

Minnesota Residential Energy Code

MN Rules Chapter 1322

Insulation & Fenestration Requirements

		YES	NA			YES	NA
Fenestration U-Factor:	0.35	<input type="checkbox"/>	<input type="checkbox"/>	Floor:	R-30	<input type="checkbox"/>	<input type="checkbox"/>
Skylight U-Factor:	0.60	<input type="checkbox"/>	<input type="checkbox"/>	Foundation/Rim:	R-10	<input type="checkbox"/>	<input type="checkbox"/>
Ceiling/Attic:	R-38	<input type="checkbox"/>	<input type="checkbox"/>	Slab & Depth:	R-10, 3.5ft	<input type="checkbox"/>	<input type="checkbox"/>
Wood Framed Wall	R-19	<input type="checkbox"/>	<input type="checkbox"/>	Crawl Space:	R-10	<input type="checkbox"/>	<input type="checkbox"/>
	Or (R13+R-5)						
Mass Wall	R-15	<input type="checkbox"/>	<input type="checkbox"/>				

R-5 Foundation/Rim area exception:

- Insulation on exterior or integral to foundation
- Additional R-5 added to attic
- Min. 90% AFUE furnace
- Min. 6" energy heel used in roof framing

Foundation Insulation Options

- Integral
- Interior – Rigid
- Interior – Semi-rigid
- Performance Option
- Exterior
- Interior – Unfaced fiberglass
- Interior – Spray applied

Ventilation Requirements

Total Ventilation Rate (CFM) $(0.02 \times \text{square feet of conditioned space}) + [15 \times (\text{number of bedrooms} + 1)]$
 $(0.02 \times \underline{\hspace{2cm}}) + [15 \times (\underline{\hspace{2cm}} + 1)] = \underline{\hspace{2cm}}$ CFM

Continuous Ventilation Rate (CFM) $\text{Total Ventilation Rate} / 2$ (never less than 40cfm)
 $\underline{\hspace{2cm}} / 2 = \underline{\hspace{2cm}}$ CFM

OR

Conditioned space ¹ (in sq. ft.)	Number of Bedrooms					
	1	2	3	4	5	6 ²
1000-1500	Total / Continuous 60 / 40	Total / Continuous 75 / 40	Total / Continuous 90 / 45	Total / Continuous 105 / 53	Total / Continuous 120 / 60	Total / Continuous 135 / 68
1501-2000	70 / 40	85 / 43	100 / 50	115 / 58	130 / 65	145 / 73
2001-2500	80 / 40	95 / 48	110 / 55	125 / 63	140 / 70	155 / 78
2501-3000	90 / 45	105 / 53	120 / 60	135 / 68	150 / 75	165 / 83
3001-3500	100 / 50	115 / 58	130 / 65	145 / 73	160 / 80	175 / 88
3501-4000	110 / 55	125 / 63	140 / 70	155 / 78	170 / 85	185 / 93
4001-4500	120 / 60	135 / 68	150 / 75	165 / 83	180 / 90	195 / 98
4501-5000	130 / 65	145 / 73	160 / 80	175 / 88	190 / 95	205 / 103
5001-5500	140 / 70	155 / 78	170 / 85	185 / 93	200 / 100	215 / 108
5501-6000 ²	150 / 75	165 / 83	180 / 90	195 / 98	210 / 105	225 / 113

¹ Conditioned space includes the basement.

² If conditioned space exceeds 6000 sq. ft. or there are more than 6 bedrooms, use equation listed above to calculate total ventilation rate and continuous ventilation rate.

Ventilation Type: Balanced Exhaust

International Mechanical Code

MN Rules Chapter 1346

MAKE-UP AIR REQUIREMENTS: (This work sheet assumes One or Multiple power vent or direct vent appliances or no combustion appliances)

Exhaust ONLY Ventilation Sys. (cfm) (NA for Balanced systems) _____

80 % of largest exhaust rating (cfm) + _____

Clothes Dryer (cfm) + 135

TOTAL Exhaust Capacity (cfm) = _____ (a)

Sq. Ft. of Conditioned Space: _____ X 0.15 = _____ (b) Est. House Infiltration (cfm)
(Includes unfinished basements)

_____ (a) - _____ (b) = _____

TOTAL Exhaust Capacity (cfm) Est. House Infiltration (cfm) Make-up Air Quantity (cfm)
(If value is negative, no make-up air is needed)

Passive Openings	Make-up Air Quantity (cfm)	Duct Diameter ^{1,2}	Passive Openings	Make-up Air Quantity (cfm)	Duct Diameter ^{1,2}
	1-36	3		110-163	6
	37-66	4		164-232	7
	67-109	5		233-317	8

¹ An equivalent length of 100 feet of round smooth metal duct is assumed. Subtract 40 for the exterior hood and ten feet for each 90-degree elbow to determine the remaining length of straight duct allowed.

² If flexible duct is used, increase the duct diameter by one inch. Flexible duct shall be stretched with minimal sags.

International Fuel Gas Code

MN Rules Chapter 1346

COMBUSTION AIR REQUIREMENTS:

	Input BTU	Atmospheric Vent	Fan Assist/ Power Vent	Direct Vent	Electric
Water Heater	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Furnace/Boiler	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Furnace/Boiler	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Combustion Appliance Space (CAS) volume: _____ ft³ Total Btu of Combustion Equip. _____
(Include entire unfinished basement in volume) (DO NOT include Direct Vent equipment)

INPUT RATING (Btu)	STANDARD METHOD (ft ³)	INPUT RATING (Btu)	STANDARD METHOD (ft ³)
30,000	1500	55,000	2750
35,000	1750	60,000	3000
40,000	2000	65,000	3250
45,000	2250	70,000	3500
50,000	2500	75,000	3750

Using the table above, find the btu rating that matches your TOTAL btu of combustion equip. (round up) and find the corresponding STANDARD METHOD volume. If your CAS is more than STANDARD METHOD volume, no additional combustion air is required. If not, contact Building Inspection Department for additional forms.