

Date: 2nd May 2024

TECHNICAL NOTE ON MECHANICAL VENTILATION NOISE THE ENTERPRISE CENTRE, BENCHILL ROAD

1. INTRODUCTION

1.1. BACKGROUND & OBJECTIVES

E3P provided a Noise Impact Assessment in order to satisfy conditions 19 and 20 of the planning permission for the above Site. Following its submission and due to the requirement of mechanical ventilation for the plots, Manchester City Council has sought assurance that noise from the internal units would not exceed BS 8233 internal noise level criteria in habitable rooms.

As such, this Technical Note considers noise level information for the proposed system and its potential internal noise levels. The note has been produced by Lee Faulkner, Associate Director, at E3P who is a corporate member of the Institute of Acoustics (MIOA).

1.2. PROPOSED MECHANICAL SYSTEM

E3P understands that The Casey Group intend to install an envirovent EnergiSava 300 unit in all plots, the technical sheet of which is appended to the rear of the report.

Of note is the below table extracted from the sheet detailing the noise output:

SOUND POWER

Ventilation capacity (m ³ /h)		90		150		210		300	
Sound power level L _w (A)	Static pressure (Pa)	50	100	50	100	50	100	50	100
	Housing emission dB(A)	30	33	38	38	44	46	50	52
	Duct "from dwelling" dB(A)	33	34	39	42	45	46	54	54
	Duct "to dwelling" dB(A)	44	47	52	55	60	60	67	67

In practice, the value may deviate 1 dB(A) as a result of measuring tolerances

E3P will assume the highest ventilation capacity, in the absence of detailed information, and assume the 'Housing emission' sound power level with the duct sound power levels assumed to be at the unit itself without any attenuation of the ducts to the outside or inside. As such, a worst-case sound power level of 52 dB is assumed.

Upon review of drawings provided by the client, it is noted that the unit is to be installed in cupboards in hallways or similar areas and not within habitable rooms.





2. CONSIDERATION OF POTENTIAL NOISE IMPACT

Given the above information and assuming a ventilation capacity of 300m³/h, the housing emission is 52 dB L_w, the sound pressure level can be calculated, assuming the sound power was measured on a single reflective plane using the following equation:

$$L_{PA} = L_{WA} - ((20 \times \log(d)) - 8)$$

Where

L_{PA} is sound pressure level.

L_{WA} is sound power level

d is distance from source.

At a distance of 2 m from the cupboard to the closest doorway of a habitable, this equates to 38 dB. Assuming the units are housed in the cupboards, we can assume a line-of-sight removal of -10 dB which equates to 28 dB at the opening of the habitable room. This falls below the required night-time criterion by 2 dB. This also allows for the uncertainty of +/- 1 dB as noted in the table above.

The calculated level also allows a level of comfort should the cupboard not provide full line of sight as additional distance from the unit to the centre of the habitable room, a more representative assessment, will reduce noise levels further.

Should the units not be housed in cupboards or sited directly in or above living rooms or bedrooms then additional consideration will be required. Furthermore, E3P have assumed the duct noise levels are the direct ducts into the unit and not the terminus ducts in rooms based on the information provided.

As such, noise from the mechanical ventilation unit is considered acceptable and will not have an adverse impact on the residents in living rooms or bedrooms.

I trust the information provided in this letter report is satisfactory however if there is anything further please do not hesitate to contact me.

Yours sincerely,
For and on behalf of E3P Ltd

Lee Faulkner
Associate Director

TECHNICAL DATA SHEET

EnergiSava 300 | High Efficiency Whole House Heat Recovery System

* **A+** **A**



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YEAR

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KEY FEATURES

- ✓ Low Specific Fan Power (SFP) of 0.62 W/l/s and high thermal efficiency of 89%
- ✓ Constant flow technology to deliver the required airflow at all times
- ✓ 100% automatic integral mechanical bypass with no reduction in airflow
- ✓ 4-way hard-wired switch to indicate the mode of operation and filter change indicator
- ✓ Pre-heater to warm the incoming air when the temperature falls below 5°C
- ✓ 'Plus' version available for additional 0-10V or volt-free connection options, such as a CO₂ sensor
- ✓ Left or right-hand configurations
- ✓ Passive Haus Certified

PRODUCT

The energiSava® 300 shall be a high efficient, constant flow whole house heat recovery system.

APPLICATION SUITABILITY

The energiSava® 300 is ideal for residential properties to provide a constant supply of clean, tempered air and maintain stable humidity levels. With maximum airflow capacity of 300 m³/h, the unit shall be available in left-handed and right-handed versions with a range of options for connecting the ducts. A 'Plus' version shall also be available featuring additional connection options such as a CO₂ sensor.

PERFORMANCE

Ventilation capacity at 150Pa (m ³ /h)	Rated power at 70% of the max appliance capacity (W)
Max 300	40 at 210 m ³ /h & 50 Pa

PRODUCT CHARACTERISTICS DATABASE (PCDB)

Exhaust Terminal Configuration	Specific Fan Power (W/l/s)	Heat Recovery Efficiency (%)
Kitchen + 1 wet room	0.66	89
Kitchen + 2 wet rooms	0.62	87
Kitchen + 3 wet rooms	0.66	86
Kitchen + 4 wet rooms	0.74	85
Kitchen + 5 wet rooms	0.86	84
Kitchen + 6 wet rooms	1.04	83
Kitchen + 7 wet rooms	1.21	83

*Note: 'A+' rating only applicable with 2 or more sensors

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TECHNICAL DATA SHEET

EnergiSava 300 | High Efficiency Whole House Heat Recovery System

CONTROLS

The unit shall be controlled with the choice of either a 4-way switch with filter indication (1 supplied as standard) or a wireless remote control. Alternatively, using the intelligent control module with timer, or the relative humidity sensor, and/or the 2-zone demand flow system enables automatic ventilation control and saves even more energy.

MOTOR

The unit shall incorporate Ultra Low Watt EC motor technology to provide the lowest possible SFP and unit running costs with sealed for life ball bearings and designed to operate continuously at a pre-set 'background' rate.

FAN

EC motors shall power the centrifugal backward curved fan impellers.

HEAT EXCHANGE CELL

The heat exchange cell shall be a high efficiency counter flow cell.

SUMMER BYPASS & FROST PROTECTION

The energiSava® 300 unit shall incorporate a 100% mechanical summer bypass and preheater as standard. The bypass contributes to an improved comfort level in summer and is controlled automatically by measuring indoor and outdoor temperatures. The intelligent frost protection with preheater guarantees the high efficiency, even at extremely low temperatures. This energy-efficient frost protection helps to achieve significant energy savings per year.

CONSTANT FLOW CONTROL

The 'constant flow' technology ensures maximum efficiency and that the commissioned airflow rate is always delivered despite any resistance encountered in the ductwork or filters. The 'constant flow control' system also enables commissioning to be carried out much quicker and more easily, saving on installation costs.

FILTRATION

The unit shall incorporate 2 x ISO Coarse 45% [G3] filters with the option of an ePM1 50% [F7] supply filter.

SERVICING / MAINTENANCE

Supply and extract filters shall be located within the heat cell unit and exchanged annually. The unit shall incorporate a heat exchange cell for life and shall not require any maintenance within five years.

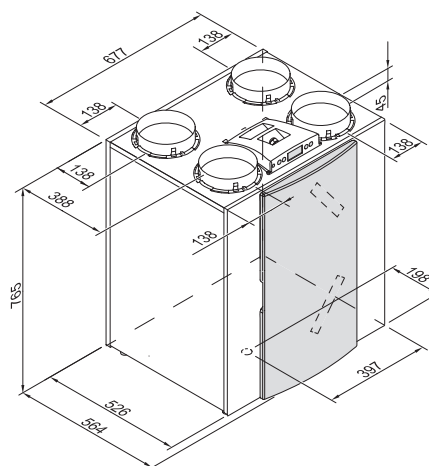
WARRANTY

The unit shall be covered by a 2 year warranty on parts and 5 years on the heat exchanger subject to the specified maintenance and servicing.

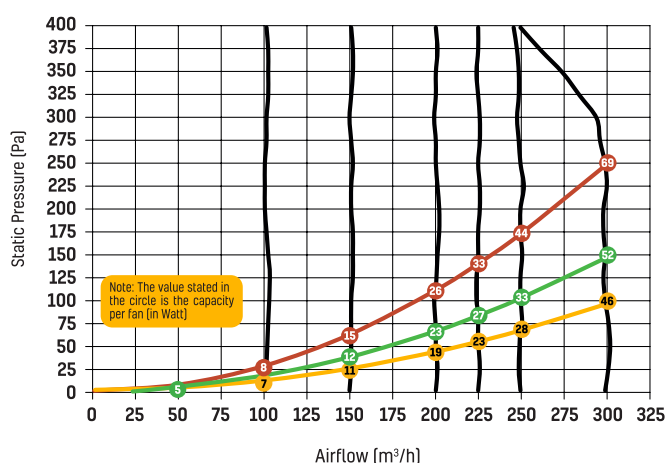
INSTALLATION

Full installation guide shall be enclosed with all products; or sent separately in advance if required. The unit shall be capable of being wall mounted with the wall mounted suspension kit. The unit shall be suitable for installation in a utility room or cupboard space. The unit shall incorporate the intelligent digital display panel for ease of commissioning. The energiSava® 300 shall incorporate Ø150/160mm extract and supply spigots.

SIZE



PERFORMANCE CURVE



TECHNICAL SPECIFICATIONS

Ventilation capacity at 150 Pa (m³/h)	Max 300
Rated power at 70% of the max appliance capacity (W)	40 at 210 m³/h & 50 Pa
Dimensions / Duct Connection (mm)	Ø150/160
Weight	38Kg
Temperature efficiency	89%
Constant flow control	✓
Standard bypass	✓
Standard preheater	✓
Connections provisions for humidity sensor	✓
Connections provisions for 2-zone demand flow	✓
Connection for timer	✓
Available as Plus version*	✓

A full Consultant Specification can be sent on request.