



WRIGHT COUNTY OFFICE OF PLANNING AND ZONING BUILDING INSPECTION

SUBJECT:
MAKEUP AIR WORKSHEET
763-682-7338

EFFECTIVE DATE:
01/24/2015

Table 501.4.1				
Procedure to determine Makeup Air Quantity for Exhaust Equipment in Dwellings.				
Use the Appropriate Column to Estimate House Infiltration.				
	One or multiple power vent or direct vent appliances or no combustion appliances. ^A	One or multiple fan- assisted Appliances and power vent or direct vent appliances. ^B	One atmospherically vented gas or oil appliance or one solid fuel appliance. ^C	Multiple atmospherically vented gas or oil appliances or solid fuel appliances. ^D
1a) Pressure factor (cfm/sf)	0.15	0.09	0.06	0.03
1b) Conditioned floor area (sf) (including unfinished basement)				
Estimated House Infiltration (cfm) (1a x1b)				
2 Exhaust Capacity	 	 	 	
2a) continuous exhaust only ventilation systems (cfm): (not applicable to balanced ventilation systems such as HRV)				
2b) clothes dryer	135	135	135	135
2c) 80% of largest exhaust rating (cfm): (not applicable if recirculating system or if powered makeup air is electrically interlocked and matched to exhaust)				
2d) 80% of next largest exhaust rating (cfm): (not applicable if recirculating system or if powered makeup air is electrically interlocked and matched to exhaust)	Not applicable			
Total Exhaust Capacity (cfm): (2a+2b+2c+2d)				
3. Makeup Air Requirement	 	 	 	
3a) total exhaust capacity (from above)				
3b) estimated house infiltration (from above)				
Makeup air quantity (cfm): (3a-3b) (If value is negative, no makeup air is needed)				
4. For Makeup air opening sizing, refer to Table 501.4.2				

- A. Use this column if there are other than fan-assisted or atmospherically vented gas or oil *appliances* or if there are no *combustion appliances*.
- B. Use this column if there is one fan-assisted *appliance* per venting system. Other than atmospherically vented appliances may also be included.
- C. Use this column if there is one atmospherically vented (other than fan-assisted) gas or oil *appliance* per venting system or one solid fuel *appliance*.
- D. Use this column if there are multiple atmospherically vented gas or oil *appliances* using a common vent or if there are atmospherically vented gas or oil *appliances* and solid fuel *appliances*.

**Table 501.4.2
Makeup Air Opening Sizing Table for New and Existing Dwellings**

Type of opening or system	One or multiple power vent or direct vent appliances or no combustion appliances. ^A	One or multiple fan-assisted appliances and power-vent or direct vent appliances. ^B	One atmospherically vented gas or oil appliance or one solid fuel appliance. ^C	Multiple atmospherically vented gas or oil appliances or solid fuel appliances. ^D	Passive Makeup Air opening duct diameter. ^{E,F,G}
	(cfm)	(cfm)	(cfm)	(cfm)	(inches)
Passive Opening	1-36	1-22	1-15	1-9	3
Passive Opening	37-66	23-41	16-28	10-17	4
Passive Opening	67-109	42-66	29-46	18-28	5
Passive Opening	110-163	67-100	47-69	29-42	6
Passive Opening	164-232	101-143	70-99	43-61	7
Passive Opening	233-317	144-195	100-135	62-83	8
Passive Opening with Motorized Damper	318-419	196-258	136-179	84-110	9
Passive Opening with Motorized Damper	420-539	259-332	180-230	111-142	10
Passive Opening with Motorized Damper	540-679	333-419	231-290	143-179	11
Powered Makeup Air ^H	>679	>419	>290	>179	Not applicable

- A. Use this column if there are other than fan-assisted or atmospherically vented gas or oil *appliances* or if there are no combustion appliances.
- B. Use this column if there is one fan-assisted *appliance* per venting system. Other than atmospherically vented appliances may also be included.
- C. Use this column if there is one atmospherically vented (other than fan-assisted) gas or oil *appliance* per venting system or one solid fuel *appliance*.
- D. Use this column if there are multiple atmospherically vented gas or oil appliances using a common vent or if there are atmospherically vented gas or oil *appliances* and solid fuel *appliances*.
- E. An equivalent length of 100 feet of round smooth metal duct is assumed. Subtract 40 feet for the exterior hood and ten feet for each 90-degree elbow to determine the remaining length of straight duct allowable.
- F. If flexible duct is used, increase the duct diameter by one inch. Flexible duct shall be stretched with minimal sags.
- G. Barometric dampers are prohibited in passive *makeup air* openings when any atmospherically vented *appliance* is installed.
- H. Powered *makeup air* shall be electrically interlocked with the largest exhaust system.