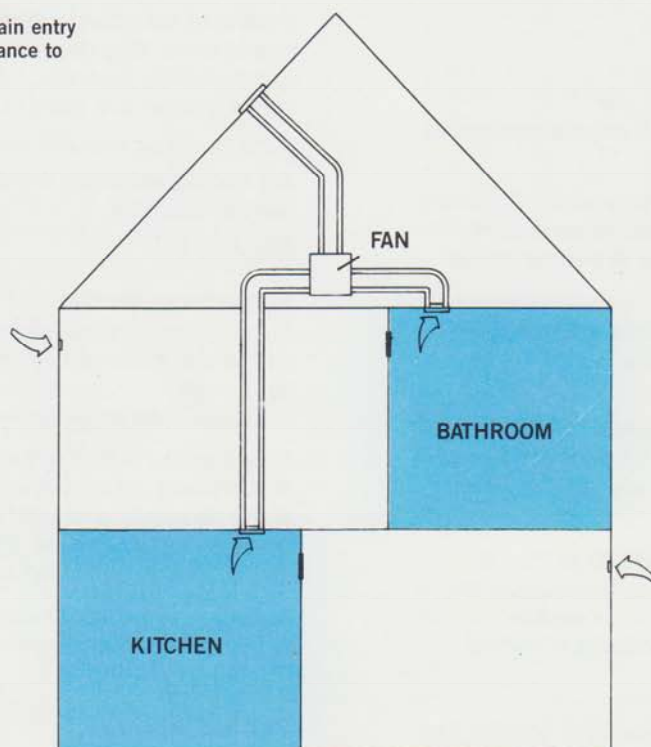
Ducts of rigid or fully expanded flexible material may be used.

Outlet terminals and duct connectors should be designed to prevent rain entry and have a low resistance to air flow.

Ducts should be insulated in unheated areas with the equivalent of at least 25 mm of thermal material having a thermal conductivity of 0.04 W/mK to reduce the risk of condensation within the duct.

Ducts to be of 125mm diameter from extracts to fan. 150mm diameter from fan to roof terminal. Total pressure drop not to exceed 45 pascals.

Kitchen extract ideally within 1 m of centre line of space for hob.



Fans may be sited in roof spaces, cupboards or garages.

The installation should allow for access to the fan for maintenance. Fan PV2 is supplied with hanging straps enabling it to be suspended from roof timbers: it can also be mounted on an insulated base. For fixing straps to roof trusses use copper or galvanised nails.

Fan PV3 should be mounted on an insulated base (eg 50 mm polystyrene).

Select wall or window vent as convenient for installation.

Figure 2

Diagram showing typical system

For complex systems with larger duct runs or multiple extracts — consult J&S Design Department or refer to Publication ZZ 808/1.

AIR INLETS

One humidity-sensitive air inlet must be provided in each dry room in an outside wall or window. Air inlets should not be installed in wet rooms as this will cause short circuiting of the air extract from dry rooms.

The inlets modulate between fully open and minimum opening depending on internal humidity levels.

Select wall or window vent as convenient for installation.

AIR TRANSFER GRILLES

The system must permit air transfer from dry rooms to wet rooms, either directly or via hallways or corridors, in such a way as to ventilate all spaces. The installation of air transfer grilles (in doors or through walls above doors as convenient) is recommended, but these may not be required if there is adequate air transfer opening around room doors (2 mm gap around door).

USE FLOOR PLAN AND ELEVATION DRAWINGS WHERE POSSIBLE.

EXTRACT (WET ROOMS)

PASSIVE SYSTEM

Wet rooms include kitchens and bathrooms. Each wet room must have its own air extract, with a separate duct to the roof terminal which is the final outlet.

MECHANICAL SYSTEM

Wet rooms include kitchens and bathrooms. Each wet room must have its own air extract. Extracts may also be required in utility rooms and separate rooms containing wcs. An extract must be provided in a wc if there is no opening window. Extract ducts can be coupled together before rising to the fan unit.

SUPPLY (DRY ROOMS)

Dry rooms include living rooms, dining rooms and bedrooms, and must be provided with air inlets.

AIR EXTRACT (WET ROOMS)

PASSIVE SYSTEM

Ceiling mounted humidity-sensitive air extracts are required in all wet rooms.

Kitchens: Site above or near the moisture source if possible. Do not locate close to doors or windows, to avoid short circuiting air routes. Consider routeing of ducting through rooms above.

Bathrooms: Site centrally between sanitary fittings to aid good air movement and avoid draughts.

MECHANICAL SYSTEM

Wall or ceiling-mounted humidity-sensitive air extracts are required in all wet rooms. These are automatically controlled in response to relative humidity to ensure optimum extract rate.

Kitchens: Extract unit AEB, extract rate 20 to 75m³/h (160m³/h on boost). Site above or near the moisture source, if possible. Do not locate close to doors or windows, to avoid short circuiting air routes. Consider routeing of ducting through rooms above.

Bathrooms: Extract unit AE, extract rate 15 to 50m³/h. Site centrally between sanitary fittings to aid good air movement and avoid draughts.

WC's: Extract unit WCW. Constant-volume extract rate of 30m³/h, controlled to avoid over-extraction from small rooms.

Any additional room containing a wc and not having an opening window must be provided with a WCW extract.

Utility rooms can also be provided with an extract.

AIR INLET (DRY ROOMS)

One humidity-sensitive air inlet must be provided in each dry room in an outside wall or window. Air inlets should not be installed in wet rooms as this will cause short circuiting of the air extract from dry rooms.

The inlets modulate between fully open and minimum opening depending on internal humidity levels.

Select wall or window vent as convenient for installation.

TRANSFER GRILLES

The system must permit air transfer from dry rooms to wet rooms, either directly or via hallways or corridors, in such a way as to ventilate all spaces. The installation of air transfer grilles (in doors or through walls as convenient) is recommended, but these may not be required if there is adequate air transfer opening around room doors (2mm gap around door).

DUCT RUNS

PASSIVE SYSTEM

Separate ducts must run from each wet room ceiling extract to a roof terminal. These ducts must be vertical or near vertical: any bends necessary should be not more than 45°, and there should not be more than two bends in any stack.

Ducts from the ground floor must run vertically through the second storey; they may be concealed within a cylinder cupboard/airing cupboard, fitted wardrobe, or set against a wall in a corner and boxed in.

Ducts should be insulated over their internal length.

Any ducting within the dwelling, including the roof space, must be insulated.

SEE FIG. 1

MECHANICAL SYSTEM

Ducts run from the ceiling or wall mounted extract units to the fan unit in the roof or other convenient space. From the fan a single discharge duct runs to the terminal outlet. Discharge ducts should generally be no more than 4m long.

More than one extract unit may be connected to a single duct provided the duct size is adequate for the flow rate. Where necessary, ducts may be concealed within a cylinder cupboard/airing cupboard, fitted wardrobe, or set against a wall in a corner and boxed in.

Ducting running through unheated areas must be insulated to reduce the risk of condensation.

TERMINALS

PASSIVE SYSTEM

Each duct must run to a separate terminal; never connect two ducts together. Select ridge terminals to give the best extract flow rate. Where it is not possible to terminate at ridge e.g. monopitch roofs, use roof terminal and site as high up the roof slope as possible to increase effectiveness.

MECHANICAL SYSTEM

Select terminal position(s) (roof or wall). The duct may terminate through the roof via a tile/slate vent, or through a wall. The ridge terminal is not suitable unless it has a low resistance.

FANS (MECHANICAL SYSTEM ONLY)

Fans may be sited in roof spaces, cupboards or garages. The installation should allow for access to the fan for maintenance. Fan PV2 is supplied with hanging straps enabling it to be suspended from roof timbers: it can also be mounted on an insulated base. For fixing straps to roof trusses use copper for galvanised nails.

Fan PV3 should be mounted on an insulated base (eg 50mm polystyrene).

PARTS LIST

		PASSIVE	MECHANICAL
A.	AIR INLETS:		
	(i) Air Inlet Window	WIW 5-30	WIW 5-30
	(ii) External Window Canopy	CSW	CSW
(iii)	Air Inlet Wall	AI 5-30	AI 5-30
B.	AIR EXTRACTS	P.A.E.	AEB 20-75 AE 20-75 AE 15-50 WCW 30
C.	TRANSFER GRILLES	If required — refer to publication ZZ 644	
D.	DUCTING (PLAIN)		ZD 47/5E ZD 47/6E
E.	DUCTING (INSULATED)	ZD 48/5E	ZD 48/5E ZD 48/6E
F.	ROOF TERMINALS	UT 125	ZD / D54
G.	RIDGE VENT	PT 125	
H.	RIDGE VENT ADAPTOR	PTA 125	ZD 28/6
J.	WALL VENT		ZD 41/6
K.	DUCT CLIPS	ZD 51 UJ	ZD 51 UJ
L.	FIRE DAMPER	PA 125	PA 125 PA 150
M.	DUCT TEE		ZD 38/5 ZD 38/6
N.	FAN UNIT		PV 2 PV 3

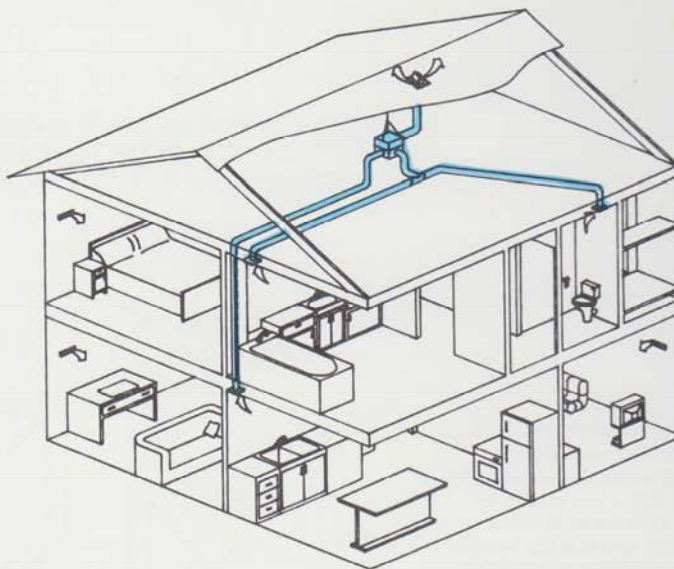
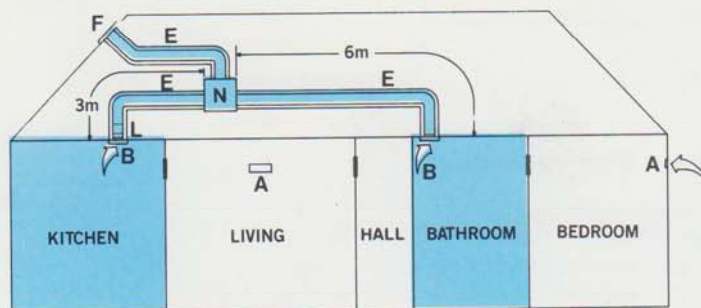


DIAGRAM SHOWS A TYPICAL LAYOUT FOR A HUMIDITY CONTROLLED MECHANICAL VENTILATION SYSTEM

For full technical details please refer to Johnson & Starley publications: ZZ 704, ZZ 705 and ZZ 706

Figure 3



EXAMPLE TAKEOFF: See Fig. 3

	DESCRIPTION	PART No.	QUANTITY
A	AIR INLET	AI 5-30	2
B	AIR EXTRACT	AEB 20-75	1
		AE 15-50	1
E	DUCTING INSULATED	ZD 48/5	10 MTRS
		ZD 48/6	3 MTRS
F	ROOF TERMINAL	ZD/D54	1
K	DUCT CLIPS	ZD51UJ	6
L	FIRE DAMPER	PA 125	1
N	FAN UNIT	PV2	1



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Johnson & Starley operate a policy of continuous product development. Whilst all details are accurate at the date of issue of this publication, the right to change specification without prior notification is reserved by the company.

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