

Ref- **CAS 15045**

Date- 01 Nov 2022

Customer- **Barratt Homes**

Project Name - **Houses Overheating MVHR**

PRESSURE CALCULATIONS - Denby House Type

The following are our calculations based on the design shown on drawing CAS 15045_07 Rev B to establish system pressure at specific flow rates.

Index duct run is the Living Area vent supply run through to fan and intake from exterior.

Supply Run, Airvent to Fan	Component Size	Overheating Flow Rate (l/s)	Resistance (Pa)	Boost Flow Rate (l/s)	Resistance (Pa)	Trickle Flow Rate (l/s)	Resistance (Pa)		
Living Area Supply Airvent	125mm Ø	19.2	40.9	9.0	9.0	8.0	7.1		
Valve Collector	125 to 2x90mmØ	19.2	5.0	9.0	1.1	8.0	0.9		
8m Semi Rigid Duct	2x 90mmØ	9.6 each	14.5	4.5 each	3.2	4.0 each	2.5		
Semi Rigid Duct Bend	90mmØ	9.6 each	6.4	4.5 each	1.4	4.0 each	1.1		
Adaptor Collector	2x90 to 125mmØ	19.2	18.2	9.0	4.0	8.0	3.1		
2 No. 90° Horizontal Bend	125mm Ø	19.2	7.3	9.0	1.6	8.0	1.3		
5m of Straight Duct	125mm Ø	19.2	3.2	9.0	0.7	8.0	0.6		
3 No. Duct Connector	125mm Ø	19.2	2.3	9.0	0.5	8.0	0.4		
Tee (bed 1 vents join)	125mm Ø	46.8	20.0	22.0	4.4	19.4	3.5		
3m of Straight Duct	125mm Ø	46.8	5.0	22.0	1.1	19.4	0.9		
1 No. Duct Connector	125mm Ø	46.8	2.7	22.0	0.6	19.4	0.5		
Reducer	150 ⇒ 125mm Ø	46.8	5.5	22.0	1.2	19.4	0.9		
Tee (bed 2 & 3 vents join)	150mm Ø	74.6	26.3	35.0	5.8	31.0	4.6		
Flex & Bend to fan	150mm Ø	74.6	20.9	35.0	4.6	31.0	3.6		
Sub Total			178.2	Sub Total		39.2	Sub Total		31.0

Intake Run, Fan to Exterior	Component Size	Overheating Flow Rate (l/s)	Resistance (Pa)	Boost Flow Rate (l/s)	Resistance (Pa)	Trickle Flow Rate (l/s)	Resistance (Pa)		
Ducting up to Roof Cowl	150mm Ø	74.6	27.3	35.0	6.0	31.0	4.7		
Duct Connector	150mm Ø	74.6	2.7	35.0	0.6	31.0	0.5		
Roof Cowl Assembly	150mm Ø	74.6	45.4	35.0	10.0	31.0	7.9		
Sub Total			75.4	Sub Total		16.6	Sub Total		13.1

Total Pa 74.6 l/s	253.6	35 l/s	55.8	31 l/s	44.1
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Ref- **CAS 15045**

Date- 01 Nov 2022

Customer- **Barratt Homes**

Project Name - **Houses Overheating MVHR**

PRESSURE CALCULATIONS - Woodcote House Type

The following are our calculations based on the design shown on drawing CAS 15045_02 Rev A to establish system pressure at specific flow rates.

Index duct run is the Bedroom 1 (top vent) supply run through to fan and intake from exterior.

Supply Run, Airvent to Fan	Component Size	Overheating Flow Rate (l/s)	Resistance (Pa)	Boost Flow Rate (l/s)	Resistance (Pa)	Trickle Flow Rate (l/s)	Resistance (Pa)
Bed 1 Vent 1 Supply Airvent	125mm Ø	13.8	23.4	7.3	6.6	6.6	5.5
Valve Collector	125 to 2x90mmØ	13.8	2.8	7.3	0.8	6.6	0.7
11m Semi Rigid Duct	90mmØ	13.8	31.2	7.3	8.8	6.6	7.3
6 No. Semi Rigid Duct Bend	90mmØ	13.8	72.5	7.3	21.6	6.6	17.9
Distribution Box	8x90 to 125mmØ	57.9	14.2	30.8	4.0	28.0	3.3
1m of Straight Duct	125mm Ø	57.9	2.8	30.8	0.8	28.0	0.7
1 No. Duct Connector	125mm Ø	57.9	3.9	30.8	1.1	28.0	0.9
Reducer	150 ⇒ 125mm Ø	57.9	7.8	30.8	2.2	28.0	1.8
Tee (dining vent joins)	150mm Ø	76.6	29.0	40.7	8.2	37.0	6.8
Flex to fan	150mm Ø	76.6	7.1	40.7	2.0	37.0	1.7
		Sub Total	194.7	Sub Total	56.1	Sub Total	46.6

Intake Run, Fan to Exterior	Component Size	Overheating Flow Rate (l/s)	Resistance (Pa)	Boost Flow Rate (l/s)	Resistance (Pa)	Trickle Flow Rate (l/s)	Resistance (Pa)
Flex & Bend up from fan	150mm Ø	76.6	18.1	40.7	5.1	37.0	4.2
5m of Straight Duct	150mm Ø	76.6	12.4	40.7	3.5	37.0	2.9
90° Horizontal Bend	150mm Ø	76.6	28.0	40.7	7.9	37.0	6.5
3 No. Duct Connector	150mm Ø	76.6	4.3	40.7	1.2	37.0	1.0
Fixed Louvred Wall Grille	150mm Ø	76.6	34.0	40.7	9.6	37.0	7.9
		Sub Total	96.8	Sub Total	27.3	Sub Total	22.5

Total Pa 76.6 l/s	291.5	40.7 l/s	83.4	37 l/s	69.1
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