

SUPPLY FAN VARIABLE FLOW CONTROLS ACCEPTANCE



CERTIFICATE OF ACCEPTANCE		NRCA-MCH-07-A
Supply Fan Variable Flow Controls Acceptance		(Page 1 of 3)
Project Name:	Enforcement Agency:	Permit Number:
Project Address:	City:	Zip Code:
System Name or Identification/Tag:	System Location or Area Served:	

<i>Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance.</i>	Enforcement Agency Use: Checked by/Date
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Intent:	Verify that the supply fan speed in a variable air volume system modulates to meet system airflow demand.
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A. Construction Inspection
<i>Note: MCH-07 can be performed in conjunction with MCH-02 Outdoor Air Acceptance since testing activities overlap.</i>
1. Supporting documentation needed to perform test includes:
a. As-built and/or Design Documents including Mechanical Equipment Schedules.
b. 2016 Building Energy Efficiency Standards Nonresidential Compliance Manual (<i>NA7.5.6 Supply Fan Variable Flow Controls Acceptance At-A-Glance</i>).
c. 2016 Building Energy Efficiency Standards.
2. Instrumentation to perform test includes:
a. Calibrated differential pressure gauge.
Date of calibration: _____ (must be within one year)
b. Static Pressure Probe
c. Drill
d. Rubber Plugs
3. Installation:
a. The static pressure location, setpoint, and reset control meets the requirements of 2016 Building Energy Efficiency Standards Section 140.4(c)2B and 140.4(c)2C: (check all the following that apply).
<input type="checkbox"/> If sensor is located downstream of major duct splits, multiple sensors are installed in each major branch with fan capacity controlled to satisfy the sensor furthest below its setpoint.
<input type="checkbox"/> Set point is no greater than one-third of the total design fan static pressure.
Design TSP: _____ in. w.c. Setpoint: _____ in.w.c.
<input type="checkbox"/> If system has DDC to the zone level it has reset control complying with 2016 Building Energy Efficiency Standards Section 140.4(c) 2C. Reset is based on the zone requiring the most pressure; i.e., the set point is reset lower until one zone damper is nearly wide open.
b. Supply fan includes a device for modulating airflow, such as variable speed drive or electrically commutated motor.
4. Field calibrate all discharge static pressure sensors:
<input type="checkbox"/> Performed field-calibration using calibrated differential pressure gauge and static pressure probe.
<input type="checkbox"/> Calibration complete, all pressure sensors ± 10% of calibrated reference sensor (provide supporting documentation).
Notes:

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CEC-NRCA-MCH-07-A (Revised 01/16)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF ACCEPTANCE		NRCA-MCH-07-A
Supply Fan Variable Flow Controls Acceptance		(Page 2 of 3)
Project Name:	Enforcement Agency:	Permit Number:
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B. Functional Testing	Results
Step 1: Drive all VAV boxes to full design airflow.	
a. Refer to design documents and record system design airflow.	cfm
b. Supply fan speed modulates to increase capacity.	Y / N
c. Record fan frequency:	Hz
d. Supply fan maintains discharge static pressure \pm 10% of the current operating set point. If NA, indicate reason in Notes section.	Y / N / NA
Note: If NOT performing this test in conjunction with MCH-02, other methods for verifying Variable Flow operation include increasing static pressure setpoint or putting all the VAV boxes into full cooling. Was one of these methods used? <i>Due to diversity in system design, static pressure setpoint will likely not be achieved when all VAV boxes are in full cooling. If this occurs, verify fan speed is 60 Hz and indicate NA in Step 1.d.</i>	Y / N
e. Verify that supply fan controls stabilize within a 5 minute period.	Y / N
Notes:	
Step 2: Drive all VAV boxes to reduced or minimum airflow	
a. Supply fan speed modulates to decrease capacity.	Y / N
b. Record fan frequency:	Hz
c. Current operating static pressure setpoint has decreased (for systems with DDC to the zone level).	Y / N / NA
d. Supply fan maintains discharge static pressure \pm 10% of the current operating setpoint.	Y / N
e. Supply fan controls stabilize within a 5 minute period.	Y / N
Notes:	
Step 3: System returned to initial operating conditions	
Y / N	

C. Testing Results	Pass / Fail	
Step 1: Drive all VAV boxes to achieve full design airflow (Pass if all answers are Yes and/or NA)	<input type="checkbox"/>	<input type="checkbox"/>
Step 2: Drive all VAV boxes to minimum flow (Pass if all answers are Yes and/or NA)	<input type="checkbox"/>	<input type="checkbox"/>

D. Evaluation
<input type="checkbox"/> PASS: All Construction Inspection responses are complete and all Testing Results responses are "Pass".
Notes:

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Supply Fan Variable Flow Controls Acceptance		(Page 3 of 3)
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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT		
1. I certify that this Certificate of Acceptance documentation is accurate and complete.		
Documentation Author Name:	Documentation Author Signature:	
Documentation Author Company Name:	Date Signed:	
Address:	ATT Certification Identification (If applicable):	
City/State/Zip:	Phone:	
FIELD TECHNICIAN'S DECLARATION STATEMENT		
I certify the following under penalty of perjury, under the laws of the State of California:		
<ol style="list-style-type: none"> 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. 		
Field Technician Name:	Field Technician Signature:	
Field Technician Company Name:	Position with Company (Title):	
Address:	ATT Certification Identification (if applicable):	
City/State/Zip:	Phone:	Date Signed:
RESPONSIBLE PERSON'S DECLARATION STATEMENT		
I certify the following under penalty of perjury, under the laws of the State of California:		
<ol style="list-style-type: none"> 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 or installation identified on this Certificate of Acceptance complies with the 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 is posted or made available with the building permit(s) issued for the building. I will ensure that a completed, signed copy of 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. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy. 		
Responsible Acceptance Person Name:	Responsible Acceptance Person Signature:	
Responsible Acceptance Person Company Name:	Position with Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed:

NRCA-MCH-07-A User Instructions

This compliance document is used to document results of operational tests for HVAC supply fans required to utilize variable flow control. A separate compliance document should be completed for each system tested. The compliance document is separated into several basic sections: construction inspection; functional testing; testing calculations and results; and pass/fail evaluation. Each section consists of a combination of data entry requirements and check boxes.

Section A. Construction Inspection

This pre-test section consists of check boxes and data entry requirements. Complete check boxes or enter data requested as instructed.

Section B. Functional Testing

This section consists of data entry requirements and yes or no questions for each test procedure or line item. Enter data or circle the correct answer as instructed.

Section C. Testing Results

This section consists of data entry requirements for all tests. Enter data as instructed.

Section D. Evaluation

Check the appropriate box as instructed.

Declaration Statements of Acceptance

This section contains fillable fields for three declaration statements: one from the Documentation Author, one from the Field Technician, and one from the Responsible Person. Each area contains a number of data entry requirements, including signature; date; and license number.

The Documentation Author is the person completing the compliance document. The Field Technician is responsible for performing and documenting the results of the acceptance procedures on the Certificate of Acceptance compliance documents. The Field Technician must sign the Certificate of Acceptance to certify that the information he or she provides on the Certificate of Acceptance is true and correct. It is important to note that the Field Technician is not required to have a contractor's, architect's or engineer's license. A Responsible Person is eligible under Division 3 of the Business and Professions code in the applicable classification to take responsibility for the scope of work specified by the Certificate of Acceptance document. The Responsible Person can also perform the field testing and verification work, and if this is the case the Responsible Person must complete and sign both the Field Technician's signature block and the Responsible Person's signature block on the Certificate of Acceptance compliance document. The Responsible Person assumes responsibility for the acceptance testing work performed by the Field Technician agent or employee.