Ventilation for Indoor Air Quality (IAQ): All dwelling units shall meet the requirements of ANSI/ASHRAE standard 62.2. Ref: Title 24 Part 6 Section 150(o). Equation and table numbering on this CF-6R corresponds to the numbering for that information in the published ASHRAE Standard 62.2.

WHOLE-BUILDING VENTILATION

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 equation 4.1a. For dwelling occupant densities known to be greater than (N_{br} + 1), the rate shall be increased by 7.5 cfm for each additional person.

(Eq. 4.1a) $Q_{fan} = 0.01A_{floor} + 7.5(N_{br} + 1)$

Where:
A_{floor} = conditioned floor area, ft^2
N_{br} = number of bedrooms; not to be less than one
Q_{fan} = ventilation air requirement = fan flow rate, (cfm)

Enter Eq 4.1a Calculation:
A_{floor} =
N_{br} =
Q_{fan} =

Delivered Ventilation: The effective ventilation rate of an **intermittent** system is the combination of its delivered capacity, its fractional on-time, cycle time, and the ventilation effectiveness from Table 4.2. This calculation only applies to intermittent systems.

(Eq. 4.2) $Q_f = Q_r / (\varepsilon f)$

Where:
Q_r = ventilation air requirement from Eq. 4.1a (above)
f = daily fractional on-time, (%)
ε = ventilation effectiveness (from Table 4.2)
Q_f = fan flow rate during the on-cycle (cfm)

Enter Eq 4.2 Calculation (if applicable).
Q_r =
f =
ε =
Q_f =

Table 4.2 – Ventilation Effectiveness for Intermittent Fans

Daily Fractional On-Time, f	Ventilation effectiveness, ε
$f \leq 35\%$	0.33
$35\% \leq f < 60\%$	0.50
$60\% \leq f < 80\%$	0.75
$80\% \leq f$	1.0
Fan runs at least once every three hours	1.0

Whole-Building Ventilation Rate Summary

Select the method used to provide Whole-Building Ventilation and enter the required fan flow rate (cfm). Select one:

☐ Continuous fan flow (cfm) =_____

☐ Intermittent fan flow (cfm) =_____

Use the fan flow rate from this summary for selection of the whole-building ventilation fan and for the duct design for the whole-building ventilation system. Provide the system design information in applicable sections below.

LOCAL VENTILATION EXHAUST

Local mechanical exhaust fans shall be installed in each kitchen and bathroom. The minimum airflow rates shall be at least the amount indicated in tables 5.1 and 5.2.

Table 5.1
Intermittent Local Ventilation Exhaust Airflow Rates

Application	Airflow	Notes
Kitchen	100 cfm	Vented range hood required if exhaust fan flow is less than 5 ACH
Bathroom	50 cfm	

Table 5.2
Continuous Local Ventilation Exhaust Airflow Rates

Application	Airflow	Notes
Kitchen	5 ACH	Based on Kitchen Volume
Bathroom	20 cfm	

VENTILATION SYSTEM DESIGN – Fan selection and duct design criteria for compliance

The airflow rates required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measuring device. Alternatively, the airflow rating at a pressure of 0.25 in. w.c. of a certified fan may be used to demonstrate compliance without testing of the airflow of the installed system, provided the system duct sizing meets the prescriptive requirements of Table 7.1, or manufacturer's design criteria. Other methods may be used to provide the required ventilation rates when approved by a licensed design professional, subject to confirmation of delivered ventilation airflow of the installed system. Central Fan Integrated (CFI) ventilation systems shall demonstrate compliance by field testing of the delivered ventilation airflow of the installed system.

WHOLE-BUILDING VENTILATION SYSTEM DESIGN - Identify the ventilation system design criteria		
(select one criteria from this column)	**Requirements for installer to demonstrate compliance with code**	**Airflow Test Required?**
☐ Prescriptive design (Table 7.1)	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the Table 7.1 prescriptive design criteria.	no
☐ Central Fan Integrated (CFI)	Central forced air system fans used in Central Fan Integrated ventilation systems shall demonstrate, in air distribution mode, a watt draw less than 0.58 W/CFM per Standards §151(f)11. Submit a CF-6R-MECH-22-HERS form for each forced air unit used for a CFI system. HERS verification is required.	yes
☐ Engineered Design	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the engineered ventilation system design approved by the enforcement agency.	yes
☐ Manufacturer's design criteria	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the manufacturer's ventilation system duct design criteria.	no

LOCAL VENTILATION SYSTEM DESIGN - Identify the ventilation system design criteria		
(select one criteria from this column)	**Requirements for installer to demonstrate compliance with code**	**Airflow Test Required?**
☐ Prescriptive design (Table 7.1)	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the Table 7.1 prescriptive design criteria.	no
☐ Engineered Design	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the engineered ventilation system design approved by the enforcement agency.	yes
☐ Manufacturer's design criteria	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the manufacturer's ventilation system duct design criteria.	no

Table 7.1 Prescriptive Duct Sizing Requirements

Diameter, (in)	Flex Duct				Smooth Duct			
Fan Rating cfm @ 0.25 in. w.g.	50	80	100	125	50	80	100	125
	Maximum Allowable Duct Length (ft)							
Diameter, (in)	Flex Duct				Smooth Duct			
3	X	X	X	X	5	X	X	X
4	70	3	X	X	105	35	5	X
5	NL	70	35	20	NL	135	85	55
6	NL	NL	125	95	NL	NL	NL	145
7 and above	NL	NL	NL	NL	NL	NL	NL	NL

This table assumes no elbows. Deduct 15 ft of allowable duct length for each turn, elbow, or fitting. Interpolation and extrapolation in Table 7.1 is not allowed. For airflow values not listed, use the next higher value. This table is not applicable for airflow > 125 cfm.
NL = no limit on duct length of this size.
X = not allowed, any length of duct of this size with assumed turns, elbows, fittings will exceed the rated pressure drop.

INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION

Ventilation devices and equipment shall be tested and rated by HVI procedures for airflow and sound. Sound rating maximum is 1.0 sone for all continuous duty fans; 1.0 sone for intermittent duty whole-building fans; and 3.0 sone for intermittent duty local exhaust fans. Refer to the Residential Compliance Manual section 4.6 for information about exclusions to these sound rating requirements. In the table below, list the fan equipment installed that meets the requirement for whole-building ventilation and local ventilation exhaust.

Fan or System Name or Location[1]	System Type[2] (WBV or LVE)	Required Airflow[3] (CFM)	Fan Manufacturer Name[4]	Fan Model Number[5]	Certified Airflow[6] (CFM)	Sound Rating[7] (Sone)	Fan Watts[8]	Calculate Fan (Watt per CFM)[9]

1) Enter the Fan or System Identification Name or Location Name or System Identifier (e.g. "Bath02" "MastBath", "Kitchen01").
2) What type of ventilation requirement is the fan specified to meet? WBV (whole-building ventilation) or LVE (local ventilation exhaust).
3) Enter the required ventilation airflow values determined by the calculations or tables in the WHOLE-BUILDING VENTILATION and/or LOCAL VENTILATION EXHAUST sections at the beginning of this Installation Certificate (CFM). At least one fan must be designated for use for compliance with the "Whole-Building Ventilation" requirement.
4) Enter the fan manufacture's name.
5) Enter the fan model number or series number.
6) Enter the fan's Certified Airflow rating at 0.25 inch w.c. (CFM). Fans rated at less than 0.25 inch w.c. (e.g. 0.1inch w.c.) cannot be used to comply with the ventilation requirements using the prescriptive design criteria in Table 7.1. This certified airflow rating value must be equal to or greater than the required airflow from column 3 of this table when demonstrating compliance using the prescriptive design criteria in Table 7.1.
7) Enter the fan's certified sound rating (Sone) corresponding to the certified airflow rating that was entered in column 6 of this table for the fan.
8) Enter the fan watt draw corresponding to the certified airflow rate that was entered in column 6 of this table for the fan.
9) Divide the Watt value from column 8 by the Certified Airflow value (CFM) from column 6. Fans are required to be rated for operation at less than 1.2 Watt/CFM.

INSTALLED VENTILATION DUCT SYSTEM INFORMATION

Airflows required by the standard refer to delivered airflow of the installed system as determined by testing with a flow hood, flow grid, or other measuring device. Alternatively, the installed equipment's HVI airflow rating at a pressure of 0.25 inch w.c. may be used, provided the system can be inspected to confirm the duct sizing meets the prescriptive requirements of Table 7.1, or manufacturer's duct design criteria.

Fan or System Name or Location[1]	Compliance Method[2] (T; P; or M)	Required Airflow[3] (CFM)	Airflow Test[4] (CFM)	Duct Type[5]	Number of Elbows and Fittings[6]	Actual Duct Length[7] (ft)	Allowable Duct Length[8] (ft)	Pass or Fail[9]

1. *Enter the Fan or System Identification Name, or Location Name, or System Identifier. These should be the same identifiers as shown in the INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION table column 1 above.*
2. *Enter the method for demonstrating compliance with the ventilation airflow requirements. Enter "T" for Tested ;"P" for Prescriptive Table 7.1 design criteria (inspection); "M" for Manufacturer's duct design criteria (inspection). Note: the building official may require submittal of manufacturer's published design criteria documentation if compliance is to be demonstrated by inspection of the installation for conformance to manufacturer's design criteria.*
3. *Enter the required ventilation airflow values determined by the calculations or tables in the WHOLE-BUILDING VENTILATION and/or LOCAL VENTILATION EXHAUST sections at the beginning of this Installation Certificate (CFM). These should be the same airflow values that were entered for each corresponding fan in column 3 of the INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION table above.*
4. *If complying by a method that requires an Airflow Test of the installed system, enter the result from the Airflow Test for the installed system (CFM).*
5. *Enter duct type for the installed system. Choices are "Flex" or "Smooth" if using Table 7.1 for compliance.*
6. *Enter total number of elbows or fittings or abrupt turns in the ventilation duct for the installed system.*
7. *Enter the installed system's actual total duct length (ft).*
8. *If complying by use of the prescriptive design criteria or manufacturer's design criteria, enter the Maximum Allowable Duct Length (ft) for the system as determined by Table 7.1 or manufacturer's duct design criteria.*
9. *If complying by airflow test, the system passes if the Tested Airflow[4] equals or exceeds the Required Airflow[3]. If complying by demonstrating conformance to prescriptive design criteria or manufacturer's design criteria, the system passes if actual total duct length from column 7 is less than the maximum allowed length from column 8. Enter: Pass or Fail*

OTHER REQUIREMENTS

The items listed below (6.1 through 6.8) correspond to the information given in ASHRAE 62.2 Section 6 "Other Requirements". Refer also to Chapter 4.6 of the Residential Compliance Manual (Section 4.6.5) for information describing these "Other Requirements". The signature of the Responsible Person in the declaration statement below certifies that the building complies with these requirements specified in ASHRAE 62.2 Section 6.1 through 6.8 if applicable.

☐ 6.1 Transfer Air

☐ 6.2 Instructions and Labeling

☐ 6.3 Cloths Dryers

☐ 6.4 Combustion and solid-fuel burning appliances

☐ 6.5 Garages

☐ 6.6 Ventilation Opening Area

☐ 6.7 Minimum filtration

☐ 6.8 Air Inlets

☐ Prescriptive Designs: For ventilation systems that utilize *prescriptive design* criteria, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the prescriptive ventilation system design criteria from Table 7.1 of Standard 62.2 and manufacturer's installation specifications.

☐ Engineered Designs: For ventilation systems that utilize *engineered design* criteria, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the engineered ventilation system design documentation approved by the enforcement agency.

☐ Manufacturer's design criteria: For ventilation systems that utilize *manufacturer's design criteria*, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the manufacturer's published duct system design criteria and installation specifications.

DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- **I will ensure that a completed, signed copy of this Installation Certificate 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 signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.**

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)		
Responsible Person's Name:		Responsible Person's Signature:
CSLB License:	Date Signed:	Position With Company (Title):