

**Report By:**

National TAB  
1329 E. KEMPER ROAD  
SUITE 4210  
CINCINNATI, OH 45246

**NATIONAL**

**TAB**

Comfort. Under control.

**Report: Test and Balance**

**Date: 11/19/2021**

# PROJECT

## Ravi Test

1112 E 163rd St

Raymore, MO 64 083

### **Client**

761 Old Hickory Blvd. Suite 104

Noida 1

Brentwood, TN 37 027



Facili**Build**  
*make it easy*

# National TAB

Project: Ravi Test

## Table Of Contents

Section	Page #
AHU/RTU	3



Comfort. Under control.

# National TAB

Project: Ravi Test  
System/Unit: AHU/RTU



Comfort. Under control.

Asset: AHU1

AREA:

Unit Data		
	Design	Actual
MFG	MGF	MGF
Model Num	MO	MO
Serial Num	-	87
Inventory Tag ID	-	41
Type	-	45
Series	-	45
Configuration	-	45
Num OA Filters 1	-	7
OA Filter Size 1	-	8
Num OA Filters 2	-	54
OA Filter Size 2	-	45
Num PreFilter 1	-	45
PreFilter Size 1	-	45
Num PreFilter 2	-	45
PreFilter Size 2	-	54
Num Final Filter 1	-	2545
Final Filter Size 1	-	45
Num Final Filter 2	-	454
Final Filter Size 2	-	4

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Rated Voltage	-	
Rated Amperage	-	
Frequency	-	
Service Factor	-	
Efficiency	-	
Power Factor	-	

Drive Data		
	Design	Actual
Motor Sheave MFG	-	
Motor Sheave Size	-	
Motor Bore Size	-	
Motor Sheave SetPt	-	
Fan Sheave MFG	-	
Fan Sheave Size	-	
Fan Sheave Bore	-	
Belt CL Distance	-	
Num of Belts	-	
Belt Size	-	
Belt MFG	-	
Belt Deflection	-	
Belt Alignment	-	

Test Data		
	Design	Actual
SF CFM (Initial)	-	
SF CFM	-	
SF RPM (Initial)	-	
SF RPM	-	
RA CFM	-	
OA CFM	-	
Exhaust CFM	-	
Relief CFM	-	
RL Voltage	-	
RL Amperage	-	
SF Rotation	-	
VFD Max SetPt	-	
VFD Min SetPt	-	
SF Motor Freq(HZ)	-	
SF Flow Station (Kv)	-	
OA Flow Station (Kv)	-	
SF System SetPt	-	
RA Flow Station (Kv)	-	
Relief Flow Station (Kv)	-	
RA Damper Position	-	
RA Damper Type	-	
MA Damper Position	-	
MA Damper Type	-	
OA Damper Position	-	
OA Damper Type	-	
Min OA Damper Position	-	
Min OA Damper Type	-	
Econo Damper Position	-	
Econo Damper Type	-	
Relief Damper Position	-	
Relief Damper Type	-	
OA Enthalpy Setpt	-	
Brake Horse Power	-	

Condensator Fan		
	Design	Actual
Fan Alignment	-	
Fan Rotation	-	
Fan 1 Motor RLA	-	
Fan 1 Motor RLV	-	
Fan 2 Motor RLA	-	
Fan 2 Motor RLV	-	

Gas Heat		
	Design	Actual
Gas Type	-	
Burner Type	-	
Burner Construction	-	
Input MBH (rated)	-	
Output MBH (rated)	-	
Gas Inlet Pres (wc)	-	
Gas Low Fire Pres (wc)	-	
Gas High Fire Pres (wc)	-	
Pilot Ignition Status (pass/fail)	-	
Single or Dual Bank	-	
Staged or Modulating	-	
Heater Operates (y/n)	-	
Combustion Blower Operates (y/n)	-	
Flame Status (pass/fail)	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Air Flow Switch SetPt	-	
Air Flow Switch Actual	-	
Air Flow Switch CTRL Voltage	-	
Air Switch Proved (Pass/Fail)	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	
Flame Modulates (y/n)	-	

Electric Heat		
	Design	Actual
KW (TOTAL)	-	
Num of Stages	-	
Voltage	-	
Stage 1 RLA	-	
Stage 2 RLA	-	
Stage 3 RLA	-	
Stage 4 RLA	-	
Stage 5 RLA	-	
Stage 6 RLA	-	
EAT (db/wb)	-	
LAT (db/wb)	-	
Coil Delta T	-	
Inlet SP	-	
Discharge SP	-	
Coil Delta SP	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Airflow Switch SP	-	
Airflow Switch CTRL Voltage	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	

Performance Data		
	Design	Actual
Return Duct SP	-	
MA Plenum SP	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Supply Duct SP	-	
Total ESP	-	
Fan Total SP	-	
Pre-Filter Delta SP	-	
PreHeat Coil Delta SP	-	
DX Coil Delta SP	-	
CHW Coil Delta SP	-	
HW Coil Delta SP	-	
Steam Coil Delta SP	-	
Final Filters Delta SP	-	
Heat Wheel (Exh) Delta SP	-	
Heat Wheel (Sup) Delta SP	-	
OA Temp (db/wb)	-	
RA Temp (db/wb)	-	
MA Temp (db/wb)	-	
SA Temp (db/wb)	-	
HW Coil Delta T	-	
CW Coil Delta T	-	
Coil Delta T	-	
Heat Wheel(Exh) Delta T	-	
Heat Wheel(Sup) Delta T	-	

Compressors		
	Design	Actual
Refrigerant Charge	-	
Refrigerant Type	-	
Comp 1 RLA	-	
Comp 2 RLA	-	
Comp 1 Suction Pres	-	
Comp 2 Suction Pres	-	
Comp 1 Discharge Pres	-	
Comp 2 Discharge Pres	-	
Circuit 1 Superheat	-	
Circuit 2 Superheat	-	
Comp 1 Liquid Line Temp	-	
Comp 2 Liquid Line Temp	-	
Circuit 1 SubCooling	-	
Circuit 2 SubCooling	-	

Combustion Fan Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Phase	-	
Voltage	-	
Amperage	-	

Electrical		
	Design	Actual
Evap Fan Overload size/setpt	-	
Cond Fan Overload size/setpt	-	
VFD Phase Voltage (line)	-	
VFD Min Setpt	-	
VFD Max Setpt	-	
Phase Brownout Dial Setpt (v)	-	
Phase Brownout Volt Variance	-	
Control Voltage (v)	-	
System Fused (y/n)	-	
Fuse Size (amps)	-	
Freeze Stat Setpt	-	
Compressor Lockout Setpt	-	

Combustion Gas Duct		
	Design	Actual
Duct Type	-	
Gauge & Material	-	
Size	-	
Min Rise:Run	-	
Room properly ventilated	-	
Space pres condition	-	
Flue backdrafts eliminated	-	
Flue Terminates Properly	-	

General		
	Design	Actual
Unit free of Damage	-	
Unit Completely Assembled	-	
Unit Leveled	-	
Curb & Unit Installed Air Tight	-	
Controls Complete	-	
Fan Rotation Correct	-	
Fan Belt Condition	-	
Unit Filters Clean	-	
Evap Coil Clean	-	
Evap Coil Free of Frost	-	
Condensor Coil Clean	-	
Condensor Fins Straight	-	
Refr Sight Glass Dry	-	
Condensate Drain Installed	-	
Crankcase Heaters Operate	-	

Completed By: Dan Hertenstein

Notes:



Comfort. Under control.

# National TAB

Project:Ravi Test

## AHU/RTU



Comfort. Under control.

### VAV - Single Duct

#### AHU1/

Asset	Area Served	MFG	Model Num	Serial Num	Design Service	Service	Type	Size
AHU1-VAV1		VMGF	VMO					
		Design Max CFM	Max CFM	Design Min CFM	Min CFM	Design Heat CFM	Heat CFM	Ak (max)
		Ak (min)	Ak (heat)	Damper SetPt	Diversity Test 1	Diversity Test 2	Design EAT (F - db/wb)	EAT (F - db/wb)
		Design LAT (F - db/wb)	LAT (F - db/wb)	Inlet SP	Discharge SP			
AHU1-VAV2		VMGF	VMO	7		45	14	45
		Design Max CFM	Max CFM	Design Min CFM	Min CFM	Design Heat CFM	Heat CFM	Ak (max)
		Ak (min)	Ak (heat)	Damper SetPt	Diversity Test 1	Diversity Test 2	Design EAT (F - db/wb)	EAT (F - db/wb)
		Design LAT (F - db/wb)	LAT (F - db/wb)	Inlet SP	Discharge SP			

Completed By:Dan Hertenstein on

Asset	Area Served	Notes
-------	-------------	-------

Asset: AHU2

AREA:

Unit Data		
	Design	Actual
MFG	MGF	MGF
Model Num	MO	MO
Serial Num	-	-
Inventory Tag ID	-	-
Type	-	-
Series	-	-
Configuration	-	-
Num OA Filters 1	-	-
OA Filter Size 1	-	-
Num OA Filters 2	-	-
OA Filter Size 2	-	-
Num PreFilter 1	-	-
PreFilter Size 1	-	-
Num PreFilter 2	-	-
PreFilter Size 2	-	-
Num Final Filter 1	-	-
Final Filter Size 1	-	-
Num Final Filter 2	-	-
Final Filter Size 2	-	-

Motor Data		
	Design	Actual
Motor MFG	-	-
Frame	-	-
Horsepower	-	-
Motor Rpm	-	-
Phase	-	-
Rated Voltage	-	-
Rated Amperage	-	-
Frequency	-	-
Service Factor	-	-
Efficiency	-	-
Power Factor	-	-

Drive Data		
	Design	Actual
Motor Sheave MFG	-	-
Motor Sheave Size	-	-
Motor Bore Size	-	-
Motor Sheave SetPt	-	-
Fan Sheave MFG	-	-
Fan Sheave Size	-	-
Fan Sheave Bore	-	-
Belt CL Distance	-	-
Num of Belts	-	-
Belt Size	-	-
Belt MFG	-	-
Belt Deflection	-	-
Belt Alignment	-	-

Test Data		
	Design	Actual
SF CFM (Initial)	-	-
SF CFM	-	-
SF RPM (Initial)	-	-
SF RPM	-	-
RA CFM	-	-
OA CFM	-	-
Exhaust CFM	-	-
Relief CFM	-	-
RL Voltage	-	-
RL Amperage	-	-
SF Rotation	-	-
VFD Max SetPt	-	-
VFD Min SetPt	-	-
SF Motor Freq(HZ)	-	-
SF Flow Station (Kv)	-	-
OA Flow Station (Kv)	-	-
SF System SetPt	-	-
RA Flow Station (Kv)	-	-
Relief Flow Station (Kv)	-	-
RA Damper Position	-	-
RA Damper Type	-	-
MA Damper Position	-	-
MA Damper Type	-	-
OA Damper Position	-	-
OA Damper Type	-	-
Min OA Damper Position	-	-
Min OA Damper Type	-	-
Econo Damper Position	-	-
Econo Damper Type	-	-
Relief Damper Position	-	-
Relief Damper Type	-	-
OA Enthalpy Setpt	-	-
Brake Horse Power	-	-

Condensator Fan		
	Design	Actual
Fan Alignment	-	
Fan Rotation	-	
Fan 1 Motor RLA	-	
Fan 1 Motor RLV	-	
Fan 2 Motor RLA	-	
Fan 2 Motor RLV	-	

Gas Heat		
	Design	Actual
Gas Type	-	
Burner Type	-	
Burner Construction	-	
Input MBH (rated)	-	
Output MBH (rated)	-	
Gas Inlet Pres (wc)	-	
Gas Low Fire Pres (wc)	-	
Gas High Fire Pres (wc)	-	
Pilot Ignition Status (pass/fail)	-	
Single or Dual Bank	-	
Staged or Modulating	-	
Heater Operates (y/n)	-	
Combustion Blower Operates (y/n)	-	
Flame Status (pass/fail)	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Air Flow Switch SetPt	-	
Air Flow Switch Actual	-	
Air Flow Switch CTRL Voltage	-	
Air Switch Proved (Pass/Fail)	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	
Flame Modulates (y/n)	-	

Electric Heat		
	Design	Actual
KW (TOTAL)	-	
Num of Stages	-	
Voltage	-	
Stage 1 RLA	-	
Stage 2 RLA	-	
Stage 3 RLA	-	
Stage 4 RLA	-	
Stage 5 RLA	-	
Stage 6 RLA	-	
EAT (db/wb)	-	
LAT (db/wb)	-	
Coil Delta T	-	
Inlet SP	-	
Discharge SP	-	
Coil Delta SP	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Airflow Switch SP	-	
Airflow Switch CTRL Voltage	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	

Performance Data		
	Design	Actual
Return Duct SP	-	
MA Plenum SP	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Supply Duct SP	-	
Total ESP	-	
Fan Total SP	-	
Pre-Filter Delta SP	-	
PreHeat Coil Delta SP	-	
DX Coil Delta SP	-	
CHW Coil Delta SP	-	
HW Coil Delta SP	-	
Steam Coil Delta SP	-	
Final Filters Delta SP	-	
Heat Wheel (Exh) Delta SP	-	
Heat Wheel (Sup) Delta SP	-	
OA Temp (db/wb)	-	
RA Temp (db/wb)	-	
MA Temp (db/wb)	-	
SA Temp (db/wb)	-	
HW Coil Delta T	-	
CW Coil Delta T	-	
Coil Delta T	-	
Heat Wheel(Exh) Delta T	-	
Heat Wheel(Sup) Delta T	-	

Compressors		
	Design	Actual
Refrigerant Charge	-	
Refrigerant Type	-	
Comp 1 RLA	-	
Comp 2 RLA	-	
Comp 1 Suction Pres	-	
Comp 2 Suction Pres	-	
Comp 1 Discharge Pres	-	
Comp 2 Discharge Pres	-	
Circuit 1 Superheat	-	
Circuit 2 Superheat	-	
Comp 1 Liquid Line Temp	-	
Comp 2 Liquid Line Temp	-	
Circuit 1 SubCooling	-	
Circuit 2 SubCooling	-	

Combustion Fan Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Phase	-	
Voltage	-	
Amperage	-	

Electrical		
	Design	Actual
Evap Fan Overload size/setpt	-	
Cond Fan Overload size/setpt	-	
VFD Phase Voltage (line)	-	
VFD Min Setpt	-	
VFD Max Setpt	-	
Phase Brownout Dial Setpt (v)	-	
Phase Brownout Volt Variance	-	
Control Voltage (v)	-	
System Fused (y/n)	-	
Fuse Size (amps)	-	
Freeze Stat Setpt	-	
Compressor Lockout Setpt	-	

Combustion Gas Duct		
	Design	Actual
Duct Type	-	
Gauge & Material	-	
Size	-	
Min Rise:Run	-	
Room properly ventilated	-	
Space pres condition	-	
Flue backdrafts eliminated	-	
Flue Terminates Properly	-	

General		
	Design	Actual
Unit free of Damage	-	
Unit Completely Assembled	-	
Unit Leveled	-	
Curb & Unit Installed Air Tight	-	
Controls Complete	-	
Fan Rotation Correct	-	
Fan Belt Condition	-	
Unit Filters Clean	-	
Evap Coil Clean	-	
Evap Coil Free of Frost	-	
Condensor Coil Clean	-	
Condensor Fins Straight	-	
Refr Sight Glass Dry	-	
Condensate Drain Installed	-	
Crankcase Heaters Operate	-	

Completed By: Dan Hertenstein

Notes:

Asset	Area Served	Notes

Asset: AHU3

AREA:

Unit Data		
	Design	Actual
MFG	MGF	MGF
Model Num	MO	MO
Serial Num	-	-
Inventory Tag ID	-	-
Type	-	-
Series	-	-
Configuration	-	-
Num OA Filters 1	-	-
OA Filter Size 1	-	-
Num OA Filters 2	-	-
OA Filter Size 2	-	-
Num PreFilter 1	-	-
PreFilter Size 1	-	-
Num PreFilter 2	-	-
PreFilter Size 2	-	-
Num Final Filter 1	-	-
Final Filter Size 1	-	-
Num Final Filter 2	-	-
Final Filter Size 2	-	-

Motor Data		
	Design	Actual
Motor MFG	-	-
Frame	-	-
Horsepower	-	-
Motor Rpm	-	-
Phase	-	-
Rated Voltage	-	-
Rated Amperage	-	-
Frequency	-	-
Service Factor	-	-
Efficiency	-	-
Power Factor	-	-

Drive Data		
	Design	Actual
Motor Sheave MFG	-	-
Motor Sheave Size	-	-
Motor Bore Size	-	-
Motor Sheave SetPt	-	-
Fan Sheave MFG	-	-
Fan Sheave Size	-	-
Fan Sheave Bore	-	-
Belt CL Distance	-	-
Num of Belts	-	-
Belt Size	-	-
Belt MFG	-	-
Belt Deflection	-	-
Belt Alignment	-	-

Test Data		
	Design	Actual
SF CFM (Initial)	-	-
SF CFM	-	-
SF RPM (Initial)	-	-
SF RPM	-	-
RA CFM	-	-
OA CFM	-	-
Exhaust CFM	-	-
Relief CFM	-	-
RL Voltage	-	-
RL Amperage	-	-
SF Rotation	-	-
VFD Max SetPt	-	-
VFD Min SetPt	-	-
SF Motor Freq(HZ)	-	-
SF Flow Station (Kv)	-	-
OA Flow Station (Kv)	-	-
SF System SetPt	-	-
RA Flow Station (Kv)	-	-
Relief Flow Station (Kv)	-	-
RA Damper Position	-	-
RA Damper Type	-	-
MA Damper Position	-	-
MA Damper Type	-	-
OA Damper Position	-	-
OA Damper Type	-	-
Min OA Damper Position	-	-
Min OA Damper Type	-	-
Econo Damper Position	-	-
Econo Damper Type	-	-
Relief Damper Position	-	-
Relief Damper Type	-	-
OA Enthalpy Setpt	-	-
Brake Horse Power	-	-

Condensator Fan		
	Design	Actual
Fan Alignment	-	
Fan Rotation	-	
Fan 1 Motor RLA	-	
Fan 1 Motor RLV	-	
Fan 2 Motor RLA	-	
Fan 2 Motor RLV	-	

Gas Heat		
	Design	Actual
Gas Type	-	
Burner Type	-	
Burner Construction	-	
Input MBH (rated)	-	
Output MBH (rated)	-	
Gas Inlet Pres (wc)	-	
Gas Low Fire Pres (wc)	-	
Gas High Fire Pres (wc)	-	
Pilot Ignition Status (pass/fail)	-	
Single or Dual Bank	-	
Staged or Modulating	-	
Heater Operates (y/n)	-	
Combustion Blower Operates (y/n)	-	
Flame Status (pass/fail)	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Air Flow Switch SetPt	-	
Air Flow Switch Actual	-	
Air Flow Switch CTRL Voltage	-	
Air Switch Proved (Pass/Fail)	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	
Flame Modulates (y/n)	-	

Electric Heat		
	Design	Actual
KW (TOTAL)	-	
Num of Stages	-	
Voltage	-	
Stage 1 RLA	-	
Stage 2 RLA	-	
Stage 3 RLA	-	
Stage 4 RLA	-	
Stage 5 RLA	-	
Stage 6 RLA	-	
EAT (db/wb)	-	
LAT (db/wb)	-	
Coil Delta T	-	
Inlet SP	-	
Discharge SP	-	
Coil Delta SP	-	
High Limit Temp Cut-off SetPt	-	
Inlet Temp SetPt	-	
Discharge Temp SetPt	-	
Temp Rise SetPt	-	
Airflow Switch SP	-	
Airflow Switch CTRL Voltage	-	
Space Temp SetPt-ON	-	
Space Temp SetPt-OFF	-	

Performance Data		
	Design	Actual
Return Duct SP	-	
MA Plenum SP	-	
Fan Suction SP	-	
Fan Discharge SP	-	
Supply Duct SP	-	
Total ESP	-	
Fan Total SP	-	
Pre-Filter Delta SP	-	
PreHeat Coil Delta SP	-	
DX Coil Delta SP	-	
CHW Coil Delta SP	-	
HW Coil Delta SP	-	
Steam Coil Delta SP	-	
Final Filters Delta SP	-	
Heat Wheel (Exh) Delta SP	-	
Heat Wheel (Sup) Delta SP	-	
OA Temp (db/wb)	-	
RA Temp (db/wb)	-	
MA Temp (db/wb)	-	
SA Temp (db/wb)	-	
HW Coil Delta T	-	
CW Coil Delta T	-	
Coil Delta T	-	
Heat Wheel(Exh) Delta T	-	
Heat Wheel(Sup) Delta T	-	

Compressors		
	Design	Actual
Refrigerant Charge	-	
Refrigerant Type	-	
Comp 1 RLA	-	
Comp 2 RLA	-	
Comp 1 Suction Pres	-	
Comp 2 Suction Pres	-	
Comp 1 Discharge Pres	-	
Comp 2 Discharge Pres	-	
Circuit 1 Superheat	-	
Circuit 2 Superheat	-	
Comp 1 Liquid Line Temp	-	
Comp 2 Liquid Line Temp	-	
Circuit 1 SubCooling	-	
Circuit 2 SubCooling	-	

Combustion Fan Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Phase	-	
Voltage	-	
Amperage	-	

Electrical		
	Design	Actual
Evap Fan Overload size/setpt	-	
Cond Fan Overload size/setpt	-	
VFD Phase Voltage (line)	-	
VFD Min Setpt	-	
VFD Max Setpt	-	
Phase Brownout Dial Setpt (v)	-	
Phase Brownout Volt Variance	-	
Control Voltage (v)	-	
System Fused (y/n)	-	
Fuse Size (amps)	-	
Freeze Stat Setpt	-	
Compressor Lockout Setpt	-	

Combustion Gas Duct		
	Design	Actual
Duct Type	-	
Gauge & Material	-	
Size	-	
Min Rise:Run	-	
Room properly ventilated	-	
Space pres condition	-	
Flue backdrafts eliminated	-	
Flue Terminates Properly	-	

General		
	Design	Actual
Unit free of Damage	-	
Unit Completely Assembled	-	
Unit Leveled	-	
Curb & Unit Installed Air Tight	-	
Controls Complete	-	
Fan Rotation Correct	-	
Fan Belt Condition	-	
Unit Filters Clean	-	
Evap Coil Clean	-	
Evap Coil Free of Frost	-	
Condensor Coil Clean	-	
Condensor Fins Straight	-	
Refr Sight Glass Dry	-	
Condensate Drain Installed	-	
Crankcase Heaters Operate	-	

Completed By: Dan Hertenstein

Notes:

Asset	Area Served	Notes