HVAC EQUIPMENT DESIGN FORM - MULTIFAMILY

Use this checklist for Groups R-2, R-3, and R-4 three stories or less in height above grade plane.

House 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 are programmable
- R403.3.1 Ducts in unconditioned spaces ≥ 3” diameter insulated to ≥ R-8 in attics and ≥ R-6 elsewhere
- R403.3.1 Ducts in unconditioned spaces < 3” diameter insulated to ≥ R-6 in attics and ≥ R-4.2 elsewhere
- R403.2.2.1 Air handler has manufacturer’s designation of ≤ 2% air leakage when tested per ASHRAE 193
- R403.3.3 The Duct and Envelope Testing form will be submitted to the inspector
- R403.3.5 Building cavities are not used as ducts (IBC-scope buildings only)
- 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, is attached
- R403.7 Heating and cooling equipment have been selected in accordance with Manual S, based on loads calculated in accordance with Manual J:

**Equipment Sizing and Selection:**

<table>
<thead>
<tr>
<th>Design loads:</th>
<th>Equipment specifications:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design cooling load: _____________ (Btu/h)</td>
<td>Cooling system output capacity: _____________ (Btu/h)</td>
</tr>
<tr>
<td>Design heating load: _____________ (Btu/h)</td>
<td>Heating system output capacity: _____________ (Btu/h)</td>
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</tbody>
</table>

- Manual S. Specified cooling equipment capacity is ≤ 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 is ≤ 1.40 times the design load or the next larger nominal size, whichever is greater

- IMC 403.3.2 Whole-house mechanical ventilation worksheet has been completed (see reverse)
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. Determine the required outdoor airflow rate per IMC 403.3.2.1 Equation 4-9:

   \[ Q_{OA} = 0.01A_{floor} + 7.5(N_{br}+1) \]

   Where:
   - \( Q_{OA} \) = outdoor airflow rate, cfm
   - \( A_{floor} \) = floor area, ft²
   - \( N_{br} \) = number of bedrooms (but not less than one)

   Show calculation below:

   \[ Q_{OA} = \_____________ \text{CFM} \]

3a. Does the fan operate continuously or intermittently?  
   - ☐ Continuous  
   - ☐ Intermittent

3b. If the fan is to be operated intermittently on a pre-set schedule, controls shall operate the fan for at least 1 hour of each 4-hour period and the airflow must be increased such that the average cfm over each 4-hour period is not less than the cfm prescribed by Equation 4-9. Describe control schedule below and fill in the design outdoor airflow rate:

   \[ Q_{OA \text{ intermittent}} = \_____________ \text{CFM} \]

4. R403.6.1. Fan efficacy. Enter the following information regarding the specified fan:

   Rated fan airflow = _________ CFM  
   Fan make: _____________________

   HVI-rated fan efficacy = _________ CFM/Watt  
   Fan model: _____________________