

**FINAL PROTOCOL WORKSHEET for Ventilation Systems: DESIGN**  
Supply- / Extract-Air Ventilation System with Heat Recovery

**Project**  
 Object: **End-terrace house**  
 Location Street, No.: **Passive street 123**  
 Location Postcode, Town: **12345 Passive City**  
 Building Owner Name: **John Doe**  
 Building Owner Phone No.:  
 Year of Construction: **2017**

**Ventilation Planning**  
 Company: **Passive House Ventilation**  
 Person in Charge: **John Smith**  
 Street, No.: **Passive street 12**  
 Postcode, City: **12345 Passive City**  
 Phone No.: **00000**  
 Date: **11 / 23 / 2015**  
 Signature: *John Smith*

Standard use or special requirements:

Dimensioning of the ventilation system according to standard use conditions

**2. Criteria for dimensioning the airflow volumes**

	reference values	number		resulting starting values
fresh air demand:				
per person:	<b>30</b> m <sup>3</sup> /h	<b>4</b>	=	<b>120.0</b> m <sup>3</sup> /h
extract air demand:				
kitchens:	<b>60</b> m <sup>3</sup> /h	<b>1</b>	=	<b>60.0</b> m <sup>3</sup> /h
bathrooms, utility rooms etc.:	<b>40</b> m <sup>3</sup> /h	<b>1</b>	=	<b>40.0</b> m <sup>3</sup> /h
WC, storage, etc.:	<b>20</b> m <sup>3</sup> /h	<b>4</b>	=	<b>80.0</b> m <sup>3</sup> /h
sum:				<b>180.0</b> m <sup>3</sup> /h
starting value nominal airflow (standard operation):				<b>180.0</b> m <sup>3</sup> /h

**3. Distribution of the airflow volume flow rate**

Nr.	Room (each valve individually)	Area		Room Volume A x h	Air Volume Flow Rate			Air Change Rate n	Type of Flow-Off Vent (door gap, grid in door leaf door frame, valve...)
		A	h		V <sub>su</sub>	V <sub>ex</sub>	V <sub>through</sub>		
		m <sup>2</sup>	m	m <sup>3</sup>	m <sup>3</sup> /h	m <sup>3</sup> /h	m <sup>3</sup> /h	1/h	
1	Hobby room	43.52	2.50	108.8	35			0.32	grid in door frame
2	Storage room	12.96	2.50	32.4		20		0.62	door gap
3	Technical space	14.68	2.50	36.7		20		0.55	door gap
4	Office	15.20	2.50	38.0	20			0.53	grid in door frame
5	Living / kitchen	53.08	2.50	132.7	60	60		0.90	grid in door frame
6	Master bathroom	11.28	2.50	28.2		40		1.42	door gap
7	Bedroom 2	14.64	2.50	36.6	20			0.55	grid in door frame
8	Bedroom 3	15.36	2.50	38.4	20			0.52	grid in door frame
9	Master bedroom	17.52	2.50	43.8	25			0.57	grid in door frame
10	Bathroom	4.72	2.50	11.8		20		1.70	door gap
11	WC	5.84	2.50	14.6		20		1.37	door gap
12									
13									
14									
15									
	sum:	201.80	—	521.98	180.0	180.0	—	0.34	

**4. Adjusted airflow volumes, control range**

base ventilation:	<b>138.5</b> m <sup>3</sup> /h	at least 30% below nominal airflow volume
nominal airflow volume:	<b>180.0</b> m <sup>3</sup> /h	fresh air demand, at least 0.3-fold air change rate
peak ventilation:	<b>234.0</b> m <sup>3</sup> /h	at least 30% above nominal airflow volume
ventilated area:	<b>201.8</b> m <sup>2</sup>	
ventilated volume:	<b>522.0</b> m <sup>3</sup>	
nominal airflow volume, sum:	<b>0.3</b> 1/h	

**5. Efficiency requirements**

ventilation unit (manufacturer, product):	<b>Example Passive House unit</b>	
efficiency of heat recovery:	<b>84</b> %	(according to PHI testing method for the PHPP)
max. power consumption in nominal operating mode:	<b>0.45</b> W	(for fans and control)

**6. Requirements for noise protection**

A-weighted noise pressure level of the unit in the living space:	<b>20</b> dB(A)
A-weighted noise pressure level of the unit in the installation room:	<b>30</b> dB(A)

**7. Hygienic requirements**

fresh air filter:	<b>F7</b>	first link in the chain, if applicable before subsoil heat exchanger at least bathroom and laundry rooms; recommendation: all extract air
extract air filter:	<b>G4</b>	

**FINAL PROTOCOL WORKSHEET for Ventilation Systems: Initial Start-up**  
Supply- / Extract-Air Ventilation System with Heat Recovery

**Project**  
Object: **End-terrace house**  
Location Street, No.: **Passive street 123**  
Location Postcode, Town: **12345 Passive City**  
Building Owner Name: **John Doe**  
Building Owner Phone No.: **0**  
Year of Construction: **2017**

**Initial Start-up**  
Company: **Passive House Ventilation**  
Person in Charge: **John Smith**  
Street, No.: **Passive street 12**  
Postcode, City: **12345 Passive City**  
Phone No.: **00000**  
Date: **07 / 01 / 2017**

**Ventilation System**  
Manufacturer: **Passive House Ventilation**  
Product Name: **Passive House unit**  
Unit No.: **00000**  
Control No.: **00000**

**1. Record of the air flow volumes, supply and extract air**

Nr.	Room	Design			Measurement 1		Measurement 2		Measurement 3		Type of Valve	Adjustment	Flow-Through	Noise dB(A)	Filter Grade	Filter Clean?
		V <sub>SU</sub> m³/h	V <sub>EX</sub> m³/h	V <sub>THROUGH</sub> m³/h	V <sub>SU</sub> m³/h	V <sub>EX</sub> m³/h	V <sub>SU</sub> m³/h	V <sub>EX</sub> m³/h	V <sub>SU</sub> m³/h	V <sub>EX</sub> m³/h			V <sub>THROUGH</sub> m/s			
1	Hobby room	35			45.1		30		37		jet nozzle		0.6	20	F7	yes
2	Storage room		20			36		26		21	Poppet Exhaust Air		0.8	22	G4	yes
3	Technical space		20			41.2		18		20.3	Poppet Exhaust Air		0.7	22	G4	yes
4	Office	20			31.6		19.6		19.6		jet nozzle		0.6	20	F7	yes
5	Living / kitchen	60	60		62.4	45.2	57.4	65.3	59.5	61.2	jet nozzle/poppet exhaust air		1.0	20	F7/G4	yes
6	Master bathroom		40			12.7		34.2		41	Poppet Exhaust Air		0.6	22	G4	yes
7	Bedroom 2	20			21.9		26		20.7		jet nozzle		0.6	20	F7	yes
8	Bedroom 3	20			28		26.9		19.1		jet nozzle		0.6	20	F7	yes
9	Master bedroom	25			20.6		26.1		26.1		jet nozzle		0.7	20	F7	yes
10	Bathroom		20			40.1		22.1		19.9	Poppet Exhaust Air		0.6	22	G4	yes
11	WC		20			43.6		23		19.6	Poppet Exhaust Air		0.7	22	G4	yes
12																yes / no
13																yes / no
14																yes / no
15																yes / no
	sum:	180.00	180.00	---	209.60	218.80	186.00	188.60	182.00	183.00			---	---	---	---

**2. Balance of airflow volume**

Nr.	Room	Measurement 1		Measurement 2		Measurement 3		Disbalance	Type of Control	Adjustment	Noise	Filter Grade	Filter Clean?
		V <sub>AUL</sub> m³/h	V <sub>FOL</sub> m³/h	V <sub>AUL</sub> m³/h	V <sub>FOL</sub> m³/h	V <sub>AUL</sub> m³/h	V <sub>FOL</sub> m³/h				Measurement dB(A)		
1	fresh air inlet	210	---	186	---	182	---	1%	BUS		30	F7	yes
2	exhaust air outlet	---	219	---	189	---	183		BUS		30	G4	yes

3. Initial start-up accomplished according to manufacturer's specifications:

yes

Signature: *John Smith*