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**Report: AHU-31 MRI Evaluation Rpt**

**Function: Test, Adjust, & Balance**

**Date: 11/18/2025**

**Completed By: National TAB**

# PROJECT

## VA Hospital Eval (Indianapolis, IN)

1481 West Tenth Street

Indianapolis, IN 46202

### Client

Specialized Engineering Solutions

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# National TAB

Project: VA Hospital Eval (Indianapolis, IN)

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The project scope at the VA Hospital in Indianapolis consisted of reviewing current conditions of areas served by specific AHU units and provide as-built marked up HVAC drawings, measure airflow of each of the air handlers associated distribution systems and finally set each specified AHU unit to maximum load setpoints and provide performance characteristics. We started off with some original HVAC drawings that were dated anywhere from 1978 to 2007 pending on which area we were working. After spending a couple of days at the facility we realized the daunting task of trying to mark up old HVAC drawings since just about every floor layout have been modified substantially. Locating boxes or air devices in areas on the older prints was just not feasible. We were able to talk to the facilities team, and they were able to get us updated floor plan layouts for all the areas we were working in that had wall layout but no HVAC. This at least allowed us to understand the use & arrangement of each of the spaces. With the new floor plans we had to start from scratch and layout our own air devices and VAV locations on the floor plans. We then utilized the old HVAC drawings to identify where the main HVAC trunklines are located & worked from this point to layout the duct routing on the new floor plans. Once we were able to have a good understanding of the HVAC layout in respect to the new floor plan drawings, we were able to reference back to the older HVAC drawings and markup these drawings focusing on the ductwork only & not the space layout.

Each report provided to the team will consist of the following information:

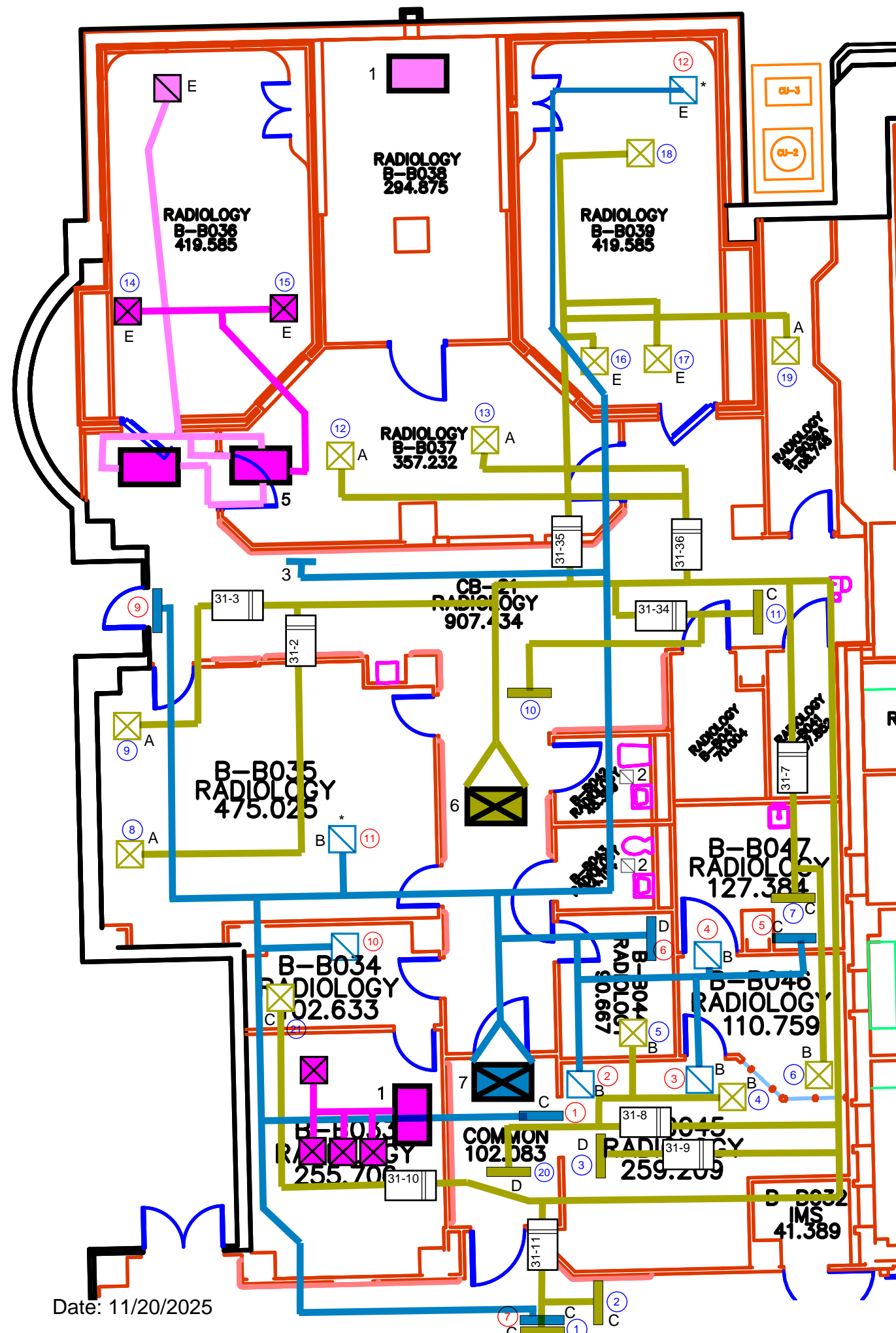
- Test report with the results of each of the AHU units and their associated VAV & air devices. The VAV & air device identification # is marked on each of the associated floor plan with the new HVAC schematic. When measuring the air devices in the occupied spaces we were able to use our JCI (Johnson) controller at the thermostats and drive each VAV to its Max programmed CFM setpoint and then measure each supply diffuser of the associated VAV. We could only drive one box at a time due to occupancy and our controller itself. We had limited time in each of the spaces. However, each of the VAVs are pressure independent boxes and can be measured and would be balanced using the same methodology. While most of the VAVs function properly, there are several that either have not been converted to JCI DDC system or have a service issue. At the end of each of the VAV sections there is a list of these VAV's and the issue that occurred for reference. The returns in space were also measured but the recorded readings in the report do not represent the maximum airflow potential of each of the returns. To do this we would have to put the entire system of each of the AHU units at maximum load capacity and all VAV's simultaneously, which would have been a nuisance to the staff and patience since the testing for each system took anywhere from several days to a couple of weeks pending on size of the system testing. So, the airflow readings for the returns are normal operations of the system based upon trying to achieve desired temperature in the prospective spaces. When we perform the test on each of the AHU units, we were given approval to set the entire systems to drive to their maximum setpoints for a short period of time. This allowed us to get total supply & return airflow rates, pressure profile, and function of each of its components. We also took a snapshot of the Building Management System (BMS) setpoints & outputs at time of testing to understand what the systems are controlling too at current arrangement. The test report also includes site pictures and additional assets that may have been added to the space due to space usage modifications or to enhance performance in certain areas.

- The set of As-Built Floor Plans are included within this report or provided in lieu of the original HVAC drawings since they were so different and had been modified multiple times. Each air device and VAV or asset are labeled on the drawings, and the correspondence label is in test report with test results.

### Understanding the Testing

AHU31: The unit is an older unit that sits on lower roof the supply & return is ducted down to the basement to serve the MRI area only. The Conserv BMS system is a Johnson Control (JCI) protocol. The BMS can see the unit, and it can control the VAV systems. The Return Fan was locked in on 30% Fan speed, did not modulate. The lower speed causing supply fan to have reduced performance & outside air being suck into relief/exhaust unit damper due to the fact the return cannot keep up with the supply fan. If the return fan speed can be increased, additional airflow could probably be achieved to the overall system. The 2/3 duct pressure sensor setpoint was programmed at 1.8" wc. The Airflow monitoring systems for BMS are not calibrated & are reading much lower than actual airflow.

The space had several changes over the years. The area B033 is now a data/server room and there is a floor mounted Liebert unit in the room equipped with (4) air devices to keep the room comfortable. There is also a dehumidifier (floor mount) running in space. The MRI rooms are not allowed to have any flow hood or testing equipment inside the rooms. The only way we could access these air devices was to shut down the MRI machines which then take 24 to 48 hours to start back up. So, this was not an option. Our team traversed a VAV or air devices going into these rooms from adjacent spaces. Radiology B036 had a AC Combo unit installed to serve that room through (2) air devices. We were able to do a total traverse on the unit to determine how much total airflow was being achieved. Radiology B038 has a floor mounted Liebert installed & is more of a storage space now. The MRI team members stated that overall, its comfortable except where they sit in Radiology B037 area & up front in waiting & B046 can get warm in these spaces.



**KEY**

- A 24"x24" NON-PERF 4-WAY
- B 24"x24" PERF
- C 48"x4" LINEAR
- D 24"x4" LINEAR
- E 25"12" PERF
- F 8"x8" PERF
- SUPPLY
- ⊗ SUPPLY
- RETURN
- ⊘ RETURN
- ## VAV

**NOTES**

1. FLOOR-MOUNTED LIEBERT SYSTEM
2. EXHAUST GRILLES
3. RETURN CAPPED OFF (DESERTED)
4. LIEBERT UNIT
5. AC UNIT # MMD24KNPH
6. SUPPLY TRUNKLINE UP TO AHU-31 ON UPPER ROOF
7. RETURN TRUNKLINE UP TO AHU-31 ON UPPER ROOF

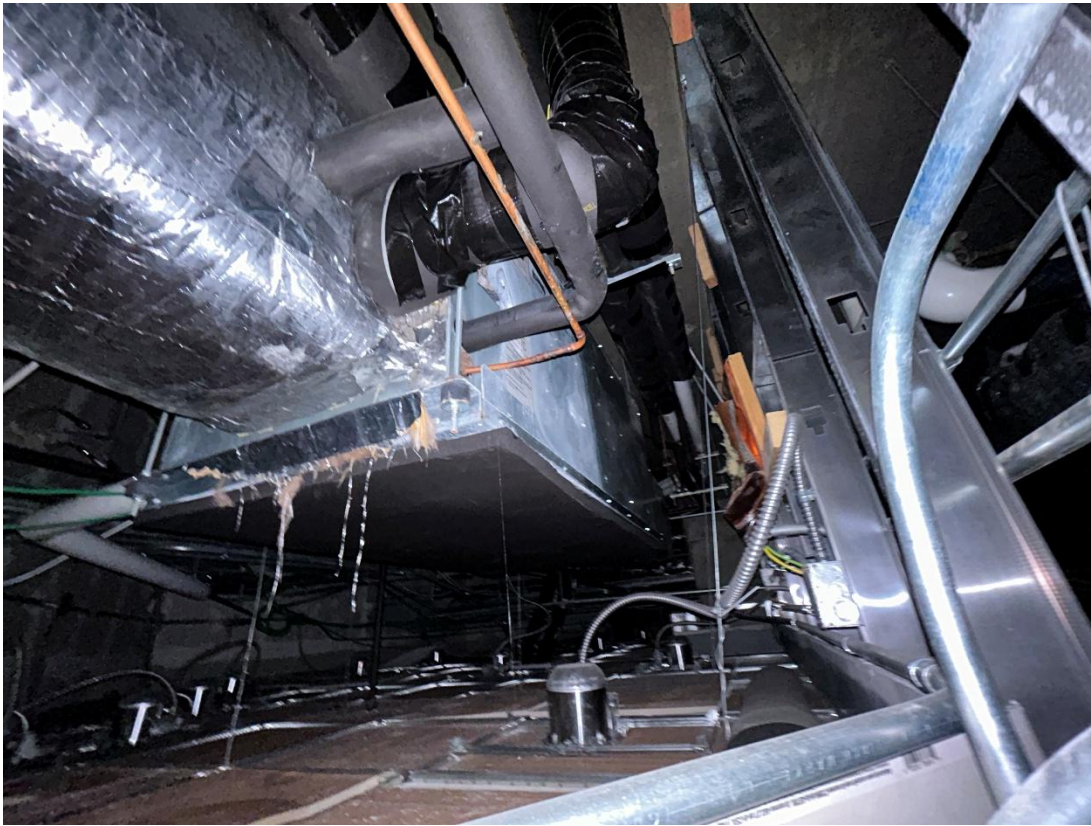
\* COULD NOT ACCESS TO READ & FLOW HOODS NOT ALLOWED

**MRI (BASEMENT)**



New data room with Liebert unit next to room B-3034

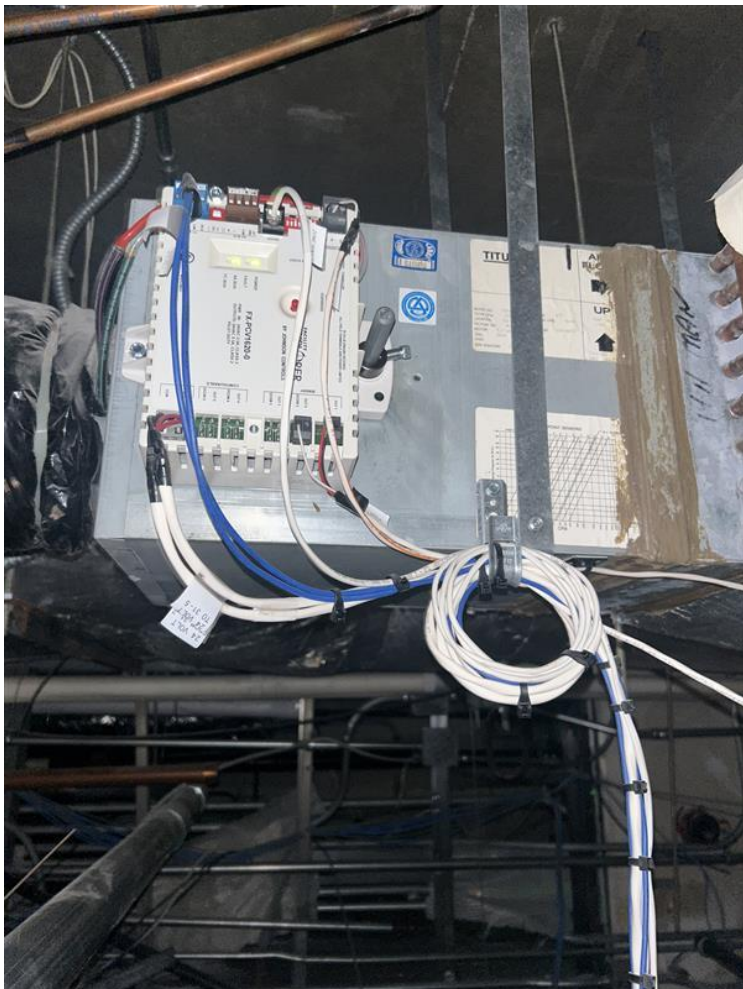




Combo Unit's that serves Radiology room B-3036



Area between the two Radiology Rooms. Now storage area that has a large Liebert system in area.



Typical VAV in MRI Areas



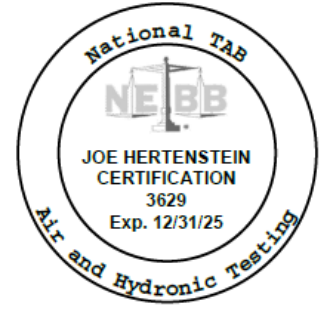
AHU-31 located up on Roof





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Project: VA Hospital Eval (Indianapolis, IN)  
System/Unit: AHU-DUAL FAN



Asset: AHU-31

AREA:Roof - MRI

UNIT DATA - SUPPLY		
	Design	Actual
Manufacturer	NA	YORK
Model Number	NA	NA
Serial Number	-	NA
No. Pre-Filters / Size (1)	-	2/24x24x4
No. Pre-Filters / Size (2)	-	1/24x12x4
No. Final Filters / Size (1)	-	2/24x24x4
No. Final Filters / Size (2)	-	1/24x12x4

MOTOR DATA - SUPPLY	
	Actual
Motor MFG / Frame	BALDOR/184T
Horsepower / RPM	5/1750
Rated Volts / Phase	230/3
Rated Amperage / SF	13.2/1.15

TEST DATA - SUPPLY		
	Design	Actual
Total CFM	3500	3000 [1]
VFD Speed	-	100%
RL Voltage	-	407/408/407
RL Amperage	-	3.8/3.9/3.9

PERFORMANCE DATA - SUPPLY		
	Design	Actual
Static Pressure Stpt	-	1.8"
Suction S.P.	-	-1.60"
Discharge S.P.	-	0.90"
Total S.P.	-	2.50"
Chilled Water Coil P.D.	-	1.21"
Final Filters P.D.	-	0.23"

MOTOR DATA - EXHAUST/RETURN	
	Actual
Motor MFG / FRAME	MARATHON/143T
Horsepower / RPM	1/1760
Rated Volts / Phase	230/3
Rated Amperage / SF	3.2/1.15

TEST DATA - EXHAUST/RETURN		
	Design	Actual
Total CFM	-	[2]
Relief CFM	-	[2]
VFD Speed	-	33% [2]
RL Voltage	-	334/333/333
RL Amperage	-	1.1/1.1/1.1

PERFORMANCE DATA - EXHAUST/RETURN		
	Design	Actual
Suction S.P.	-	-0.51"
Discharge S.P.	-	-0.41"
Total S.P.	-	0.10"

**Notes:**

Supply fan replaced 4 years ago. Return fan replaced 10 years ago. No unit info tag. Could not access Drive data, was not allowed to shut unit down.

[1] Could not access or have a good location to for a main drop supply traverse to get total. based upon air device readings, unit was achieving approximately 3000 CFM.

[2] Return Fan was locked in on 30% Fan speed, did not modulate. The lower speed causing supply fan to have reduced performance & outside air being suck into relief/exhaust unit dam

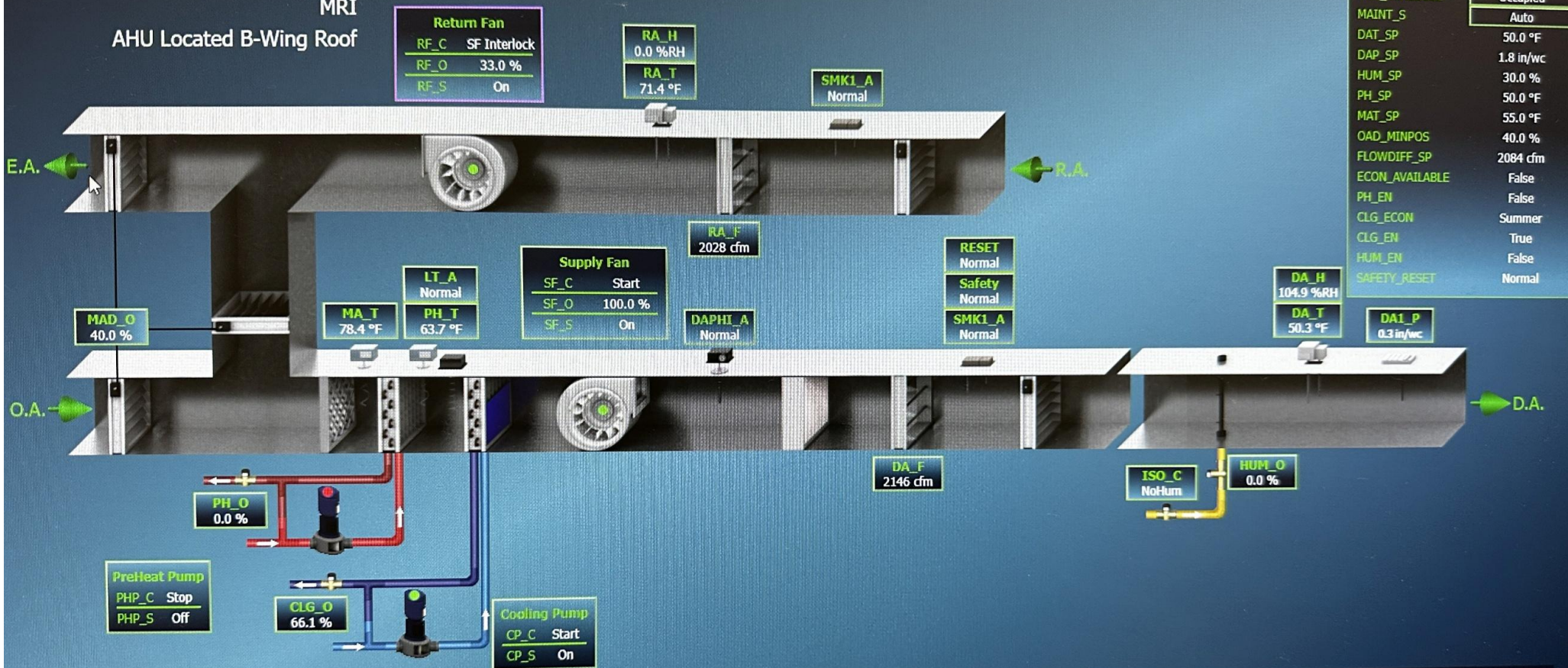
Written By: Joe Hertenstein on 11/20/2025

# AHU 31

A-B148 Basement

MRI

AHU Located B-Wing Roof



Setpoints/Control	
OCC_SCHEDULE	Occupied
MAINT_S	Auto
DAT_SP	50.0 °F
DAP_SP	1.8 in/wc
HUM_SP	30.0 %
PH_SP	50.0 °F
MAT_SP	55.0 °F
OAD_MINPOS	40.0 %
FLOWDIFF_SP	2084 cfm
ECON_AVAILABLE	False
PH_EN	False
CLG_ECON	Summer
CLG_EN	True
HUM_EN	False
SAFETY_RESET	Normal

Point Page	Overrides & Notes	Drawings	Add Note
		OAT: 83.6 °F	FX60_01
		OAH: 36.6 %RH	
		WB: 65.1 °F	
		DP: 54.3 °F	
		Enth: 29.9 BTU/lb	



- [Home](#)
- [AHU's](#)
- [HEX's](#)
- [ISO's](#)
- [Chiller Plant](#)
- [Points Report](#)
- [History Builder](#)
- [Alarms](#)
- [Slow Load Times](#)



# VA Medical Center

## Building Automation System

### AHU 31 VAVs

Unit #	Room #	ZN-T	ZN-SP
TU31_02	MRI	71.6 °F	71
TU31_03	MRI	72.0 °F	71
TU31_04	Corr CB-15	69.6 °F	65.4 °F
TU31_05	BB039 (MRI)	74.3 °F	68
TU31_06	B-B037	69.6 °F	68.8 °F
TU31_07	B-B041	69.4 °F	66.6 °F
TU31_08	B-B044	68.9 °F	68.6 °F
TU31_09	B-B045	70.5 °F	71.4 °F
TU31_10	B-B033	69.9 °F	65.2 °F
TU31_11	B-B049	74.0 °F	71.2 °F



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Project: VA Hospital Eval (Indianapolis, IN)

## VAV - Single Duct

### AHU-31/Roof - MRI

Asset			
Asset Name	Type	Inlet Size	Max CFM
VAV 31-10 1			NA
VAV 31-11 1			486
VAV 31-2 1			292
VAV 31-3 1			47
VAV 31-4 1			346
VAV 31-5 1			759
VAV 31-6 1			342
VAV 31-7 1			151
VAV 31-8 1			389
VAV 31-9 1			293

Asset	Notes	Date	Written By
VAV 31-10 1	NO ACCESS TO ASSOCIATED AIR DEVICE TO GET CFM	11/20/2025	Joe Hertenstein
VAV 31-5 1	NO ACCESS TO MRI ROOM. TRAVERSED TOTAL VAV BOX FOR CFM	11/20/2025	Joe Hertenstein



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Project: VA Hospital Eval (Indianapolis, IN)

## Diffuser Supply (GRD)

### VAV 31-10 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD21	B-034/33	LINEAR	
Total			0

### VAV 31-11 1/Roof - MRI

Asset			
Asset Name	Location	Type	CFM(1)
SGRD1	CB-20 COMMON	LINEAR	424
SGRD2	CB-20 COMMON	LINEAR	62
Total			486

### VAV 31-2 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD8	B-035 MRI-1	NON-PERF 4-WAY	292
Total			292

### VAV 31-3 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD9	B-035 MRI-1	NON-PERF 4-WAY	47
Total			47

### VAV 31-4 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD10	CB-21 HALLWAY		53
SGRD11	CB-21 HALLWAY	LINEAR	293
Total			346

### VAV 31-5 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD16	B-039 MRI-3	PERF	657
SGRD17	B-039 MRI-3	PERF	
SGRD18	B-039 MRI-3		
SGRD19	STORAGE	NON-PERF 4-WAY	102
Total			759

### VAV 31-6 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD12	B-037 CONTROL ROOM	NON-PERF 4-WAY	204
SGRD13	B-037 CONTROL ROOM	NON-PERF 4-WAY	138
Total			342

### VAV 31-7 1/

Asset			
Asset Name	Location	Type	CFM(1)
SGRD6	B-046 RECEPTION	PERF	59
SGRD7	B-047 BREAK ROOM	LINEAR	92
Total			151

**VAV 31-8 1/**

<b>Asset</b>			
<b>Asset Name</b>	<b>Location</b>	<b>Type</b>	<b>CFM(1)</b>
SGRD4	B-045 WAITING AREA	PERF	183
SGRD5	B-044 RADIOLOGY OFFICE	PERF	206
SGRD20	ENTRY	LINEAR	79
Total			468

**VAV 31-9 1/**

<b>Asset</b>			
<b>Asset Name</b>	<b>Location</b>	<b>Type</b>	<b>CFM(1)</b>
SGRD3	B-045 WAITING AREA	LINEAR	293
Total			293

<b>Asset</b>	<b>Notes</b>	<b>Date</b>	<b>Written By</b>
SGRD21	NO ACCESS TO AIR DEVICE	11/20/2025	Joe Hertenstein
SGRD16	TOTAL FOR AIR DEVICES 16,17, & 18	11/20/2025	Joe Hertenstein



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Project: VA Hospital Eval (Indianapolis, IN)

## Diffuser Ret/Exh (GRD)

### AHU-31/Roof - MRI

Asset			
Asset Name	Location	Type	CFM(1)
B-RGRD1	COMMON		54
B-RGRD2	B-045		55
B-RGRD3	B-045		127
B-RGRD4	B-046		33
B-RGRD5	B-047		90
B-RGRD6	B-044		33
B-RGRD7	COMMON		70
B-RGRD9	CB-21		88
B-RGRD10	B-B033		NA
B-RGRD11	DATA ROOM		NA
B-RGRD12	DATA ROOM		NA
Total			550