

## LAB EXHAUST VENTILATION

2022-CEC-NRCA-PRC-14-F

Project Name and Address	Authority Having Jurisdiction
Name:	Enforcement Agency:
Address:	Permit Number:
City, Zip:	Permit Application Date:

Building:	Floor:	Room:	Control/tag:

Construction inspection and functional testing comply	Data Submitted to AH1:
Does not comply	Date Submitted to Airb.

Intent:The document is used to demonstrate compliance with acceptance requirements<br/>§140.9(c)3 and Reference Nonresidential Appendix NA7.16

## Table A-1: Construction Inspection - Wind Speed/Direction Control

Step	Entry	Item	Code Reference
1	Pass	Anemometer sensor factory calibration certificate is valid or recalibrated within manufacturer's recommendations or no more than 5 years.	NA7.16.1 §140.9(c)3Ciii
2	Pass	Sensor located at a height outside the wake region of nearby structures and experiences similar wind conditions to the free stream environment above the exhaust stacks	NA7.16.1(b) §140.9(c)3ci
3	Pass	Sensor installed in close proximity to the fan it controls so that it captures a representative wind speed/direction	NA7.16.1(c) §140.9(c)3Ci
4	Pass	Sensor wired correctly to controls ensuring proper volume flow rate control	NA7.16.1(d) §140.9(c)3Civ
5	Pass	Wind speed/direction look-up table establish and match dispersion analysis results	NA7.16.1(e) §140.9(c)3Cii
6	<ul> <li>airflow</li> <li>static press</li> <li>speed/vol</li> <li>other:</li> </ul>	Verify methodology used to measure volume flow rate. Method used (airflow sensor, static pressure, fan speed to volume flow rate curve, specified-other):	NA7.16.1(f)
7	Pass	Verify that the Construction Inspection complies with all requirements.	N/A



Table B-1: Functional Testing - Wind Speed/Direction Control			
Step	Entry	Functional Test	Code Reference
1.1		Simulate minimum look-up table wind speed by either covering the anemometer sensor or overriding the curve points so that the current wind speed is below the speed correlating to the minimum volume flow rate at the stack.	NA7.16.2 step 1
1.2	Pass	With all sensors active and reading below the minimum wind speed, verify that stack volume flow rate matches minimum flow rate from look-up table.	NA7.16.2 step 1(a), §140.9(c)3Cii
1.3		Restore all curve points.	NA7.16.2 step 1(b)
2.1		Simulate mid-range look-up table wind speed by either inducing a wind current, with an air speed accuracy of +/-2%, or overriding the curve points so that the current wind speed correlates to a mid-range stack volume flow rate.	NA7.16.2 step 2, §140.9(c)3Cii
2.2	Pass	With all sensors active and reading a mid-range wind speed, verify that the stack volume flow rate matches mid-range flow rate from corresponding wind speed in look-up table.	NA7.16.2 step 2(a), §140.9(c)3Cii
2.3		Restore all curve points.	NA7.16.2 step 2(b)
3.1	Pass Fail	Simulate maximum look-up table wind speed by either inducing a wind current, with an air speed accuracy of +/- 2%, or overriding the curve points so that the current wind speed correlates to the maximum stack volume flow rate at the stack.	NA7.16.2 step 3
3.2		Verify that the stack volume flow rate matches maximum flow rate from look-up table.	NA7.16.2 step 3(a), §140.9(c)3Cii
3.3		Restore all curve points.	NA7.16.2 step 3(b)
4.1		Temporarily override the sensor calibration/replacement period to 5 minutes. Wait 5 minutes.	NA7.16.2 step 4, §140.9(c)3Civ
4.2	Pass	Verify that the minimum stack volume flow rate is matches the flow rate corresponding to worst-case wind conditions documented in dispersion analysis and alarm is received by facility operators	NA7.16.2 step 4, §140.9(c)3Civ
4.3		Restore calibration/replacement period.	NA7.16.2 step 4
5.1		Simulate sensor failure by disconnecting the anemometer.	NA7.16.2 step 5
5.2	Pass	Verify that the minimum stack volume flow rate matches the flow rate corresponding to worst-case wind conditions documented in dispersion analysis and alarm is received by facility operators	NA7.16.2 step 5, §140.9(c)3Civ



Step	Entry	Functional Test	Code Reference
5.3		Reconnect sensor.	NA7.16.2 step 5
6	Pass	Verify that the Functional Test complies with all requirements.	N/A

## **Table A-2: Construction Inspection - Contaminant Concentration Control**

			Code
Step	Entry	Item	Reference
1	Pass Fail	Contaminant sensor factory calibration certificate is valid or recalibrated within manufacturer's recommendations.	NA7.16.3(a), §140.9(c)3Dii
2	Pass Fail	Contaminant sensor located within each exhaust plenum	NA7.16.3(b), §140.9(c)3D
3	Pass	Contaminant sensor wired correctly to controls ensuring proper volume flow rate control	NA7.16.3(c), §140.9.(c)3Di
4	Pass	Contaminant concentration threshold has been established and matches dispersion analysis result	NA7.16.3(d), §140.9(c)3Di
5	Pass	Verify methodology used to measure volume flow rate. Method used (airflow sensor, static pressure, fan speed to volume flow rate curve, specific-other)	NA7.16.3(e)
6	<ul> <li>airflow</li> <li>static press</li> <li>speed/vol</li> <li>other:</li> </ul>	Verify methodology used to measure volume flow rate. Method used (airflow sensor, static pressure, fan speed to volume flow rate curve, specified- other):	NA7.16.3(e)
7	Pass	If multiple sensors are present, fan control is based on highest concentration reading	NA7.16.3(f)
8	Pass	Check if construction inspection complies with all requirements.	N/A

## Table B-2: Functional Testing - Contaminant Concentration Control

Step	Entry	Functional Test	Code Reference
1	Pass Fail	Ensure that no contaminant event is active. Simulate a minimum exhaust air demand in all lab spaces. Verify that the stack volume flow rate is equal to or greater than corresponding non-event value.	NA7.16.4 step 1, §140.9(c)3Di
2	Pass Fail	Simulate a mid-range exhaust air demand in all lab spaces. Verify that the stack volume flow rate is greater than, or equal to the corresponding non- event value.	NA7.16.4 step 2, §140.9(c)3Di
3.1		Simulate a mid-range exhaust air demand in all lab spaces.	NA7.16.4 step 3



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Step	Entry		Reference
32		Simulate a contamination event	NA7.16.4
5.2			step 3
			NA7.16.4
3.3		verify that the volume flow rate at the stack is at or	step 3.
0.0	🔄 Fail	above the minimum event value.	8140 9(c)3Diii
		Increase exhaust air demand at the lab spaces	3110.5(c)50m
	Pass		NA7.16.4
4		Verify the stack volume flow rate is at or above the	sten 4
		minimum value.	
F 1		Temporarily override the sensor calibration/	NA7.16.4
5.1		replacement period to 5 minutes.	step 5
			NA7.16.4
5.2		Wait 5 minutes.	sten 5
	Dace		
5.3		Restore calibration/replacement period.	NA7.10.4
			step 5
		Simulate sensor failure by disconnecting the sensor.	NA7 16 4
6 1	Pass	Verify that the volume flow rate is at or above the	stop 6
0.1	🗌 Fail	required for a contaminant event or greater and	step 6,
		that an alarm is received by the facility operators.	§140.9(c)3Diii
			NA7 16 4
6.2		Reconnect sensor	stop 6
			step o
7		Verify that the Functional Test complies with all	N/A
,	🔄 🗋 Fail	requirements.	11/7



Declaration Statement	Signatory
Document Author	
I assert that this Certificate of Acceptance documentation is accurate and complete.	
Field Technician	
I certify the following under penalty of perjury, under the laws of the State of California:	
The information provided on this Certificate of Acceptance is true and correct. I am the person who	
performed the acceptance verification reported on this Certificate of Acceptance (Field Technician). The	
construction or installation identified on this Certificate of Acceptance complies with the applicable	
acceptance requirements indicated in the plans and specifications approved by the enforcement agency	
and conforms to the applicable acceptance requirements and procedures specified in Reference	
Nonresidential Appendix NA7. I have confirmed that the Certificate(s) of Installation for the construction or	
installation identified on this Certificate of Acceptance has been completed and signed by the responsible	
builder/installer and has been posted or made available with the building permit(s) issued for the building.	
Responsible Person	
I assert the following under penalty of perjury, under the laws of the State of California:	
I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and	
I have reviewed the information provided on this Certificate of Acceptance. I am eligible under Division 3	
of the Business and Professions Code in the applicable classification to accept responsibility for the system	
design, construction or installation of features, materials, components, or manufactured devices for the	
scope of work identified on this Certificate of Acceptance and attest to the declarations in this statement	
(responsible acceptance person). The information provided on this Certificate of Acceptance substantiates	
that the construction of installation identified on this certificate of Acceptance compiles with the	
acceptance requirements indicated in the plans and specifications approved by the enforcement agency	
And comortis to the applicable acceptance requirements and procedures specified in Reference	
or installation identified on this Cortificate of Accontance has been completed and is posted or made	
available with the building normit(s) issued for the building. I understand that a completed signed convict	
this Certificate of Acceptance 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, and I will take the	
necessary steps to ensure this requirement is accomplished. I understand that a signed conv of this	
Certificate of Acceptance is required to be included with the documentation the builder provides to the	
building owner at occupancy and I will take the necessary steps to ensure this requirement is	
accomplished.	