

HVAC EQUIPMENT DESIGN FORM

Use this checklist for one- and two-family dwellings and townhouses of any height. Groups R-2, R-3, and R-4 three stories or less in height above grade plane use the Group R version.

Address: _____ Permit #: _____ Date: _____

Permit holder: _____ Phone: _____

Homes pursuing ENERGY STAR certification may attach a completed ENERGY STAR National HVAC Design Report in lieu of completing the remainder of this form. Otherwise, complete the following information.

Mandatory Items:

- R403.1.1** Thermostats shall be programmable
- R403.3.1** Ducts in unconditioned spaces $\geq 3''$ diameter shall be insulated to $\geq R-8$ in attics and $\geq R-6$ elsewhere
- R403.3.1** Ducts in unconditioned spaces $< 3''$ diameter shall be insulated to $\geq R-6$ in attics and $\geq R-4.2$ elsewhere
- R403.2.2.1** Air handler shall have a manufacturer's designation of $\leq 2\%$ air leakage when tested per ASHRAE 193
- R403.3.3** The *Duct and Envelope Testing* form shall be completed and submitted to the inspector
- R403.4** HVAC pipe insulation is R-3 minimum (e.g. hydronic systems, refrigerant lines) and outdoor insulation is protected
- R403.7** Manual J report, including heating and cooling design loads, shall be submitted to the inspector
- R403.7** Heating and cooling equipment shall be selected in accordance with Manual S, based on loads calculated in accordance with Manual J
- Manual S.** Specified cooling equipment capacity shall be ≤ 1.15 times the design load or the next larger nominal size, whichever is greater. (Exception: Heat pumps may exceed the design load by 1.25 times or the next nominal size.)
- Manual S.** Specified heating equipment capacity shall be ≤ 1.40 times the design load or the next larger nominal size, whichever is greater
- R303.4** Whole-house mechanical ventilation worksheet has been completed (see reverse)

HVAC EQUIPMENT DESIGN FORM

Address: _____ Permit #: _____ Date: _____

Permit holder: _____ Phone: _____

WHOLE-HOUSE MECHANICAL VENTILATION DESIGN WORKSHEET

1. Fill in the conditioned floor area and number of bedrooms for the dwelling:

Conditioned Floor Area = _____ ft² Number of bedrooms = _____

2. Circle the required airflow value on the table below:

IRC Table M1507.3.3(1)

Continuous Whole-House Mechanical Ventilation System Airflow Rate Requirements

Dwelling Unit Floor Area (square feet)	Number of Bedrooms				
	0-1	2-3	4-5	6-7	>7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

3. Will the fan operate continuously or intermittently? Continuous Intermittent

4. If the fan will be operated intermittently, multiply the airflow value from Table M1507.3.3 (above) by the appropriate value in Table M1507.3.3(2) (below). Note: the fan must operate *on a pre-set schedule*.

IRC Table M1507.3.3(2)

Intermittent Whole-House Mechanical Ventilation Rate Factors

Run-time Percentage in Each 4-hour Segment	25%	33%	50%	66%	75%
Factor	4.0	3.0	2.0	1.5	1.3

5. Enter the required airflow = _____ CFM

The fan's rated airflow rate shall meet or exceed the value in **Item 5**

The fan's rated efficacy shall meet or exceed the appropriate value below:

- Bathroom/utility room fans 90 cfm or greater, in-line fans, and range hoods: **2.8 cfm/watt**
- Bathroom/utility room fans 10 cfm or greater and less than 90 cfm: **1.4 cfm/watt**
- HRV or ERV fans: **1.2 cfm/watt**