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| Title 24, Part 6, Section 120.1(b)2 **Attached Dwelling Unit** (Ventilation)**.** All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2016 Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified by Title 24, Part 6, Section 120.1(b)2A.iv |

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| **A. Dwelling Mechanical Ventilation - General Information** | | |
| 01 | Dwelling Unit Name |  |
| 02 | Building Type |  |
| 03 | Project Scope |  |
| 04 | Total Conditioned Floor Area of Dwelling Unit  (For addition projects the conditioned floor area equals existing area plus addition area) |  |
| 05 | Number of Bedrooms in Dwelling Unit  (For addition projects the number of bedrooms equals the existing bedrooms plus addition bedrooms) |  |
| 06 | Ventilation System Type |  |
| 07 | Ventilation Operation Schedule |  |

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| **B. Ventilation - Total Ventilation Rate - MCH-27b – High-rise Residential Multifamily Ventilation**  A mechanical supply system, exhaust system, or combination thereof shall provide whole-building ventilation with outdoor air each hour at no less than the rate in 120.1(b)2A.iv | | |
| 01 | Total Required Ventilation rate, (Qtot) |  |

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| **C. Installed Ventilation - Total Ventilation Rate**  A mechanical supply system, exhaust system, or combination thereof shall provide whole-building ventilation with outdoor air each hour at no less than the rate in 120.1(b)2A.iv | | | | |
| 01 | 02 | 03 | 04 | 05 |
| Fan Name | Fan Location | Runtime (Min/Hr) | Installed Mechanical Ventilation Rate (CFM) | Equivalent Continuous Ventilation (CFM) |
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| 06 | Total Installed Equivalent Continuous Ventilation (CFM) | | |  |

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| **D. Additional Envelope Requirements** | | |
| 01 | Envelope Leakage |  |

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| **E. Additional Central Ventilation System Balancing Requirements** | | |
| 01 | Maximum Ventilation Flow (CFM) |  |

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| **F. Compliance Statement** | |
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| **G. Determination of HERS Verification Compliance**  All applicable sections of this document shall indicate compliance with the specified verification protocol requirements in order for this Certificate of Verification as a whole to be determined to be in compliance | |
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| **Documentation Author's Declaration Statement** | | |
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| 1. I certify that this Certificate of Verification documentation is accurate and complete. | | |
| Name: | Signature: | |
| Company: | Date: | |
| Address: | CEA / HERS Certification Identification (If applicable): | |
| City/State/Zip: | Phone: | |
| **Responsible Person's Declaration statement** | | |
| I certify the following under penalty of perjury, under the laws of the State of California:   1. The information provided on this Certificate of Verification is true and correct. 2. I am the certified HERS Rater who performed the verification identified and reported on this Certificate of Verification (responsible rater). 3. The installed features, materials, components, manufactured devices, or system performance diagnostic results that require HERS verification identified on this Certificate of Verification comply with the applicable requirements in Reference Nonresidential Appendices NA1 and NA2, and the requirements specified on the Certificate of Compliance for the building approved by the enforcement agency. 4. The information reported on applicable sections of the Certificate(s) of Installation (NRCI), signed and submitted by the person(s) responsible for the construction or installation conforms to the requirements specified on the Certificate(s) of Compliance (NRCC) approved by the enforcement agency. 5. I will ensure that a registered copy of this Certificate of Verification shall be posted, or 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 registered copy of this Certificate of Verification is required to be included with the documentation the builder provides to the building owner at occupancy. | | |
| **BUILDER OR INSTALLER INFORMATION AS SHOWN ON THE CERTIFICATE of Installation** | | |
| Company Name (Installing Subcontractor or General Contractor or Builder/Owner): | | |
| Responsible Builder/Installer Name: | CSLB License: | |
| **HERS PROVIDER DATA REGISTRY INFORMATION** | | |
| Sample Group Number (if applicable): | Dwelling Test Status in Sample Group (if applicable): | |
| **HERS RATER INFORMATION** | | |
| HERS Rater Company Name: | | |
| Responsible Rater's Name: | | Responsible Rater's Signature: |
| Responsible Rater's Certification Number w/ this HERS Provider: | | Date Signed: |

**NRCV-MCH-27b-H User Instructions**

**Section A. General Information**

1. Dwelling Unit Name: User input text from the NRCC-PRF-01 (Performance) or NRCC-MCH-01 (Prescriptive). This is the unique identifier for this dwelling unit. Needed for high-rise residential dwelling units. Ventilation is calculated and provided for each dwelling unit individually.
2. Building Type: Fixed value equal to high-rise residential.
3. Project Scope: User select from following new, addition, or alteration. Based on project scope from the NRCC-PRF-01 (Performance) or NRCC-MCH-01 (Prescriptive).
4. Total Conditioned Floor Area of Dwelling Unit: User input number based on the information from NRCC-PRF-01 (Performance) or NRCC-MCH-01 (Prescriptive).
5. Number of Bedrooms in Dwelling Unit: User input number based on the information from NRCC-PRF-01 (Performance) or NRCC-MCH-01 (Prescriptive).
6. Ventilation system Type: This is a user selected value from list of ventilation types Supply, Exhaust, Balanced, Balanced – ERV, Balanced – HRV, Central Fan Integrated (CFI), Central Ventilation System – Supply and Central Ventilation System – Exhaust and Central Ventilation System Balanced.
7. Ventilation operation schedule: This is a user selected value from list of Continuous, Short-Term Average, Scheduled and Real-time Control.

* Note if “Ventilation System Type” (A06) = Central Fan Integrated & “Ventilation Operation Schedule” (A07) = Continuous; then user will not be allowed to proceed.

**Section B. Ventilation - Total Ventilation Rate - High-rise Residential Multifamily Ventilation**

1. This value is automatically calculated using equation 120.1-B from the Energy Standards.

**Section C. Installed Ventilation – Total Ventilation Rate Method**

1. User input text identifying the fan name for each installed ventilation fan.
2. User input text identifying the fan location for each installed ventilation fan.
3. Runtime (Min/Hr): This value may be filled out automatically or be user input.

* If ventilation operation schedule from section A = “continuous”, then value of 60 will be automatically entered.
* If ventilation operation schedule from section A = “short term average”, then user enter value of less than or equal to 60 for each installed ventilation fan.

1. User to enter CFM value from test procedures described in NA7.18.1 for each installed ventilation fan.
2. Equivalent continuous ventilation CFM is automatically calculated for each ventilation fan.
3. Total installed equivalent continuous ventilation CFM is automatically calculated based on the installed ventilation fans.

**Section D. Additional Envelope Requirements**

1. Envelope Leakage: This field is filled out automatically. It is referenced from the NRCC-MCH-24, which must be completed prior to this document.

**Section E.** **Additional Central Ventilation System Balancing Requirements**

1. Maximum Ventilation Flow (CFM): This field is filled out automatically calculated.

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| Title 24, Part 6, Section 120.1(b)2 **Attached Dwelling Unit** (Ventilation)**.** All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2016 Ventilation and Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified by Title 24, Part 6, Section 120.1(b)2A.iv |

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| **A. Dwelling Mechanical Ventilation - General Information** | | |
| 01 | Dwelling Unit Name | <<user input, text, maximum 50 characters>> |
| 02 | Building Type | << Fixed value “High-rise Residential”>> |
| 03 | Project Scope | <<user pick select from list: New; Addition; or Alteration>> |
| 04 | Total Conditioned Floor Area of Dwelling Unit  (For addition projects the conditioned floor area equals existing area plus addition area) | <<user input, number, integer XXX>> |
| 05 | Number of Bedrooms in Dwelling Unit  (For addition projects the number of bedrooms equals the existing bedrooms plus addition bedrooms) | <<user input, number, integer XXX>> |
| 06 | Ventilation System Type | <<Calculated value, allow user pick one from list:  \*\*Supply  \*\*Exhaust; or  \*\*Balanced; or  \*\*Balanced – ERV; or  \*\*Balanced – HRV; or  \*\*Central Fan Integrated (CFI); or  \*\*Central Ventilation System – Supply; or  \*\*Central Ventilation System – Exhaust; or  \*\*Central Ventilation System – Balanced >> |
| 07 | Ventilation Operation Schedule | << Calculated value, allow user pick one from list:  \*\*Continuous; or  \*\*Short-Term Average;  Else if “Ventilation System Type” (A06) = Central Fan Integrated & “Ventilation Operation Schedule” (A07)= Continuous; then display:  “Central Fan Integrated Ventilation System Not Allowed to Operate Continuously **- Do Not Proceed”>>** |
| 08 | determine compliance method for this document; display applicable tables below;  (this row not visible to user) | <<calculated field: Else if “Building Type” (A02) = High-rise Residential and “Ventilation Operation Schedule (A07) ≠ Scheduled or Real-Time Control, then display method:  **\*\*27b – High-rise Residential Ventilation;**  Else if “Building Type” (A02) = High-rise Residential and “Ventilation Operation Schedule (A07) = Scheduled or Real-Time Control, then display method:  **\*\*27c – High-rise Residential Ventilation – Scheduled or Real-Time Control**>> |
| Note:  Non-dwelling units do not meet the definition for a dwelling unit as defined in Section 100.1(b). Non-dwelling units are not designed to provide independent living facilities and do not provide permanent provisions for living, sleeping, eating, cooking and sanitation. | | |

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| **B. Ventilation - Total Ventilation Rate - MCH-27b – High-rise Residential Multifamily Ventilation**  A mechanical supply system, exhaust system, or combination thereof shall provide whole-building ventilation with outdoor air each hour at no less than the rate in 120.1(b)2A | | |
| 01 | Total Required Ventilation rate, (Qtot) | <<calculated field, numeric: (use equation 120.1-B): [(0.03 \* “Total Conditioned Floor Area of Dwelling Unit” (A04)) + (7.5\*(“Number of Bedrooms in Dwelling Unit” (A05) + 1)], (cfm). >> |

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| **C. Installed Ventilation - Total Ventilation Rate**  A mechanical supply system, exhaust system, or combination thereof shall provide whole-building ventilation with outdoor air each hour at no less than the rate in 120.1(b)2A | | | | |
| 01 | 02 | 03 | 04 | 05 |
| Fan Name | Fan Location | Runtime (Min/Hr) | Installed Mechanical Ventilation Rate (CFM) | Equivalent Continuous Ventilation (CFM) |
| << user input, text>> | <<user input, text>> | <<calculated field: if value in “Ventilation Operation Schedule” (A07) equals Continuous, then value equals 60;  Else if value in “Ventilation Operation Schedule” (A07) equals Short Term Average ,then user input value positive integer ≤ 60>> | << user input, positive integer>> | <<calculated field, value = (“Runtime (Min/Hr)” (C03) \* “Installed Mechanical Ventilation Rate (CFM)” (C04)) / 60 (CFM)>> |
|  |  |  |  |  |
|  |  |  |  |  |
| 06 | Total Installed Equivalent Continuous Ventilation (CFM) | | | <<calculated field, value = sum of values in column “Equivalent Continuous Ventilation (CFM)” (C05)>> |

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| **D. Additional Envelope Requirements**  <<if Ventilation System Type (A06) equals Supply, Exhaust, Central Fan Integrated (CFI), Central Ventilation System – Supply or Central Ventilation System – Exhaust then display Table D; Else display the section does not apply message>> | | |
| 01 | Envelope Leakage | << calculated field, referenced data from NRCV-MCH-24>> |

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| **E. Additional Central Ventilation System Balancing Requirements**  <<if Ventilation System Type (A06) equals Central Ventilation System – Supply, Central Ventilation System – Exhaust or Central Ventilation System – Balanced then display Table E; Else display the section does not apply message>> | | |
| 01 | Maximum Ventilation Flow (CFM) | <<calculated field, “Required Mechanical Ventilation Rate (B01) \* 1.20>> |

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| **F. Compliance Statement** | |
| 01 | <<If Else if the “Ventilation System Type” (A06) equals Balanced, Balanced – ERV or Balanced – HRV and the “Total Installed Equivalent Continuous Ventilation” (C06) ≥ “Total Required Ventilation Rate” (B01), then display text: "Building Passes Mechanical Ventilation Rate Test”  Else if the “Ventilation System Type” (A06) equals Central Ventilation System – Balanced and the “Total Installed Equivalent Continuous Ventilation” (C06) ≥ “Total Required Ventilation Rate” (B01) and the “Total Installed Equivalent Continuous Ventilation” (C06) ≤ “Maximum Ventilation Flow” (E01), then display text: "Building Passes Mechanical Ventilation Rate Test”  Else if the “Ventilation System Type” (A06) equals Supply, Exhaust, Central Fan Integrated (CFI) and the “Total Installed Equivalent Continuous Ventilation” (C06) ≥ “Total Required Ventilation Rate” (B01), and if “Envelope Leakage” (D01) ≤ “Target dwelling unit compartmentalization leakage” (taken from NRCV-MCH-24), then display text: "Building Passes Mechanical Ventilation Rate Test”  Else if the “Ventilation System Type” (A06) equals Central Ventilation System – Supply or Central Ventilation System – Exhaust and the “Total Installed Equivalent Continuous Ventilation” (C06) ≥ “Total Required Ventilation Rate” (B01), and if “Envelope Leakage”(D01) ≤ “Target dwelling unit compartmentalization leakage” (taken from NRCV-MCH-24), and the “Total Installed Equivalent Continuous Ventilation” (C06) ≤ “Maximum Ventilation Flow” (E01), then display text: "Building Passes Mechanical Ventilation Rate Test”  Else display text: "Building Fails Mechanical Ventilation Rate Test">> |

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| **G. Determination of HERS Verification Compliance**  All applicable sections of this document shall indicate compliance with the specified verification protocol requirements in order for this Certificate of Verification as a whole to be determined to be in compliance. | |
| 01 | <<if F01 = Building Passes Mechanical Ventilation Rate Test, then display: “Complies: All specified verification protocol requirements on this document are met”; else display: “Does not comply: One or more specified verification protocol requirements on this document are not met”>> |







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| **Documentation Author's Declaration Statement** | | | |
| 1. I certify that this Certificate of Installation documentation is accurate and complete. | | | |
| Documentation Author Name: | | Documentation Author Signature: | |
| Documentation Author Company Name: | | Date Signed: | |
| Address: | | CEA/HERS Certification Identification (If applicable): | |
| City/State/Zip: | | Phone: | |
| **Responsible Person's Declaration statement** | | | |
| I certify the following under penalty of perjury, under the laws of the State of California:The information provided on this Certificate of Installation is true and correct.  1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the scope of construction or installation, in the applicable classification, for the scope of work specified on this Certificate of Installation (responsible builder/installer), otherwise I am an authorized representative of the responsible builder/installer. 2. The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations, and the installation conforms to the requirements given on the plans and specifications approved by the enforcement agency. 3. I understand that a HERS rater will check the installation to verify compliance, and that if such checking identifies defects; I am required to take corrective action at my expense. I understand that Energy Commission and HERS Provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense. 4. I reviewed a copy of the Certificate of Compliance approved by the enforcement agency that identifies the specific requirements for the scope of construction or installation identified on this Certificate of Installation, and I have ensured that the requirements that apply to the construction or installation have been met. 5. I will ensure that a registered copy of this Certificate of Installation shall be posted, or 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 registered copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy. | | | |
| Responsible Builder/Installer Name: | Responsible Builder/Installer Signature: | | |
| Company Name: (Installing Subcontractor or General Contractor or Builder/Owner) | Position With Company (Title): | | |
| Address: | CSLB License: | | |
| City/State/Zip: | Phone | | Date Signed: |
| Third Party Quality Control Program (TPQCP) Status: | Name of TPQCP (if applicable): | | |