built environment technology ltd

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"Sustainability through Technology"

Specification

Mechanical Ventilation with Heat Recovery

Ref: 2055-0042

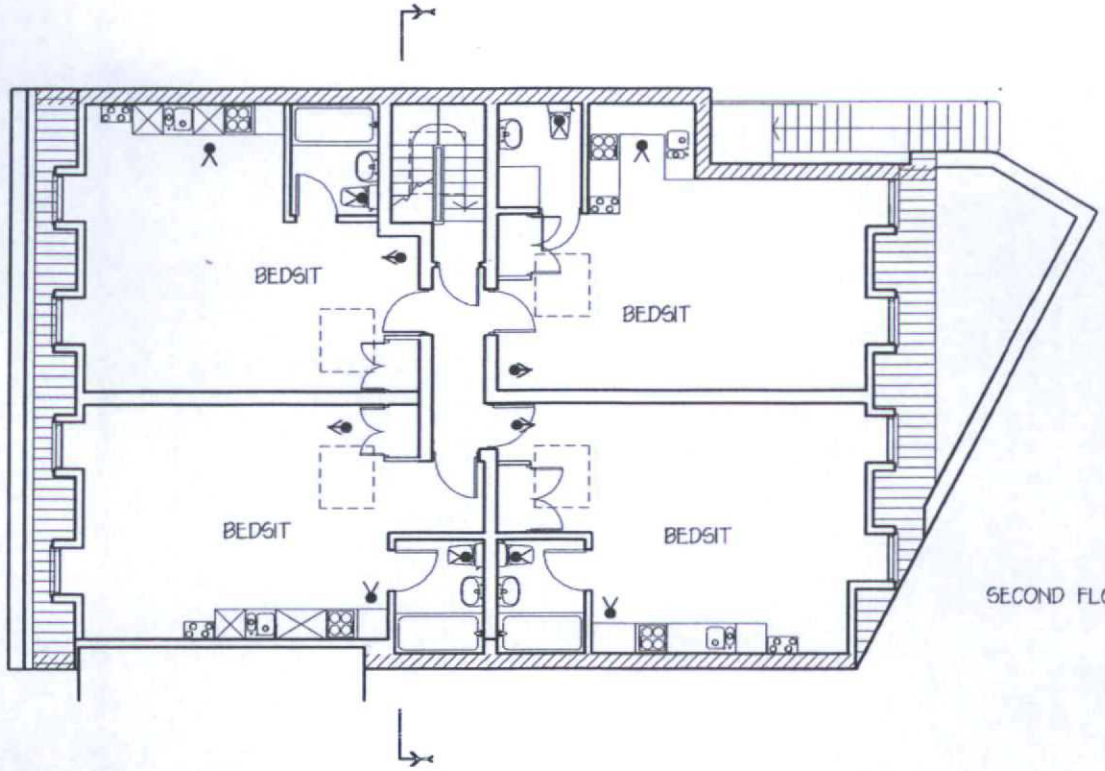
Stephen Bromley Associates
5 West Street
Shoreham By Sea
BN43 5WF

ADUR & WORTHING
PLANNING SERVICES

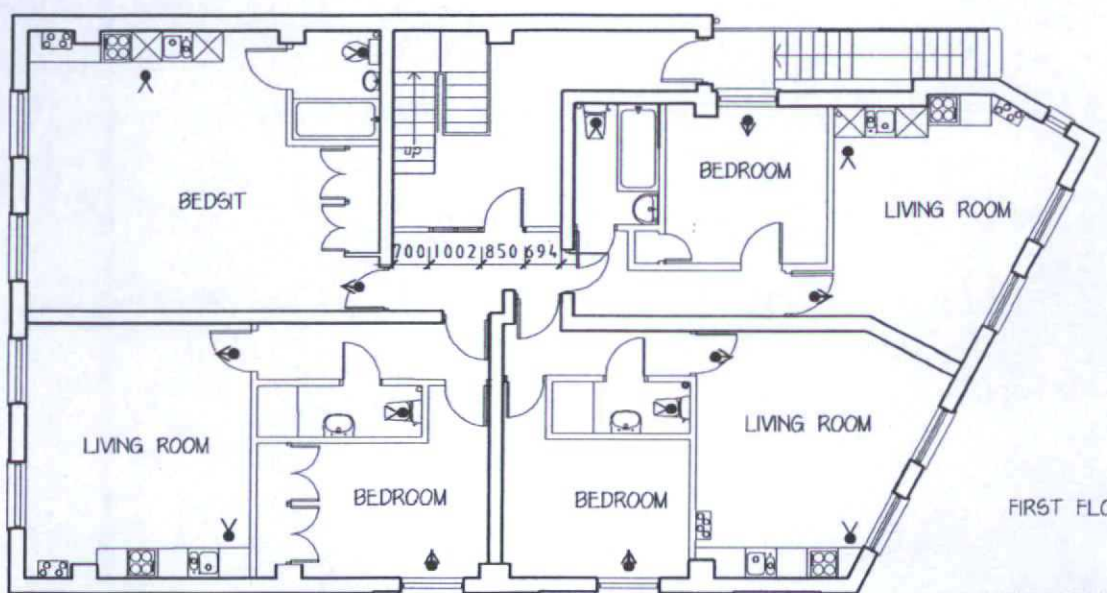
PLAN	AWDM/ 1127/14
DATE VALID	- 8 JUN 2015

Contents:

- ***Specification Layout***
- ***Airflow Calculations for Building Regulations 2010, Part F***
- ***Detailed Quotation***
- ***MVHR Unit Specifications***



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Notes:
1. Unit locations are indicative & subject to Client confirmation - please refer to the Unit dimensions before concluding.
2. Each Unit requires a 22mm dia condensate drain connection to an internal discharge; this may influence their position.
3. The ducting will be 204 x 60mm, with 125mm dia vertical connections to the Units.
4. Intake & exhaust ducts must exit to atmosphere with a separation of at least 1.500mm, on the same elevation.

Mechanical Ventilation
with
Heat Recovery

Specification Set-out.

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Mechanical Ventilation with Heat Recovery (MVHR)
Building Regulations Part F, 2010
Airflow Calculations:

5 No. Bedsit
6-8 High Street

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Step 1

Whole Building Ventilation Rate (5.1b)		
No of Bedrooms	Allow No Occupants	l/s
1	2	13
Max. No.Occupants	Additional Occupants	Additional l/s
2	0	0
Whole Building Ventilation Rate (1.1b)		13

Floor Area (m²) & Dwelling Volume (m³)					
Floor	Lth	Width	m²	Ht.	m³
Base			0.00	0.00	0.00
Grd			0.00	0.00	0.00
1st.			0.00	0.00	0.00
2nd.			36.00	2.50	90.00
3rd.			0.00	0.00	0.00
			36.00		90.00
		Or Manual Entry =	0.00	0	0.00
			36.00		90.00

Single Storey	1
Multi Storey	

Supply Rate = 0.3 x Flr area	10.80	

Single Storey	13.00	Whole Building Ventilation Rate (1.1b)
	3.60	= l/s Infiltration (m³ x 0.04)
	9.40	Total l/s

Multi Storey		Whole Building Ventilation Rate (1b)
		= l/s Infiltration (m³ x 0.04)
		Total l/s

Step 2

Whole Dwelling Extract Rate (5.1a)			
Room	Qty	l/s	m³/h
Kitchen	1	13	46.8
Utility	0	0	0
Bathroom	0	0	0
En-suite	1	8	28.8
Shower	0	0	0
W.C.	0	0	0
Plant Room	0	0	0
Gym	0	0	0
Stairwell	0	0	0
Cinema	0	0	0
AV Cpd	0	0	0
Dressing Room	0	0	0
Boot Room	0	0	0
Linen Cpd	0	0	0
Total l/s		21	75.6

Building Regulation Requirements		
Room	l/s	m³/h
Kitchen	13	46.8
Utility	8	28.8
Bathroom	8	28.8
En-suite	8	28.8
Shower	8	28.8
W.C.	6	21.6

Step 3

Single Storey Boost Rate	
21.00 l/s	A/C Rates
0.021 m³/s	
75.6 m³/h	0.84

Multi Storey Boost Rate	
l/s	A/C Rates
m³/s	
m³/h	

Single Storey Normal Rate	
9.40 l/s	A/C Rates
0.009 m³/s	
33.8 m³/h	0.38

Multi Storey Normal Rate	
l/s	A/C Rates
m³/s	
m³/h	

Mechanical Ventilation with Heat Recovery (MVHR)
Building Regulations Part F, 2010
Airflow Calculations:

Flat 1
6-8 High Street

built environment technology ltd

Step 1

Whole Building Ventilation Rate (5.1b)		
No of Bedrooms	Allow No Occupants	l/s
1	2	13
Max. No.Occupants	Additional Occupants	Additional l/s
2	0	0
Whole Building Ventilation Rate (1.1b)		13

Floor Area (m²) & Dwelling Volume (m³)					
Floor	Lth	Width	m²	Ht.	m³
Base			0.00	0.00	0.00
Grd			0.00	0.00	0.00
1st.			36.00	2.50	90.00
2nd.			0.00	0.00	0.00
3rd.			0.00	0.00	0.00
			36.00		90.00
	Or Manual Entry =		0.00	0	0.00
			36.00		90.00

Single Storey	1
Multi Storey	

Supply Rate = 0.3 x Flr area	10.80

Single Storey	13.00	Whole Building Ventilation Rate (1.1b)
	3.60	= l/s Infiltration (m³ x 0.04)
	9.40	Total l/s

Multi Storey		Whole Building Ventilation Rate (1b)
		= l/s Infiltration (m³ x 0.04)
		Total l/s

Step 2

Whole Dwelling Extract Rate (5.1a)			
Room	Qty	l/s	m³/h
Kitchen	1	13	46.8
Utility	0	0	0
Bathroom	0	0	0
En-suite	1	8	28.8
Shower	0	0	0
W.C.	0	0	0
Plant Room	0	0	0
Gym	0	0	0
Stairwell	0	0	0
Cinema	0	0	0
AV Cpd	0	0	0
Dressing Room	0	0	0
Boot Room	0	0	0
Linen Cpd	0	0	0
Total l/s		21	75.6

Building Regulation Requirements		
Room	l/s	m³/h
Kitchen	13	46.8
Utility	8	28.8
Bathroom	8	28.8
En-suite	8	28.8
Shower	8	28.8
W.C.	6	21.6

Step 3

Single Storey Boost Rate	
21.00 l/s	A/C
0.021 m³/s	Rates
75.6 m³/h	0.84

Multi Storey Boost Rate	
l/s	A/C
m³/s	Rates
m³/h	

Single Storey Normal Rate	
9.40 l/s	A/C
0.009 m³/s	Rates
33.8 m³/h	0.38

Multi Storey Normal Rate	
l/s	A/C
m³/s	Rates
m³/h	

Mechanical Ventilation with Heat Recovery (MVHR)
Building Regulations Part F, 2010
Airflow Calculations:

Flat 2
6-8 High Street

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Step 1

Whole Building Ventilation Rate (5.1b)		
No of Bedrooms	Allow No Occupants	l/s
1	2	13
Max. No.Occupants	Additional Occupants	Additional l/s
2	0	0
Whole Building Ventilation Rate (1.1b)		13

Floor Area (m²) & Dwelling Volume (m³)					
Floor	Lth	Width	m²	Ht.	m³
Base			0.00	0.00	0.00
Grd			0.00	0.00	0.00
1st.			37.70	2.50	94.25
2nd.			0.00	0.00	0.00
3rd.			0.00	0.00	0.00
			37.70		94.25
	Or Manual Entry =		0.00	0	0.00
			37.70		94.25

Single Storey	1
Multi Storey	

Supply Rate = 0.3 x Flr area	11.31	

Single Storey	13.00	Whole Building Ventilation Rate (1.1b)
	3.77	= l/s Infiltration (m³ x 0.04)
	9.23	Total l/s

Multi Storey		Whole Building Ventilation Rate (1b)
		= l/s Infiltration (m³ x 0.04)
		Total l/s

Step 2

Whole Dwelling Extract Rate (5.1a)			
Room	Qty	l/s	m³/h
Kitchen	1	13	46.8
Utility	0	0	0
Bathroom	0	0	0
En-suite	1	8	28.8
Shower	0	0	0
W.C.	0	0	0
Plant Room	0	0	0
Gym	0	0	0
Stairwell	0	0	0
Cinema	0	0	0
AV Cpd	0	0	0
Dressing Room	0	0	0
Boot Room	0	0	0
Linen Cpd	0	0	0
Total l/s		21	75.6

Building Regulation Requirements		
Room	l/s	m³/h
Kitchen	13	46.8
Utility	8	28.8
Bathroom	8	28.8
En-suite	8	28.8
Shower	8	28.8
W.C.	6	21.6

Step 3

Single Storey Boost Rate	
21.00 l/s	A/C Rates
0.021 m³/s	
75.6 m³/h	0.80

Multi Storey Boost Rate	
l/s	A/C Rates
m³/s	
m³/h	

Single Storey Normal Rate	
9.23 l/s	A/C Rates
0.009 m³/s	
33.2 m³/h	0.35

Multi Storey Normal Rate	
l/s	A/C Rates
m³/s	
m³/h	

Mechanical Ventilation with Heat Recovery (MVHR)
Building Regulations Part F, 2010
Airflow Calculations:

Flat 3 6-8 High Street

built environment technology ltd

Step 1

Whole Building Ventilation Rate (5.1b)		
No of Bedrooms	Allow No Occupants	l/s
1	2	13
Max. No.Occupants	Additional Occupants	Additional l/s
2	0	0
Whole Building Ventilation Rate (1.1b)		13

Floor Area (m²) & Dwelling Volume (m³)					
Floor	Lth	Width	m²	Ht.	m³
Base			0.00	0.00	0.00
Grd			0.00	0.00	0.00
1st.			45.00	2.50	112.50
2nd.			0.00	0.00	0.00
3rd.			0.00	0.00	0.00
			45.00		112.50
	Or Manual Entry =		0.00	0	0.00
			45.00		112.50

Single Storey	1
Multi Storey	

Supply Rate = 0.3 x Flr area	13.50	

Single Storey	13.50	Whole Building Ventilation Rate (1.1b)
	4.50	= l/s Infiltration (m³ x 0.04)
	9.00	Total l/s

Multi Storey		Whole Building Ventilation Rate (1b)
		= l/s Infiltration (m³ x 0.04)
		Total l/s

Step 2

Whole Dwelling Extract Rate (5.1a)			
Room	Qty	l/s	m³/h
Kitchen	1	13	46.8
Utility	0	0	0
Bathroom	0	0	0
En-suite	1	8	28.8
Shower	0	0	0
W.C.	0	0	0
Plant Room	0	0	0
Gym	0	0	0
Stairwell	0	0	0
Cinema	0	0	0
AV Cpd	0	0	0
Dressing Room	0	0	0
Boot Room	0	0	0
Linen Cpd	0	0	0
Total l/s		21	75.6

Building Regulation Requirements		
Room	l/s	m³/h
Kitchen	13	46.8
Utility	8	28.8
Bathroom	8	28.8
En-suite	8	28.8
Shower	8	28.8
W.C.	6	21.6

Step 3

Single Storey Boost Rate	
21.00 l/s	A/C
0.021 m³/s	Rates
75.6 m³/h	0.67

Multi Storey Boost Rate	
l/s	A/C
m³/s	Rates
m³/h	

Single Storey Normal Rate	
9.00 l/s	A/C
0.009 m³/s	Rates
32.4 m³/h	0.29

Multi Storey Normal Rate	
l/s	A/C
m³/s	Rates
m³/h	

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ADDENDUM

Mr. Stephen Bromley
Stephen Bromley Associates
5 West Street
Shoreham-by-Sea
BN43 5WF

Your Ref: 6-8 High Street

Our Ref: 2055-0042

Date: 05 May 2015

1 This Specification is based on the information provided and meets the requirements of Building Regulations 2010, Part F.

2 The quoted figures are valid for 90 days, but may be subject to manufacturers' variation. E & OE.

3 Our calculations are subject to confirmation by survey and this is conducted when instructions have been received. An initial payment of £350 is required for this service, which is deducted from the final balance.

4 Design drawings will be produced and must be agreed by all concerned parties. Materials will be supplied to meet this requirement, plus a comfort factor to allow for minor deviations.

5 If variations to the agreed design are required by others, they must be instructed in writing and may be chargeable. If variations are proposed by us, there will be no additional cost.

6 Please note that, unless otherwise stated, duct fire protection is not included. If necessary, it will be added when the Fire Strategy is confirmed by Building Control.

7 The Installation Kit includes all items required by The Domestic Ventilation Compliance Guide 2010. It will include:

> Rigid, Insulated & Acoustic ducting
> All necessary duct fittings
> Duct mastic & self-drilling screws
> Duct fixing band
> Ceiling diffusers in a white powder-coated finish
> External weather grilles or roof vents, as appropriate

8 Please note that bespoke powder-coated grilles & finishes may be subject to an additional charge.

9 The Turnkey Project Management fee assumes that all areas are available for installation together. Should specific site attendance be required for areas not initially available, there may be an additional, pro-rata fee.

10 Please note that Turnkey Project Management excludes the following:

> Builders Work & structural penetrations
> Making-good around penetrations & fire protection measures
> Electrical connections to the Ventilation Unit(s) & Duct Heater(s)
> Condensate drain connections to the Ventilation Unit(s)

These exclusions must be completed by suitably qualified others.

11 Technical Installation Support with Commissioning is based on 3 site visits. If additional attendance is required, it can be charged pro-rata.

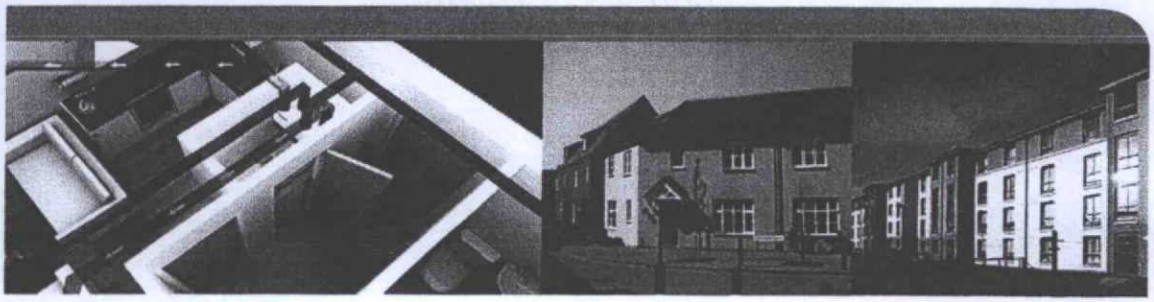
12 In properties where an Air Permeability Test is required, MVHR Commissioning should only be completed when the Test results are known. This is to ensure delivery of the correct airflow into the built environment.

With our compliments.

HRV1 *Q Plus*

Highly Energy Efficient Heat Recovery Ventilation Unit

Mechanical Ventilation with Heat Recovery (MVHR)



Primarily for use in dwellings with three wet rooms or fewer

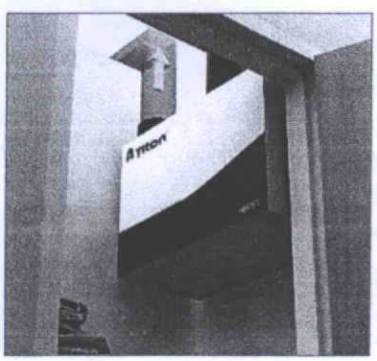
The revolutionary ultra compact HRV1 *Q Plus* continuously running whole house ventilation unit with heat recovery is independently tested by the BRE and is EST Best Practice compliant. The HRV1 *Q Plus* gives cutting edge performance usually only associated with much larger and more costly products.

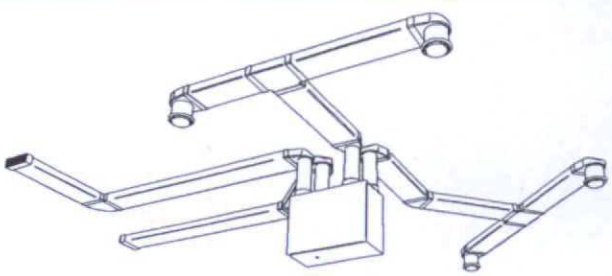
The combination of very low power consumption and a highly efficient heat exchanger is specifically designed to enhance SAP performance via Appendix Q, yet small enough to be easily incorporated into apartments and smaller houses where space is at a premium. HRV1 *Q Plus* units are the unit of choice for a number of major UK house builders.



Features & Benefits

- **Very compact unit can be fitted in small cupboards or loft spaces**
- **Very low power consumption / specific fan power**
- **Highly efficient heat exchanger; up to 91%**
- **Summer Mode to help reduce dwelling overheating**
- **Intelligent controller, quick and easy to commission**
- **Fully adjustable boost overrun timer 0-60 minutes; can be used with non-latching (momentary) switches to prevent from being accidently left in boost mode**
- **Accepts 100mm or 125mm diameter ducting, no adaptors required**
- **Intelligent frost protection, stepped reduction of supply air rates prevents freezing**
- **Setback option for unoccupied periods**
- **Demand Control Ventilation ready**
- **Volt free switching control**
- **G3 filters as standard, G4 & F7 options**
- **Very lightweight for easy handling**
- **Quick fix via mounting bracket**
- **Patented**





Typical application used in conjunction with Titon's *Q Plus* High Flow Brick

Sales and Technical Support +44 (0) 1206 713800

Product Code

TP400A
G3 filters: XP40032/099
G4 filters: XP46022/099

Standards

Conforms to requirements of UK statutory Building Regulations and Technical Standards for Ventilation.
SAP Appendix Q tested (www.sap-appendixq.org.uk).
Exceeds requirements of Building Regulations Approved Document L (England & Wales).
EU RoHS Directive compliant.
Conforms to requirements of EC council directives relating to Electromagnetic Compatibility and Electrical Safety: 2006/95/EC (LVD), 2004/108/EC (EMC) EN 60335-1:2002/A2:2006, EN 60335-2-80:2003/A1:2004. CE Marked.
Other non-UK info available on request

Specification

Dimensions: 600mm wide x 430mm high (excluding ports) x 285mm deep (295mm with mounting bracket)

Weight: 16kg

Finish: White Paint

Materials
Housing: Zintec sheet steel housing, powder coated white
Internals: Expanded polypropylene (EPP)
Heat exchanger: Polystyrene
Internal insulation: Closed cell foamed Nitrile rubber, class 'O' fire rating
Standard filters: Grade G3 synthetic filters, flame resistance to BS5588

Guarantee period: 3 years (UK only)

Electrical: 230V 50Hz

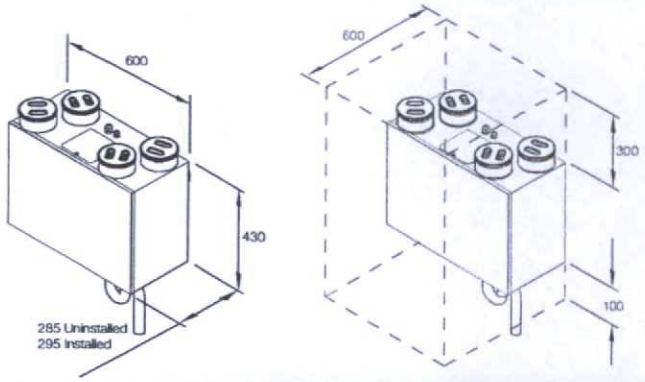
Installation: Install in accordance with Good Practice, such as the Domestic Ventilation Compliance Guide (England & Wales) and the Residential Ventilation Association recommendations

Maintenance: Annual Service and filter change recommended. Uses long life washable grade G3 filters.

More information

www.titon.com / 01206 713800
ventsystems@titon.co.uk

Details



Performance

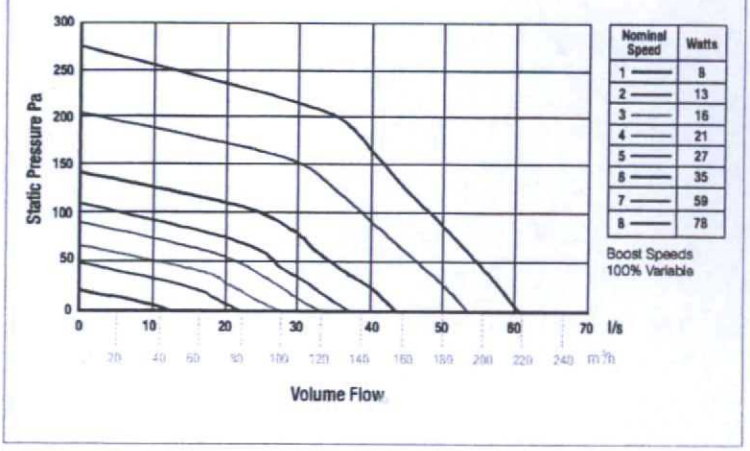
Exhaust terminal configuration*	Fan speed setting	Specific fan power (W/l/s)	Heat exchange efficiency (%)	Energy Saving Trust Best Practice Performance Compliant
Kitchen + 1 additional wet room	100% variable	**0.70**	**91**	**Yes**
Kitchen + 2 additional wet rooms	100% variable	**0.70**	**89**	**Yes**
Kitchen + 3 additional wet rooms	100% variable	**0.72**	**89**	**Yes**
Kitchen + 4 additional wet rooms	100% variable	0.90	88	Yes
Kitchen + 5 additional wet rooms	100% variable	0.99	87	Yes

Figures taken from the BRE Test Results

*Number of wet rooms is based on SAP Q test criteria and does not correlate directly with regulatory performance requirements

Noise Performance - details on request

Nominal Fan Performance



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email: info@thebuiltenvironment.co.uk
web: www.thebuiltenvironment.co.uk

Terms and Conditions

- Our calculations are based on the accuracy of the information provided by the Client or their Agent and BET will accept no responsibility for any errors or omissions made by the Client or their Agent. A site survey may be required for final confirmation.

- Materials will not be delivered to site until the full payment on proforma invoice has been received by us. We will not accept liability for delays where prompt payment has not been made. Please allow 7 days for delivery of materials after payment has been received.

- Standard delivery days are Monday to Friday. Timed, Next Day or Special deliveries will be subject to additional charges. Saturday deliveries may be available in your area, but will be subject to additional charges. Please telephone for further information.

- It is the responsibility of the Client or their Agent to make appropriate arrangements to accept delivery and we will not accept any liability where unsuitable or inadequate arrangements have been made.

- All deliveries should be checked immediately and any discrepancies must be reported to BET within 24 hours of receipt and, where appropriate, arrangements will be made for damaged or defective items to be replaced. These terms may not apply in circumstances where faults or failures are due to incorrect installation, misuse or neglect on the part of the Client/Agent or the Installer.

- All goods are supplied on the express understanding that where installation requires the exposure of live electrical parts, then this work be undertaken by an electrically qualified person

- The Client or their Agent is cautioned against booking sub-contractors/installers etc., until the goods have been received and checked for damaged and/or suitability.

- Whilst every effort is made to ensure that goods are delivered on the day specified, we cannot accept liability where couriers or other third parties fail to do so.

- The manufacturers' serial numbers or means of identification **must not be removed** from any product. This will invalidate the warranty and hinder the provision of future service and spares.