



VAV with Reheat Functional Performance Test

Equipment ID	[Equipment ID]
Building	[Building]
Location	[Room]

System Description

Description:

Operational Assumptions:

All fans are operating.

Outside temperature is above 50°F.

The system is in occupied mode operation.

All of the terminal unit zones used for Unoccupied Mode heating/cooling control is maintaining their occupied space temperature set points within 5°F.

Associated Building Automated System (BAS) has been tested and is operating correctly.

Trend logging has been initiated.

Initial Test		Start Date	End Date	Initials
Results (Check one)	Explanation:			
<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Partial Test w/Corrective Actions <input type="checkbox"/> Complete Test w/Corrective Actions <input type="checkbox"/> Other				

Re-Test 1		Start Date	End Date	Initials
Results (Check one)	Explanation:			
<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Partial Test w/Corrective Actions <input type="checkbox"/> Complete Test w/Corrective Actions <input type="checkbox"/> Other				



Re-Test 2	Start Date	End Date	Initials
Results (Check one) <input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Partial Test w/Corrective Actions <input type="checkbox"/> Complete Test w/Corrective Actions <input type="checkbox"/> Other	Explanation:		

Deferred/Seasonal Test	Start Date	End Date	Initials
Results (Check one) <input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Partial Test w/Corrective Actions <input type="checkbox"/> Complete Test w/Corrective Actions <input type="checkbox"/> Other	Explanation:		

Test Participants

Organization	Required	Optional
General Contractor	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Contractor	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Contractor	<input type="checkbox"/>	<input type="checkbox"/>
TAB Contractor	<input type="checkbox"/>	<input type="checkbox"/>
Controls Contractor	<input type="checkbox"/>	<input type="checkbox"/>
Owner's O&M Personnel	<input type="checkbox"/>	<input type="checkbox"/>

Supplies Required for Testing (To be provided by the contractor)

Tools / Supplies	
Laptop with TC Program	Infrared Thermometer Gun
PID Loop Tuning Software	Humidity Tester
Aerosol for Smoke and Freeze stat Test	Basic Tool Pouch
Radio Communications	Flashlight

System Readiness Summary Checklist

Description	Yes	No	Date
System Ready for Test	<input type="checkbox"/>	<input type="checkbox"/>	
Required Personnel Available	<input type="checkbox"/>	<input type="checkbox"/>	
Required Tools/Test Equipment/Supplies Available	<input type="checkbox"/>	<input type="checkbox"/>	
Required Safety Equipment Available	<input type="checkbox"/>	<input type="checkbox"/>	



Set-Points, Limits, and Schedules

- ☐ AHU can be assigned a schedule. ☐ Schedule can be programmed daily.
☐ If system runs 24 hours a day, check here. If not, fill in the occupied mode schedule below.

	AM												PM											
Day	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
Sun																								
Mon																								
Tues																								
Wed																								
Thurs																								
Fri																								
Sat																								
Holi																								

Parameter	Setpoint		Adjustable Range	
	Design	Actual	Design	Actual
Outside Air Temperature (°F)				
Preheat valve full open outside air temperature (°F)				
Discharge Air Temperature (°F)				
Night Setback Temperature (°F)				
Night Setback Differential				
Mixed Air Temperature (°F)				
Minimum Start-up Fan Speed (%)				
Time at Minimum Fan Speed for Start-up (min)				
Average Zone Humidity (%RH)				
Maximum supply air humidity (%RH)				
Discharge Air Static Pressure (in H ₂ O)				
High Static Alarm (in H ₂ O)				
Low Static Alarm (in H ₂ O)				
System Shutdown High Static Limit (in H ₂ O)				
Damper Position				

Initial Ambient Conditions

Ambient Conditions			
Outside Air Temp		Outside Air RH %	
Observations			

Trend Data Required To Support Testing

Check if trend point chart(s) and Frequency Graph(s) are provided per trend requirements shown below.

Trend Log Setup #1 - Temperature					
Pre-Testing	Post Testing	Point	Frequency	Duration	Provided
<input type="checkbox"/>	<input type="checkbox"/>	System Flow Rate			<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/>	<input type="checkbox"/>	Flow Rate Set Point			<input type="checkbox"/> Yes <input type="checkbox"/> No



Trend Log Setup #1 - Temperature					
Pre-Testing	Post Testing	Point	Frequency	Duration	Provided
<input type="checkbox"/>	<input type="checkbox"/>	Water Quality			<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/>	<input type="checkbox"/>	Damper Position			<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/>	<input type="checkbox"/>	System Pressure			<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/>	<input type="checkbox"/>	Pressure Set Point			<input type="checkbox"/> Yes <input type="checkbox"/> No
Record Issues				Issue Log Item Number:	

Functional Performance Test -- (Verify all components are ready before energizing or operating the system.)

The Commissioning Authority will make and document any changes/addition/deletions to this test procedure required by current system conditions (i.e. weather, system load, utility availability, etc.).

R = Retest (Check (✓) retest required)

Y = Checked and Passed

C = Corrected (Check (✓) when correction verified)

N = Not Passed

ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
PRE-TEST VISUAL MECHANICAL INSPECTION						
1. Ensure all trend information is setup by the controls contractor Record setup values for each VAV box indicate TAB CFME's	Trend OK.	<input type="checkbox"/>	<input type="checkbox"/>	Time: _____ (am/pm)	<input type="checkbox"/>	<input type="checkbox"/>
	Space temperature.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Space temp set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM Max Heating.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM Min Heating.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
2. Check the operating conditions at the BAS front end and confirm the system is operating automatically under specified sequence.	Occupancy setting corresponds to the occupancy table above.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	There are no operator overrides currently on.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	No alarm conditions exist.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		



ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
				Initial	Date	
VERIFICATION OF TEMPERATURE AIRFLOW CONTROL – OCCUPIED						
3. Adjust thermostat set point to equal current space temperature	Damper goes to minimum position.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Heating valve closed.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM is at minimum per TAB set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
4. Adjust the local thermostat set point to be 5°F higher than the current space temperature Wait 3 minutes to record final values	The unit damper remains @ its minimum position (or heating max, if Dual VAV box).	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	The heating coil control valve modulates open to maintain space temperature set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Initial discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Final discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Heating max CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM is at maximum per TAB set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
5. Adjust the local thermostat set point to be 5°F	Unit damper opens fully to max cooling set point (or cooling max if Dual VAV box).	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>



ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
lower than the current space temperature	The heating coil control valve is closed.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Wait 3 minutes to record final value	Initial CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Final CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM is at maximum per TAB set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
6. Reset the space temperature set point to original value	The unit damper should be in its minimum / normal position.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
VERIFICATION OF UNOCCUPIED MODE						
7. Put the unit into unoccupied mode	Damper position closed.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Reheat valve closed.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
VERIFICATION OF WARM UP AND COOL DOWN MODE						
8. Put the unit into warm-up mode	Damper position 100% open.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Temperature set point 71°F.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Reheat valve modulating for heating.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>



ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
	Record CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM is at maximum per TAB set point.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Initial discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Final discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
9. Put the unit into cool down mode	Reheat valve closed.	<input type="checkbox"/>	<input type="checkbox"/>	*Per controls, 30% is equated with minimum, 100% with maximum	<input type="checkbox"/>	<input type="checkbox"/>
	Temperature set point 71°F.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM between 30%.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	And 100%.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record CFM.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Initial discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Final discharge temp.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
10. Reset the unit into its original settings	Unit returns to its original conditions.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
VERIFICATION OF OCCUPIED MODE						



ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
11. Put the unit into occupied heating mode	Damper position modulating to maintain temperature.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Temperature set point 71°F.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM minimum 30%.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	CFM maximum 100%.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Reheat valve modulating for heating when box has reached minimum CFM position.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Reheat valve 100% open box modulating from minimum position to 100% open.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record CFM Max.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record CFM set pt.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record night set pt.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
12. Reset the unit into its original default settings.	System returns to its original default settings.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
BYPASS MODE						
13. Put AHU/RTU-__ into VFD bypass mode	VAV damper is fully open.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		



ACTION	REQUIRED REACTION	Y (✓)	N (✓)	COMMENTS	R (✓)	C (✓)
				Initial	Date	
14. Return AHU/RTU- ___ to normal operation	System operates normally.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
RETURN TO INITIAL CONDITIONS						
15. Reset the space temperature set- point to the original value	System returns to initial conditions.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record CFM set pt.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	Record temperature set pt.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:		
				Initial	Date	
16. Record test stop time	Recorded.	<input type="checkbox"/>	<input type="checkbox"/>	Time: (am / pm)	<input type="checkbox"/>	<input type="checkbox"/>
Record issues				Issue Log Item:	<input type="checkbox"/>	<input type="checkbox"/>
				Initial	Date	

**Final Sign-Off**

Commissioning Agent	Printed Name	Initials	Date
CONTRACTOR	PRINTED NAME	INITIALS	DATE
General Contractor (GC)			
Mechanical Contractor (MC)			
Electrical Contractor (EC)			
TAB Contractor (TAB)			
Controls Contractor (CC)			
Owner's O&M Personnel			