

# MECHANICAL VENTILATION AND REHEAT

CEC-NRCC-MCH-03-E (Revised 05/16)

<b>CERTIFICATE OF COMPLIANCE</b>	<b>NRCC-MCH-03-E</b>
<b>Mechanical Ventilation &amp; Reheat</b>	(Page 1 of 2)
Project Name:	Date Prepared:

<b>A. Mechanical Ventilation and Reheat</b>																				
ACTUAL DESIGN INFO (FROM EQUIPMENT SCHEDULES, ETC)						AREA BASIS			OCCUPANCY BASIS			ROOM BASIS	MINIMUM		VAV Reheated Primary Air CFM			VAV Deadband Primary Air CFM		
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
ZONE/ SYSTEM/ VAV BOX TAG	DESIGN PRIMARY COOLING AIRFLOW (CFM)	DESIGN PRIMARY DEADBAND AIRFLOW (CFM)	DESIGN PRIMARY HEATING AIRFLOW (CFM)	CNTRL TYPE DDC (Y/N)	TRANSFER AIRFLOW (CFM)	CONDITIONED AREA (ft <sup>2</sup> )	MIN CFM PER AREA	MIN CFM BY AREA	NUM. OF PEOPLE	CFM PER PERSON	MIN CFM BY OCCUPANT	MIN CFM BY ROOM	REQ'D VENT AIRFLOW (CFM)	COMPLIES?	PERCENTAGE BASED DESIGN PRIMARY COOLING AIR (CFM)	MAXIMUM REHEAT (CFM)	COMPLIES?	% BASED DESIGN PRMY COOLING AIR (CFM)	MAX DEAD-BAND AIRFLOW (CFM)	COMPLIES?
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**MECHANICAL VENTILATION AND REHEAT**

CEC-NRCC-MCH-03-E (Revised 05/16)



CERTIFICATE OF COMPLIANCE		NRCC-MCH-03-E
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Project Name:	Date Prepared:	

<b>DOCUMENTATION AUTHOR'S DECLARATION STATEMENT</b>	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company:	Signature Date:
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip:	Phone:
<b>RESPONSIBLE PERSON'S DECLARATION STATEMENT</b>	
I certify the following under penalty of perjury, under the laws of the State of California:	
<ol style="list-style-type: none"> <li>1. The information provided on this Certificate of Compliance is true and correct.</li> <li>2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).</li> <li>3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.</li> <li>4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.</li> <li>5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.</li> </ol>	
Responsible Designer Name:	Responsible Designer Signature:
Company :	Date Signed:
Address:	License:
City/State/Zip:	Phone:

### NRCC-MCH-03-E User Instructions

This compliance document is used to document the design outdoor ventilation rate for each space, and the total amount of outdoor air that will be provided by the space-conditioning or ventilating system. For VAV systems, this compliance document also documents the reduced CFM to which each VAV box must control before allowing reheat.

In lieu of this compliance document, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet. Mechanical Ventilation and Reheat worksheet available on the Energy Commission's website at: <http://www.energy.ca.gov/title24/2016standards/>

*Note:* In all of the calculations that compare a supply quantity to the REQ'D V.A. quantity, the actual percentage of outdoor air in the supply is ignored.

Areas in buildings for which natural ventilation is used should be clearly designated. Specifications must require that building operating instructions include explanations of the natural ventilation system.

#### Section A. Mechanical Ventilation and Reheat

ACTUAL DESIGN INFORMATION (from equipment schedules, etc):

1. ZONE/SYSTEM - is the system or zone identifier as shown on the plans.
2. DESIGN PRIMARY COOLING AIRFLOW (CFM) - the largest amount primary air supplied by the terminal unit when it's operating in the cooling mode.
3. DESIGN PRIMARY DEADBAND AIRFLOW (CFM) - smallest amount of primary air supplied by the terminal unit in the deadband mode.
4. DESIGN PRIMARY HEATING AIRFLOW (CFM) - largest amount of primary air supplied by the terminal unit when it's operating in heating mode.
5. CONTROL TYPE DDC (Y/N) - the terminal unit can be controlled with DDC controls, or non-DDC controls. Each control category has different reheat limitations.
6. TRANSFER AIRFLOW (CFM) - transfer air must be provided where Required Ventilation Airflow (Column 13) is greater than the Design Primary Deadband Airflow (Column 3).

AREA BASIS:

Outdoor air calculations are documented in Columns 7, 8 and 9. If a space is naturally ventilated, it should be noted here and the rest of the calculations (Columns 2-9 and 14) skipped. Note: Not applicable to Hotel Guest Rooms < 500 ft<sup>2</sup>.

7. CONDITION AREA (SF) - is the area in ft<sup>2</sup> for the SPACE, ZONE, or SYSTEM identified in Column 1.
8. CFM PER SF - is the minimum allowed outdoor ventilation rate as specified in Standards Table 120.1-A for the type of use listed.
9. MIN CFM BY AREA - is the minimum ventilation rate calculated by multiplying the CONDITION AREA in Column 2 by the CFM PER SQUARE FEET in Column 3.

OCCUPANCY BASIS

Outdoor air calculations are calculated in Columns 10, 11 and 12.

10. NUMBER OF PEOPLE - is determined using one of the methods described in Section 4.3.2.
11. CFM PER PERSON - is determined using one of the methods described in Section 4.3.2. Note this is generally 15 CFM/person.
12. MIN CFM BY OCCUPANT - is the NUMBER OF PEOPLE multiplied by CFM PER PERSON.

ROOM BASIS

13. MIN CFM BY ROOM – is the minimum ventilation rate as specified in Standards Table 120.1-A. Note: for Hotel Guest Rooms < 500 ft<sup>2</sup> this is 30 CFM/guest room.
14. REQ'D V.A - is based on the OCCUPANCY BASIS and AREA BASIS, or ROOM BASIS, depending on building type:
  - a. For Nonresidential building types (including Hotel Guest Rooms ≥ 500 ft<sup>2</sup>) this is the larger of the outdoor ventilation rates calculated on an OCCUPANCY BASIS and AREA BASIS (Column 12 or 9).
  - b. For High Rise Residential this is the sum of the ventilation rates calculated on an OCCUPANCY BASIS and AREA BASIS (Column 12 and 9).
  - c. For Hotel Guest Rooms < 500 ft<sup>2</sup> this is the sum of the ventilation rates calculated on an OCCUPANCY BASIS and ROOM BASIS (Column 12 and 13)
15. This column identifies whether or not the Design Primary Deadband Airflow complies or not. It compares the value in Column 14 to the value in Column 3 and Column 6.

**REHEAT LIMITATION VAV**

Reheated Primary Air CFM, in Columns 15 through 17.

16. PERCENTAGE BASED DESIGN PRIMARY COOLING AIR – Design Primary Cooling Airflow \* 0.50 for DDC, Design Primary Cooling Airflow \* 0.30 for Non-DDC. If the Design Primary Cooling Airflow is less than 300 cfm, then this is not applicable.
17. MAXIMUM REHEAT CFM - Maximum of Column 14 and Column 16. If the Design Primary Cooling Airflow is 300 cfm or less, then this is not applicable.
18. This column identifies whether or not the Design Primary Reheat Airflow at the zone level, complies or not. It compares the value in Column 17 to the value in Column 4.

**DEADBAND LIMITATION VAV**

Deadband Primary Air CFM, in Columns 19 through 21.

19. Design Primary Cooling Airflow \* 0.20 for DDC. Not applicable for Non-DDC zones or zones where Design Primary Cooling Airflow is 300 cfm or less.
20. Maximum of Column 14 and Column 19. Not applicable if the Design Primary Cooling Airflow is 300 cfm or less.
21. This column identifies whether or not the Design Primary Deadband Airflow at the zone level, complies or not. It compares the value in Column 20 to the value in Column 3.