

Date 5/4/2022

ABC WO # 0108

Project Title 2022 Initial Building Survey

Action Item
Building Survey of the Elvehjem Arts Building

2022 ABC Midwest Solutions Building HVAC Equipment
and System Survey

Date: 5/4/2022
 Work Order #: 0108
 Building #: 0544
 Action Item:

List of Summaries and Problems that needed to get addressed at the Elvehjem Arts Building as of 5/9/2022

Brief Summary of the HVAC equipment and Systems and 86 ACTION ITEMS

(Air Volume Summary) The current summary sheet in this report indicates that there is a 18,213 excessive amount of air being brought into the building, when the units are attempting to utilize 100% outside air for free cooling, thus making it positive to the outside. I feel this number is misleading because of the way the air is "ducted" back to the equipment room and from there it has to "exhaust" itself out of the facility. In most buildings, you duct the air directly out of the building, or, by definition, "exhaust" it. In this application, air is brought back to the main equipment room and it pressurizes the 5th floor equipment room. The air is "returned" and intended to be "exhausted". This pressurization of the main equipment room, is suppose to then "force" the air out of the room and it is suppose to go out the four huge 5th floor building pressure relief ducts and from there be "exhausted". Well, not all the air wants to do that because those huge reliefs have a slight pressure drop and the 5th floor mechanical room is actually extended down to the 2nd floor through a series of open chases, making those 2nd floor rooms part of the pressurized 5th floor mechanical room. The only thing stopping the air from wanting to leave that 2nd floor pressurized space is a closed 2nd floor door and the leakage around that door and the chase leakage along the 3rd and 4th floor wall penetrations in the chases. Four closed doors, if you include the four 2nd floor mechanical rooms and four leaky chases, is a lot of area to allow that air to enter at a low velocity. One of those doors are located right next to the 2nd floor exits to the building, room 207, and the other rooms have additional doors in series stopping the direct flow; however, they are all connected to the huge open common sections of the building. Those sections are just pressurizing while those internal door restrict the air flow until they are opened. When the outside doors are "opened" all the way, the pressurized air on the 2nd floor is just searching for the easiest pathway out of the building, thus making it seem as if the building is "pressurized". It is designed to be that way, intentionally or unintentionally.

(Wisconsin Energy Initiative) A major change to the way the HVAC system operates happened around 1990 - 1991. Those modifications were construed "upgrades" to this equipment that are common to the 5th floor Mechanical room Penthouse space. I speculate it was with the Wis Energy Initiative (WEI - 1 through 5 maybe). WEI addressed and funded the replacement of older pneumatic logic controls and original electric blower motors that control the discharge temperatures and mixing and economizing air volumes with JCI ESCO funds and JCI Metasys DDC controls. It was a way to fund upgrading equipment and all involved knew the complexities of the pro's and con's of this issue. A commonly discovered drawback to that "upgrade" and "mutual savings ESCO program" is that there was no Licensed PE overseeing the upgrade and "details to the exact buildings replacement / upgrade requirements" tended to be "neglected" at best. I am not surprised by the issues I am finding.

(Unit Housing) The housing of AHU 1 though AHU 4 are somewhat "newer" and look like they were installed somewhere around 1988. The housing of AHU S -1 though AHU S - 10 are from the original installation of the building. Circa late 1960's. The housing of return and exhaust fans E - 1 though E - 18 are from the original installation of the building. Circa late 1960's.

(Units Excessive Grease) There are two external bearings on most of the units. Every year grease is applied multiple times during its standard maintenance; however, it has accumulated and is starting to drip on the floors and being flung to the surrounding areas and being carried to the floors of the museum. Campus security even pointed out the issue on their rounds that it can be seen in the carpet outside of room 272N and is a concern of theirs.

(Safety issues) Each external bearing is "exposed" and anyone not paying attention could get caught in the rotating item. Each unit in the mechanical room should be considered to have a protective cap installed over the rotating bearing for protection AND to contain any grease that may fly off of it during its normal operation.

(Unit Condensing Coils) The evaporative cooling coils in most of the units are original, have turned "green" and their structural bases are rotted out. In other words, they appear to be at the end of their life-cycle and I have indicated which ones below.

(Unit's Condensing pans) The bottom inner lining of some of the AHU's condensate pans are at the end of their life-cycle. The insulation barriers have been compromised, are bubbling and look like the sheet metal underneath them have corroded and could have leakage problems soon. AHU - 9 currently has a pan underneath the unit to catch its dripping condensate but that is not a solution, just a band-aid. More may be needed in the future. Just be aware of it.

(Unit Temperature Controls) The original pneumatic temperature controls are gone. They were upgraded 1990-1991 with JCI AHU Controllers and UNT Cards. I speculate the UW - DDC Shop would like to upgrade them to newer than 1990 - 1991 controls; however, the DIGITAL PARTS are currently "working" and able to achieve the desired temperature controls.

(Unit Volumetric Controls) **EVERY PNEUMATIC DAMPER MOTOR, THAT HAS A PILOT POSITIONER, on unit in the 5th floor Mechanical room Penthouse, HAS TO BE REMOUNTED AND RECALIBRATED TO DDC OUTPUTS.** The newer pneumatic damper motor shaft connections (beyond the "D" setting" on the JCI factory armature location) indicate they are incapable of achieving a minimum of a ninety degree field of operation. They all need service because the damper shafts are connected to far out on the armature that connects to the damper shaft. It is a simple Pythagorean triangle problem. A squared plus B squared equals C squared. If your shaft travel is 3 inches, and you want a 90 degree angle, you have to mount 2.121 inches from the centerline of the shaft. ALL the damper motors are mounted at 2.4 inches from the centerline. They physically can not achieve a 90 degree angle to control the dampers. The other AHU's that have not had their damper motors upgraded and do not have damper motors with pilot positioner (AHU S - 5 for example) have damper motors that do not track correctly and are going to suffer from volumetric mismatch issues and have huge potential for building pressure problems. This brings up issues beyond my scope of involvement. To upgrade and address the pneumatic issues or to eliminate the pneumatics with newer DDC controls and newer electrically controlled motors. Both have pros and cons and both have costs and politics, both beyond my scope in this project.

(Control Damper Issues) The outside air dampers on most of the units have "a lot of play" in them and need more than a 90 degree stroke to get them to control. This means repairs should be discussed by the owner for upgrades. In the punch list below, I have which ones are a problems but all have issues.

(Blowers and their housings) Most of the AHU's blower wheels and housings appeared to be original, full of rust on the outside and in some cases had "mangled" inlet volutes; however, their were no alignment or wearing issues. I did notice that a considerable number of the units had the "less than desirable" installation of the blower housing arrangement from the original installation. It is just not as efficient as it could have been...since 1961...

(Air Flow Measuring Stations) I did not discover any air flow measuring stations, on any equipment, in my investigation.

1 Air Handling Unit	UW Asset Number	UW PM Number
AHU # 1	111515	0554-019B
Detailed Summary	The housing is from the 1988. It was found to have its original motor and is warm to the touch. The blowers appear to be in great shape. I'm not sure what is going on with the age of the bearings. The inlet air control dampers do not exist on this unit. It just recirculates the air. Serves the perimeter skylights. The unit is shown moving too much air volume in the 1990 air balance survey.	
	1 2022 Action Item	UW Safety Bearing Exposure and Excessive grease The blower bearings are exposed and could hurt someone if were to

			UW Maintenance UW Sheet Metal Shop	on bearings and floor	accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
2 Air Handling Unit	AHU # 2	UW Asset Number Unknown	UW PM Number Unknown		
Detailed Summary	The housing is from the 1988. It was found to have its original motor and is warm to the touch. The blowers appear to be in great shape. I'm not sure what is going on with the age of the bearings. The inlet air control dampers do not exist on this unit. It just recirculates the air. Serves the perimeter skylights. The unit is shown moving too much air volume in the 1990 air balance survey.				
		2 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
3 Air Handling Unit	AHU # 3	UW Asset Number 112209	UW PM Number 0554-021A		
Detailed Summary	The housing is from the 1988. It was found to have its original motor and is warm to the touch. The blowers appear to be in great shape. I'm not sure what is going on with the age of the bearings. The inlet air control dampers do not exist on this unit. It just recirculates the air. Serves the Paige Court skylights. Goofy linkage between the OA and RA damper motors.				
		3 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
		4 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Relief and Outside Air damper motors	The pneumatic damper motors on the Relief and Outside Air dampers are installed incorrectly and need to be remounted and calibrated to the DDC output signals. They currently do not function correctly.
4 Air Handling Unit	AHU # 4	UW Asset Number 112205	UW PM Number 0554-019A		
Detailed Summary	The housing is from the 1988. It was found to have its original motor and is warm to the touch. The blowers appear to be in great shape. I'm not sure what is going on with the age of the bearings. The inlet air control dampers do not exist on this unit. It just recirculates the air. Serves the Meyer Print Center				
		5 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
5 Air Handling Unit	AHU S - 1	UW Asset Number 112212	UW PM Number 0554-023		
Detailed Summary	The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating really hot, which means it is working really hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet air control dampers also have multiple issues. The Outdoor Air intake and two Return Air damper motors have newer JCI Damper Motors, with pilot positioners, but the two internal Mixing Air damper motors do not. They appear to be of a smaller style, more like a "VAV box style" pneumatic damper motors and do not have pilot positioners to aid them in proper performance. Also, I believe the Eastern Mix Air Damper never closes. Because it never closes, the discharge pressure reading for its return / relief fan, E-9, has a NEGATIVE discharge reading when compared to the room pressure. This NEGATIVE pressure is partially because the equipment room is used as part of the Relief Air Plenum and is "positive" to the outside but may indicate outside air is going backwards through discharge of E-9 and back into AHU S - 1 causing the building to have more outside air being brought in than is normally measured. The damper, and its damper motor, need to get addressed and repaired. Serves 3+4 South and West				
		6 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
		7 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Relief and Outside Air damper motors	The pneumatic damper motors on the Relief and Outside Air dampers are installed incorrectly and need to be remounted and calibrated to the DDC output signals. They currently do not function correctly.
		8 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Mixing Air damper motors.	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.
		9 2022 Action Item	UW Sheet Metal Shop	Outside Air Dampers have excessive play and do not track or open correctly.	There are three banks of Outside air dampers. When cycled, they do not track correctly and my have to be replaced.
		10 2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing	This unit has two mixed air dampers. Both dampers are concealed inside of

			due to physical restrictions	the ductwork along with their associated damper motors. It appears the damper on the Eastside of the unit does not close all the way and the Westside one does not close at all. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
11	2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
12	2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.

6 Air Handling Unit	AHU S - 2	UW Asset Number 112211	UW PM Number 0554-022	
Detailed Summary	<p>The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating really hot, which means it is working really hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors have pilots but the two internal Mixing Air damper motors are "VAV box style" pneumatic damper motors and do not have pilots. I believe the Eastern Damper on this unit only PARTIALLY closes. AHU S-1 has a similar damper motor issues, only worse. The discharge pressure reading for E-10 is also NEGATIVE under all outdoor air commands because this Mixing Air Damper does NOT close. This is partially because the equipment room is used as part of the Relief Air Plenum and is "positive" to the outside.</p> <p>Serves 1,2,3 +4 South and East</p>			
13	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
14	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The pneumatic damper motors on the Relief and Outside Air dampers are installed incorrectly and need to be remounted and calibrated to the DDC output signals. They currently do not function correctly.
15	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Mixing Air damper motors.	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.
16	2022 Action Item	UW Sheet Metal Shop	Outside Air Dampers have excessive play and do not track or open correctly.	There are three banks of Outside air dampers. When cycled, they do not track correctly and my have to be replaced.
17	2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing due to physical restrictions	This unit has two mixed air dampers. Both dampers are concealed inside of the ductwork along with their associated damper motors. It appears the damper on the Eastside of the unit does not close all the way and the Westside one does not close at all. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
18	2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
19	2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.

7 Air Handling Unit	AHU S - 3	UW Asset Number 112203	UW PM Number 0554-018	
Detailed Summary	<p>The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating really hot, which means it is working really hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors have pilots but the two internal Mixing Air damper motors are "VAV box style" pneumatic damper motors and do not have pilots. I believe the Eastern Damper on this unit only PARTIALLY closes. AHU S-4 has a similar damper motor issues, only worse. The discharge pressure reading for E-11 is also NEGATIVE under all outdoor air commands because this Mixing Air Damper does NOT close. This is partially because the equipment room is used as part of the Relief Air Plenum and is "positive" to the outside.</p>			

Serves 1,2+3 North

20	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
21	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly and the pilot positioners need to be recalibrated to the DDC outputs.
22	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues and mixed air dampers not closing all the way.	This unit has two mixed air dampers. Both dampers and their linkages are concealed inside of the ductwork. It appears the damper on this unit is of a newer style, are mounted external to the unit and does NOT have a pilot on it. It should have a pilot properly installed if the UW decides to stay with pneumatic controls, and it should be calibrated.
23	2022 Action Item	UW Sheet Metal Shop	Outside Air Dampers have excessive play and do not track or open correctly.	There are three banks of Outside air dampers. When cycled, they do not track correctly and my have to be replaced.
24	2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing due to physical restrictions	This unit has two mixed air dampers. Both dampers are concealed inside of the ductwork along with their associated damper motors. It appears the damper on the Eastside of the unit does not close all the way and the Westside one does not close at all. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
25	2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
		UW Sheet Metal Shop	Small pan installed under expansion joint.	There is a long and narrow drip pan installed under the flexible expansion joint. It is there to catch condensate.
26	2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.

8 Air Handling Unit

AHU S - 4

UW Asset Number
112201

UW PM Number
0554-017

Detailed Summary

The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors have pilots but the two internal Mixing Air damper motors are "VAV box style" pneumatic damper motors and do not have pilots. I believe the Eastern Damper on this unit only PARTIALLY closes.
Serves 3+4 North

27	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
28	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly and the pilot positioners need to be recalibrated to the DDC outputs.
29	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues and mixed air dampers not closing all the way.	This unit has two mixed air dampers. Both dampers and their linkages are concealed inside of the ductwork. It appears the damper on this unit is of a newer style, are mounted external to the unit and does NOT have a pilot on it. It should have a pilot properly installed if the UW decides to stay with pneumatic controls, and it should be calibrated.
30	2022 Action Item	UW Sheet Metal Shop	Outside Air Dampers have excessive play and do not track or open correctly.	There are three banks of Outside air dampers. When cycled, they do not track correctly and my have to be replaced.
31	2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing	This unit has two mixed air dampers. Both dampers are concealed inside of the ductwork along with their associated damper motors. It appears the

				due to physical restrictions	damper on the Eastside of the unit does not close all the way and the Westside one does not close at all. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
		32 2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
			UW Sheet Metal Shop	Small pan installed under expansion joint.	There is a long and narrow drip pan installed under the flexible expansion joint. It is there to catch condensate. There is no pan completely under the unit.
		33 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.

9 Air Handling Unit	AHU S - 5	UW Asset Number 112196	UW PM Number 0554-014		
Detailed Summary	The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves 1+2 North				
		34 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
		35 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors.
		36 2022 Action Item	UW Maintenance	Bearing Exposure and Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
			UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.

# Air Handling Unit	AHU S - 6	UW Asset Number 112198	UW PM Number 0554-015		
Detailed Summary	The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves 1+2 West				
		37 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
		38 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors.
		39 2022 Action Item	UW Maintenance	Bearing Exposure and Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
			UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.

# Air Handling Unit	AHU S - 7	UW Asset Number 112207	UW PM Number 0554-020		
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Detailed Summary		The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves 1+2 South and North			
	40	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
	41	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors.
	42	2022 Action Item	UW Maintenance	Bearing Exposure and Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
			UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.
# Air Handling Unit	AHU S - 8	UW Asset Number 112206	UW PM Number 0554-019		
Detailed Summary		The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves 160			
	43	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
	44	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors. There is a 24 Volt EPT that is leaking excessive amounts of air.
	45	2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
			UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.
# Air Handling Unit	AHU S - 9	UW Asset Number 112199	UW PM Number 0554-016		
Detailed Summary		The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves L130, L140 + L150			
	46	2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
	47	2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors.
	48	2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.

		UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.	
# Air Handling Unit	AHU S - 10	UW Asset Number 112208	UW PM Number 0554-021		
Detailed Summary	The housing is really old and from the 1960's. The electric motor was found to be of a newer, high efficiency style and operating warm, which means it is not working hard. The blowers appear "aged and seasoned". The fan bearings look larger than what it left the factory from too which means they've been serviced recently. The inlet control dampers also have multiple issues. The Outdoor Air and two Return Air damper motors do NOT have pilots and volumetric tracking is an issue and it must be addressed. Serves L160				
		49 2022 Action Item	UW Safety UW Maintenance UW Sheet Metal Shop	Bearing Exposure and Excessive grease on bearings and floor	The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.
		50 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues	The mixed air dampers do not track the Return and Outdoor Air dampers correctly. The damper motors need pilot positioner if they are going to continue using pneumatic damper motors.
		51 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
			UW Sheet Metal Shop	Unit Condensate Pan	There is no condensate pan under this unit.
# Exhaust Fan 1	E - 1	UW Asset Number 112200	UW PM Number 0554-035		
Detailed Summary	This unit is the return fans for AHU S - 5. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 5. This unit was discovered in Room 207 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 5.				
		52 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 2	E - 2	UW Asset Number 112200	UW PM Number 0554-035		
Detailed Summary	This unit is one of two return fans for AHU S - 1. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 1. This unit was discovered in Room 207 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 1.				
		53 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 3	E - 3	UW Asset Number 112200	UW PM Number 0554-035		
Detailed Summary	This unit is one of two return fans for AHU S - 2. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 2. This unit was discovered in Room 272N and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 2.				
		54 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 4	E - 4	UW Asset Number 112200	UW PM Number 0554-035		
Detailed Summary	This unit is the return fans for AHU S - 7. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 7. This unit was discovered in Room 272N and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings and had a really high discharge pressure. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 7.				

			55 2022 Action Item	UW Sheet Metal Shop	Excessive high discharge pressure	This unit was tested and it was discovered that the discharge pressure was really high at the fan but much lower in the mechanical room above it.
			56 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 5	E - 5	UW Asset Number 112200	UW PM Number 0554-035			
Detailed Summary	This unit is the return fans for AHU S - 8. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 8. This unit was discovered in Room 247 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 8.					
			57 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 6	E - 6	UW Asset Number 112200	UW PM Number 0554-035			
Detailed Summary	This unit is one of two return fans for AHU S - 3. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 3. This unit was discovered in Room 247 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 3.					
			58 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 7	E - 7	UW Asset Number 112200	UW PM Number 0554-035			
Detailed Summary	This unit is one of two return fans for AHU S - 4. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 4. This unit was discovered in Room 227 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 4.					
			59 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 8	E - 8	UW Asset Number 112200	UW PM Number 0554-035			
Detailed Summary	This unit is the return fans for AHU S - 6. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 6. This unit was discovered in Room 227 and appeared to be operating ok. It was tested and was low on its design air volume from the original drawings. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 6.					
			60 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 9	E - 9	UW Asset Number 112200	UW PM Number 0554-045			
Detailed Summary	This unit is one of two return fans for AHU S - 1; however, this fan has the capabilities to either returns the air to the 5th floor mechanical room or "exhaust" it out of the building, unlike the other return fan for the unit, E - 2. This unit was discovered on and running. There are issues with its two discharge damper motors and dampers and will probably require more access doors to properly service the issues. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 1.					
			61 2022 Action Item	UW Sheet Metal Shop	Ductwork on the inlet needs repair	A dovetail fitting on the ductwork closes to the main inlet of E-9 has pulled apart and the air from the mechanical room is allowed to be drawn into this system. Please have UW Sheet Metal close up the gap.

				62 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Mixing Air damper motors.	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.
				63 2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing due to physical restrictions	This unit has one mixed air dampers. The damper is concealed inside of the ductwork along with their associated damper motors. It appears the damper does not close all the way. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
				64 2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
# Exhaust Fan 10	E - 10	UW Asset Number 112200	UW PM Number 0554-043	<p>Detailed Summary This unit is one of two return fans for AHU S - 2; however, this fan has the capabilities to either returns the air to the 5th floor mechanical room or "exhaust" it out of the building, unlike the other return fan for the unit, E - 3. This unit may have a bad lower fan bearing. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 2.</p>			
				65 2022 Action Item	UW Machine Shop	The lower bearing on the blower is making a rumbling noise.	This unit has an intermittent rumbling. It is as if the lower bearing is going out and needs replacement. This will be difficult because the unit is big, heavy and hung close to the ceiling and will need to be disconnected and dropped to be serviced.
				66 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Mixing Air damper motors.	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.
				67 2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing due to physical restrictions	This unit has one mixed air dampers. The damper is concealed inside of the ductwork along with their associated damper motors. It appears the damper does not close all the way. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
				68 2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.
# Exhaust Fan 11	E - 11	UW Asset Number 112200	UW PM Number 0554-038	<p>Detailed Summary This unit is one of two return fans for AHU S - 3; however, this fan has the capabilities to either returns the air to the 5th floor mechanical room or "exhaust" it out of the building, unlike the other return fan for the unit, E - 6. This unit was discovered on and running. There are issues with its two discharge damper motors and dampers and will probably require more access doors to properly service the issues. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 3.</p>			
				69 2022 Action Item	UW Digital Controls	Pneumatic damper motor issues on the Mixing Air damper motors.	The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.
				70 2022 Action Item	UW Sheet Metal Shop	Mixed air dampers not closing due to physical restrictions	This unit has one mixed air dampers. The damper is concealed inside of the ductwork along with their associated damper motors. It appears the damper does not close all the way. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.
				71 2022 Action Item	UW Sheet Metal Shop	Install Access Door for service and repair.	Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper

motors and get the system working correctly.

<p># Exhaust Fan 12</p>	<p>E - 12</p>	<p>UW Asset Number 112200</p>	<p>UW PM Number 0554-037</p>		
<p>Detailed Summary</p>	<p>This unit is one of two return fans for AHU S - 4; however, this fan has the capabilities to either returns the air to the 5th floor mechanical room or "exhaust" it out of the building, unlike the other return fan for the unit, E - 7. This unit was discovered on and running. There are issues with its two discharge damper motors and dampers and will probably require more access doors to properly service the issues. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 4.</p>				
	<p>72 2022 Action Item</p>	<p>UW Digital Controls</p>	<p>Pneumatic damper motor issues on the Mixing Air damper motors.</p>	<p>The mixed air dampers do not track the Return and Exhaust air dampers correctly. The damper motors need to be mounted correctly. The dampers themselves appear to bind also and may affect the DDC interface.</p>	
	<p>73 2022 Action Item</p>	<p>UW Sheet Metal Shop</p>	<p>Mixed air dampers not closing due to physical restrictions</p>	<p>This unit has one mixed air dampers. The damper is concealed inside of the ductwork along with their associated damper motors. It appears the damper does not close all the way. I speculate they are physically binding or not capable of functioning with the current damper motors that are installed.</p>	
	<p>74 2022 Action Item</p>	<p>UW Sheet Metal Shop</p>	<p>Install Access Door for service and repair.</p>	<p>Current access doors are in the wrong location for the mixing dampers. I would like the Sheet Metal Shop to install access doors to both service and inspect the dampers and their motors. DDC can then calibrate the damper motors and get the system working correctly.</p>	
<p># Exhaust Fan 13</p>	<p>E - 13</p>	<p>UW Asset Number 112200</p>	<p>UW PM Number 0554-035</p>		
<p>Detailed Summary</p>	<p>This unit is the return fans for AHU S - 9. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 9. There are issues with its pneumatic damper motors tracking AND they are noted in the comments earlier with AHU S - 9.</p>				
	<p>75 2022 Action Item</p>	<p>UW Maintenance</p>	<p>Excessive grease on bearings and floor</p>	<p>The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.</p>	
	<p>76 2022 Action Item</p>	<p>UW Sheet Metal Shop</p>	<p>Loose internal insulation</p>	<p>When the unit is on, there is some insulation on the inside of the Western wall of the discharge ductwork that "flops" in the airstream. It should be repaired.</p>	
<p># Exhaust Fan 14</p>	<p>E - 14</p>	<p>UW Asset Number 112210</p>	<p>UW PM Number 0554-040</p>		
<p>Detailed Summary</p>	<p>This unit is the return fans for AHU S - 10. It returns the air to either the 5th floor mechanical room or into the outdoor air intake plenum of AHU S - 10. This unit was discovered on and running. There are issues with its pneumatic damper motors tracking with AHU S - 10.</p>				
	<p>77 2022 Action Item</p>	<p>UW Safety UW Maintenance UW Sheet Metal Shop</p>	<p>Bearing Exposure and Excessive grease on bearings and floor</p>	<p>The blower bearings are exposed and could hurt someone if were to accidentally put their hand on it. The UW should consider putting a protective cap over the outside of them to prevent harm and contain the grease.</p>	
<p># Exhaust Fan 15</p>	<p>E - 15</p>	<p>UW Asset Number 112200</p>	<p>UW PM Number 0554-041</p>		
<p>Detailed Summary</p>	<p>Serves Kitchen 371 - Motor is not running. Don't know why. This unit was discovered not running. Since it was not locked out or tagged out, we depressed the reset on the starter and it did not restart. There is also no Motor Manufactures tag on the motor so motor information is extremely limited.</p>				
	<p>78 2022 Action Item</p>	<p>UW Maintenance</p>	<p>Excessive grease on bearings and floor</p>	<p>The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.</p>	
	<p>79 2022 Action Item</p>	<p>UW Electric Shop</p>	<p>This unit was discovered not running.</p>	<p>Please get this unit up and running and check the current draw for safe</p>	

operating conditions.					
# Exhaust Fan 16	E - 16	UW Asset Number 120470	UW PM Number 0554-042		
Detailed Summary	This is called a Spray Room Exhaust on the original print. Serves Shop 101 This unit was discovered not running. Since it was not locked out or tagged out, we depressed the reset on the starter and it restarted.				
		80 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Exhaust Fan 17	E - 17	UW Asset Number NO ASSET NUMBER	UW PM Number 0554-036		
Detailed Summary	This unit serves the Western half of the buildings toilet exhaust systems. Serves TR ex 126 It was discovered on and appears to be operating.				
		81 2022 Action Item	UW Asset Management	No Asset Number	This unit did NOT have a UW ASSET NUMBER STICKER.
# Exhaust Fan 18	E - 18	UW Asset Number NO ASSET NUMBER	UW PM Number 0554-039		
Detailed Summary	This unit was discovered not running. Since it was not locked out or tagged out, we depressed the reset on the starter and it restarted. It serves the toilet exhaust fan in the North East corner of the building. The motor is located in the 5th floor Penthouse. The electric motor jumps around a lot as it runs and after it was running for one day, it was so hot you couldn't touch it. Serves TR ex 162				
		82 2022 Action Item	UW Asset Management	No Asset Number	This unit did NOT have a UW ASSET NUMBER STICKER.
		83 2022 Action Item	UW Electric Shop	This unit was discovered not running.	Please check the current draw for safe operating conditions.
		84 2022 Action Item	UW Machine Shop	The mounting of the electric motor is poor.	It serves the toilet exhaust fan in the North East corner of the building. The motor is located in the 5th floor Penthouse. The electric motor jumps around a lot as it runs and after it was running for one day, it was so hot you couldn't touch it.
		85 2022 Action Item	UW Maintenance	Excessive grease on bearings and floor	The "gobs of grease" on the bearing housings are spraying and dripping onto the floor. When anyone is walking through the Penthouse and four lower mechanical rooms, it is easily stepped in and carried onto the museums beautiful wood floors. PLEASE CLEAN IT UP.
# Transfer Fan # 1	TF - 1	UW Asset Number This Unit Needs an Asset Number	UW PM Number 0554-018A	UW Electric Shop	This unit was discovered not running.
Detailed Summary	This unit was discovered not running. Since it was not locked out or tagged out, we toggled the resettable switch with a heater in it and it did not restart. It acts as a transfer fan for AHU - 1 for the 5th floor atrium. The motor is located in the 5th floor Penthouse on the North end of the room. Transfers the air from AHU-3 across the face of the skylights in the center of the building.				
		86 2022 Action Item	UW Electric Shop	This unit was discovered not running.	Please get this unit up and running and check the current draw for safe operating conditions.

Date

Work Order #

Building #

Action Item

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4/18/2022

All of the above meet at all of the above met at the Elvehjem main lobby and had a brief discussion regarding the project. We all then moved to the main equipment room and investigate the equipment and discussed the situation and basic scope of work. I informed them the equipment room was the discharge plenum for the "systems relief". I knew this because I investigated, extensively, the building next door's building pressure issue and ALL the equipment associated, the "Humanities Building".

A quick walk-through discovered a great many things with just general maintenance items. On 4/19/2022 I went through my notes reporting back and created a quick spread-sheet of the items I should be investigating, documenting and reporting back to Henneman Engineer.

The primary issues is a global one. It is designed for a huge constant volume system for 1968. There are no air flow measuring stations. There is no way to mechanically relieve the building pressure "directly". All the exhaust from the supply fans is "pushed into the mechanical rooms" and "not out the building".

~~There is also no "building pressure sensor". It is all done with the AHU dampers and output signals from the JCI DDC Controls~~
 There may be one located in the building pressure relief duct on the South West corner of the 6th floor mechanical room just below the roofline.

I put a spread sheet together to quickly capture damper motor issues, rotted unit housings, rotted out coil issues (and ones that have had repairs or replacements) and along with other maintenance issues. A lack of air flow measuring stations or possible mismatch of CFM during normal operations should also be noted.

It was also discovered that the 6th floor mechanical rooms extend down to the first level in the four corners of the building. This means that the "pressurized" mechanical rooms are "pressurized" from the second floor to the sixth floor of the building. I am still advocating for there to be Mechanical "depressurization of the equipment rooms and it may be the best solution to "relieve" the building pressure.

S - 3 (Solved) ~~This unit has a problem. It has a leaking steam trap to the mechanical room blowing steam. Should be fixed ASAP to avoid excessive moisture being present in the building. Maintenance Mechanic should be contacted and alerted that it is his responsibility to report and have those repaired. Discovered a "steam leak" on S-3. I took a picture of it and sent it over to Ed Gorcorain to get fixed on maintenance.~~

4/21/2022 Met for 2 1/2 hours with Jim and Mike with Henneman. I had to leave early because I had class at 4:30 pm.
We looked at S-5 and took some readings.

4/22/2022 I worked from 8:00 am to 4:30 pm.
I went there alone. I finished up with S-5 and E-1. While there I measured E-2. in the second floor equipment room.
I then went on to the other S-Units that we did not have any data on. S-5, S-6, S-7, S-8, S-9, and S-10
I was able to obtain the data on S-9 and it's return / exhaust fan, E-13, but my computer locked up.
I then called Mike and discussed the days readings, progress and scope.
He stated he wanted pressure drops on all the booster coils if possible.

I checked the fans with counter clock wise rotation and discovered they all need to rotate clockwise.

5/4/2022 Worked on completing the report and creating a punch list everyone can follow.
I also reorganized the layout of the Unit Profile sheet to represent the four lower equipment rooms better.

5/6/2022 Patrick informed me he will be out of the office for the next two weeks. Contact his boss if needed.

5/9/2022 Completed the summary sheet and editing the preliminary findings sheet.

Equipment Summary

Building Survey of the Elvehjem Arts Building

Date: 5/4/2022

Blue Background	- Data from Field reports
Light Green	- As Found Data
Auburn Background	- Basic Comments
Red Background	- Requires attention to complete the project

Note: This sheet was created for a HP 895C printer and it is recommended that you change the print option to BLACK AND WHITE ONLY to conserve you
Please note the format of this summary sheet varies from facility to facility and needs to be modified and corrected for each and every application and they

ABC Unit Number	System Name	Fan Data		Motor Data										Total Supply or Exhaust CFM	System Total SP		
		Fan Manufacturer	Fan Model #	Nameplate Horse Power	Motor Efficiency	Frame	RPM	Volts	Full Load Amps	Motor Sheave Diameter	Fan Sheave Diameter	Actual Center to Center	Motor Power Factor			Service Factor	
1	0544 - 019B	AHU - 1	Trane	CCDB08BAEOK	2.0	100%	S182T	1745	460	3.9	4.75	6.8	18	1.0	1.15	4,200	2.00
2	Unknown	AHU - 2	Trane	CCDBD8AEOK	3.0	86%	S182T	1745	460	3.9	4.75	7.75	18.5	Air	1.15	4,200	2.00
3	0544 - 021A	AHU - 3	Trane	CCDB068UUK	2.0	85%	S182T	1745	460	2.6	3.3	4.1	15	1.0	1.15	2,000	1.00
4	0544 - 019A	AHU - 4	Trane	CCDB068UUK	3.0	86%	S182T	1745	460	2.6	5.4	3.9	15	1.0	1.15	1,900	3.75
5	0544 - 023	AHU S-1	Trane	NA	10	92%	215T	1760	460	12.9	6	7	25	1.0	1.15	11,000	3.00
6	0544 - 022	AHU S-2	Trane	M - 25	15	100%	254T	1765	460	17.7	7.9	7.4	26	1.0	1.15	11,000	3.00
7	0544 - 018	AHU S-3	Trane	M - 25	10	92%	215T	1760	460	12.9	6.5	7.25	25	1.0	1.15	11,000	3.00
8	0544 - 017	AHU S-4	Trane	M - 25	10	92%	215T	1760	460	12.9	6	7	25	1.0	1.15	12,000	3.25
9	0544 - 014	AHU S-5	Trane	M - 21	7.5	100%	213T	1760	460	10	11.9	9.9	18	1.0	1.15	10,400	2.20
10	0544 - 015	AHU S-6	Trane	M - 21	7.5	91%	213T	1760	460	10	5.5	9.9	18	1.0	1.15	9,325	1.00
11	0544 - 020	AHU S-7	Trane	M - 21	7.5	91%	213T	1760	460	10	6.9	6.5	22.5	1.0	1.15	9,700	1.00
12	0544 - 019	AHU S-8	Trane	M - 14	5	90%	184T	1750	460	6.5	5.9	7.9	24	1.0	1.15	5,725	1.00
13	0544 - 016	AHU S-9	Trane	M - 21	10	82%	215T	1780	460	12.9	5.9	5.9	26	1.0	1.15	10,800	1.95
14	0544 - 016	AHU S-10	Trane	M - 17	7.5	91%	184	1775	460	10.3	6.9	6	21	1.0	1.15	7,600	2.22
		V-1															
	NA	E - 1	Dreyer Dynamics	T.C.2	2.00	87%	145T	1735	460	2.9	3.7	11.8	85.0	0.8	1.15	8,400	0.00
	NA	E - 2	Dreyer Dynamics	240	1.00	88%	143T	1765	460	1.5	3.3	8.6	64.0	0.7	0.71	4,300	0.00
	NA	E - 3	Dreyer Dynamics	300	1.50	85%	145T	1745	460	2.5	3.4	9.4	26.5	1.0	1.00	6,550	0.00
	NA	E - 4	Dreyer Dynamics	T.C. 2	7.50	91%	213T	1770	460	9.7	6.0	11.8	32.1	1.0	1.15	8,400	0.00
	NA	E - 5	Dreyer Dynamics	T.C. 2	1.50	87%	145T	1740	460	2.1	3.2	8.4	25.5	1.0	1.15	5,550	0.00
	NA	E - 6	Dreyer Dynamics	T.C. 2	1.00	83%	N143T	1745	460	1.35	3.7	8.9	25.5	1.0	1.15	4,900	0.00
	0544010	E - 7	Dreyer Dynamics	T.C. - 2	1.00	80%	143T	1730	440	1.8	3.8	8.5	23.0	1.0	1.15	4,000	0.80
	0544009	E - 8	NA	T.C. - 2	2.00	100%	145T	1725	460	2.7	3.4	11.9	29.0	1.0	1.15	7,650	0.00
	0544-045	E - 9	Dreyer Dynamics	T.C. - 2	1.00	100%	143T	1725	460	1.4	3.1	11.0	27.0	1.0	1.15	5,600	0.80
	0544-043	E - 10	Dreyer Dynamics	T.C. - 2	0.75	100%	56	1725	460	1.5	3.3	9.8	20.5	1.0	1.15	3,300	0.55
	0544-038	E - 11	Dreyer Dynamics	T.C. - 2	1.00	100%	145T	1750	460	1.4	3.9	9.6	25.0	1.0	1.15	4,800	0.80
	0544-037	E - 12	Dreyer Dynamics	T.C. - 2	1.00	100%	143T	1740	460	1.4	3.1	12.4	28.8	1.0	1.15	6,800	0.80
	0544-035	E - 13	Dryer Dynamics Corp	T.C. - 2	3.00	90%	182T	1755	460	4.0	3.1	10.5	31.0	0.8	1.15	10,100	1.04
	0544-040	E - 14	Dryer Dynamics Corp	T.C. - 2	1.50	87%	145T	1740	460	2.1	3.5	12.3	31.0	1.0	1.15	7,000	0.69
	0544-041	E - 15	Dryer Dynamics Corp	T.C. - 2	1.50	87%	NO TAG	1750	460	2.1	4.1	3.4	13.0	1.0	1.15	600	0.00
	0544-042	E - 16	Dryer Dynamics	T.C. 2	0.33	87%	J56	1725	115	6.6	4.1	4.7	14.0	1.0	1.0	600	0.45
	0544-036	E - 17	Dryer DYNAMICS CORP	BI FLO	0.50	87%	F56	1725	440	2.2	3.1	3.1	31.0	1.0	1.25	1,800	0.65
	0544-039	E - 18	Dryer	T.C. 2	0.50	87%	LA 56	1725	460	1.5	4.3	4.0	14.5	1.0	1.25	1,300	-1.29
	0544 - 018A	TF - 1			0.75				120							5,000	0.25

Please note the format of this summary sheet varies from facility to facility and needs to be modified and corrected for each and every application and they are not always accurate!

Total Minimum Outside Air =
Total Maximum Outside Air when c
Total Minimum Exhaust Air=
Total Maximum Exhaust Air =
Difference from Min. Outside Air t
Difference from Max. Outside Air t

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022 Summary

These Minimum values need to be calculated.
It shows S-1 min oa is NEGATIVE in it's design!

5/4/2022

Please note the Fields in Column AK, Total Supply or Exhaust CFM, that are
This false data was entered because the spread sheet dis
If the reader assumes the 1991 air values are unchange

ur ink jet toner cartridge.
are not always accurate!

Fan Data						1991 Reported As Found Information											
Fan RPM	Design Return CFM	Design Max OA CFM	Calculated Design Minimum OA CFM	Design Min. Exh. CFM	Design Max Exh CFM	Fan Name	Total Supply or Exhaust CFM	Return Air CFM	Outside Air CFM	Fan RPM	Actual Volts	Amp Draw	Assumed Power Factor	System Total Static Pressure	Interpreted* Brake Horsepower Calculation	Standard Brake Horsepower Calculation	
928	4,175	4,200	25	25		AHU - 1	4,589	4,500	89	948	453	3.4	1.0	1.75	1.07	16.97	
900	4,200	4,200	0	0		AHU - 2	4,514	4,514	0	905	453	3.0	1.0	1.54	1.53	12.80	
1325	1,800	2,000	200	200		AHU - 3	2,158	2,158	0	981	453	1.1	1.0	0.70	1.11	0.83	
2709	200	1,900	1,700	1,700		AHU - 4	1,950	212	1,735	2,571	453	2.6	1.0	2.20	4.35	2.95	
1630	9,900	11,000	1,100	1,100		AHU S-1	10,353	6,983	10,353	1,558	453	9.6	1.0	2.72	8.72	7.33	
1630	9,900	11,000	1,150	1,150		AHU S-2	9,927	0	9,927	1,771	453	13.7	1.0	3.45	14.82	11.43	
1755	9,900	11,000	1,300	1,300		AHU S-3	10,266	254	10,266	1,771	453	12.0	1.0	3.40	9.91	9.16	
1755	9,900	12,000	1,200	1,200		AHU S-4	10,165	2,857	10,165	1,859	453	13.9	1.0	3.23	10.40	10.61	
1250	1,000	10,400	2,000	2,000		AHU S-5	0	0	0	1,247	453	6.8	1.0	1.50	5.23	5.02	
901	7,650	9,325	1,675	1,675		AHU S-6	0	0	0	811	459	6.2	1.0	1.15	3.45	4.64	
911	8,400	9,700	1,300	1,300		AHU S-7	0	0	0	802	458	6.4	1.0	1.11	3.40	4.78	
925	5,550	5,725	175	175		AHU S-8	0	0	0	912	459	4.9	1.0	1.07	2.60	3.76	
1025	10,100	10,800	700	700		AHU S-9	0	0	0	1,001	458	10.2	1.0	1.56	5.60	7.87	
880	7,000	7,600	600	600		AHU S-10	0	0	0	744	459	9.3	1.0	1.63	3.14	6.76	
500	-	-	-	-	8,400	E - 1	6,087	-	-	488	484	2.8	1.0	0.78	0.59	2.03	
660	-	-	-	-	4,300	E - 2	2,844	-	-	756	484	1.6	1.0	0.96	0.45	1.14	
555	-	-	-	-	6,550	E - 3	3,413	-	-	546	484	2.4	1.0	0.81	0.49	1.52	
500	-	-	-	-	8,400	E - 4	6,763	-	-	836	474	8.4	1.0	2.90	3.65	6.89	
608	-	-	-	-	5,550	E - 5	4,043	-	-	546	475	2.1	1.0	0.89	0.49	1.52	
585	-	-	-	-	4,900	E - 6	1,133	-	-	836	475	1.9	1.0	0.82	0.49	1.43	
645	-	-	-	-	4,000	E - 7	3,403	-	-	717	484	1.9	1.0	1.09	0.46	1.18	
508	-	-	-	-	7,650	E - 8	4,314	-	-	478	484	2.2	1.0	0.85	0.58	1.69	
452	-	-	-	-	5,600	E - 9	4,139	-	-	486	484	0.9	1.0	0.39	0.30	0.70	
620	-	-	-	-	3,300	E - 10	2,657	-	-	1189	484	0.9	1.0	0.33	0.54	0.48	
512	-	-	-	-	4,800	E - 11	3,253	-	-	676	484	1.4	1.0	0.63	0.41	1.05	
405	-	-	-	-	6,800	E - 12	3,905	-	-	388	484	1.4	1.0	0.61	0.23	1.05	
472	-	-	-	-	10,100	E - 13	5,726	-	-	472	482	3.5	1.0	1.04	0.85	2.75	
441	-	-	-	-	7,000	E - 14	4,263	-	-	441	484	1.9	1.0	0.69	0.40	1.45	
0	-	-	-	-	600	E - 15	0	-	-	0	484	0.0	1.0	0.00	#DIV/0!	-	
1541	-	-	-	-	600	E - 16	0	-	-	1541	484	6.5	1.0	0.45	1.25	-	
1200	-	-	-	-	1,800	E - 17	1,484	-	-	1200	484	1.0	1.0	0.65	0.38	0.25	
1750	-	-	-	-	1,300	E - 18	1,304	-	-	1750	484	1.0	1.0	-1.29	0.53	0.35	
630	-	-	-	-	5,000	TF - 1	0	-	-	-	-	-	-	-	-	-	
Total Economizer Outside Air =						Total Economizer Outside Air =											42,535
Total AHU Relief Air and Toilet Exhaust =						Total AHU Relief Air and Toilet Exhaust =											58,731
Difference from the Total Economizer Outside Air intake and the AHU Relief Air and the Toilet Exhaust air volumes =						Difference from the Total Economizer Outside Air intake and the AHU Relief Air and the Toilet Exhaust air volumes =											-16,196
Please note the format of this summary sheet varies from facility to facility and needs to be modified and corrected for each and every application and they are not always acc																	

Damper Information											
ion	Damper Type JCI / Internal Link	Return Air / Mixed Air Damper and Motor Information					To Penthouse to Relieve Air Damper and Motor Information				
		pneumatic or electric	with pilot or without pilot	Pilot is calibrated or needs calibration	Damper Size	Damper Type JCI / Internal Link	pneumatic or electric	with pilot or without pilot	Pilot is calibrated or needs calibration	Damper Size	Damper Type JCI / Internal Link
DNE	AHJ-1	None	DNE	DNE	DNE	DNE	None	DNE	DNE	DNE	DNE
DNE	AHJ-2	None	DNE	DNE	DNE	DNE	None	DNE	DNE	DNE	DNE
DNE	AHJ-3	None	DNE	DNE	DNE	DNE	None	DNE	DNE	DNE	DNE
JCI WITH ONE 1" STROKE	AHJ-4	None	DNE	DNE	DNE	DNE	None	DNE	DNE	DNE	DNE
JCI INTERNAL LINKAGE	AHJ-S-1	PNEUMATIC	Without Pilot	NEED CALIBRATION	NA	Unknown, but with 1" stroke	PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-2	PNEUMATIC	Without Pilot	NEED CALIBRATION	NA	Unknown, but with 1" stroke	PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-3	PNEUMATIC	Without Pilot	NEED CALIBRATION	NA	JCI but with 3" stroke	PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-4	PNEUMATIC	Without Pilot	NEED CALIBRATION	NA	JCI but with 3" stroke	PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-5	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-6	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-7	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-8	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-9	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
JCI INTERNAL LINKAGE	AHJ-S-10	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE	PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-1						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-2						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-3						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-4						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-5						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-6						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-7						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-8						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-9						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-10						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-11						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-12						PNEUMATIC	WITH PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-13						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-14						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-15						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-16						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-17						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	E-18						PNEUMATIC	WITHOUT PILOT	NEEDS CALIBRATION	NA	JCI INTERNAL LINKAGE
	V-1						No Motor				

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM Booster Coil Info AREA SERVED Supply Air Systems

Area Served	Original Drawing Specifications for Booster Coils					2022 ABCMWS Survey Results							Misc. Notes
	Coil Size	Area Sq. Ft.	Design			Actual Duct Size	Actual Coil Size	Static pressure Information			Air Volume Info		
			Velocity	CFM	Diff Pres			Entering	Leaving	Diff Pres	Velocity	CFM	
H - 1	42 X 12	3.50	571	2,000	0.40	22 X 12		0.8151	0.458	0.3571	960	1,760	S - 1 Zone 1
H - 1	43 X 13	3.88	515	2,000	0.40	24 X 16		0.6553	0.6024	0.0529	777	2,073	S - 1 Zone 3
H - 1	44 X 14	4.28	468	2,000	0.40	12 x 25		1.401	1.19	0.211	1,535	3,198	S - 2 Zone 7 Fourth Floor Gallery 8
H - 1	45 X 15	4.69	427	2,000	0.40	20 x 12		1.522	1.359	0.163	1,393	2,322	S - 2 Zone 5 174 -35 L174
H - 1	42 X 12	3.50	600	2,100	0.40	24 X 12		1.393	0.9516	0.4414	1,196	2,392	S - 3 Zone 12
H - 1	42 X 12	3.50	600	2,100	0.40	20 X 12		1.419	0.9522	0.4668	1,450	2,417	S - 3 Zone 12
H - 1	42 X 12	3.50	600	2,100	0.40	24 X 12		3.534	0.05	3.484	0	0	S - 4 Zone 16
H - 1	42 X 12	3.50	600	2,100	0.40	24 X 12		3.534	0.05	3.484	0	0	S - 4 Zone 18
H - 2	42 X 18	5.25	571	3,000	0.40	24 X 16		0.6651	0.5867	0.0784	1001	2,670	S - 1 Zone 2
H - 2	42 X 18	5.25	571	3,000	0.40	24 X 16		3.534	0.05	3.484	0	0	S - 4 Zone 17
H - 3	42 X 24	7.00	571	4,000	0.40	24 X 16		1.407	1.178	0.229	1560	4,160	S - 2 Zone 6 Fifth Floor Gallery

H - 3	42 X 24	7.00	571	4,000	0.40	24 X 16		0.7944	0.6206	0.1738	1,089	2,905	S - 1 Zone 4
H - 4	18 X 12	1.50	533	800	0.10	12 X 10		1.29			1,500	1,250	S - 2 Zone 9 29 - 362 Print Gallery
H - 4	18 X 12	1.50	600	900	0.10	10 X 12		1.507	0.9768	0.5302	1,150	958	S - 3 Zone 15
H - 5	24 X 12	2.00	500	1,000	0.10	12 x 12		1.290	1.186	0.104	1,410	1,410	S - 2 Zone 10 South Lobby Rm 220
H - 6	42 X 30	8.75	571	5,000	0.30	28 X 20		1.511	1.093	0.418	1,361	5,293	S - 3 Zone 11
H - 6	42 X 30	8.75	571	5,000	0.30	23 X 24		3.534	0.05	3.484	0	0	S - 4 Zone 19
H - 7	60 X 24	10.00	600	6,000	0.50	26 X 20		1.227	0.8333	0.3937	0.7112 @ Traverse 1,539	5,558	BC is located in the Western walk-way of the Penthouse. The duct traverse is only 12" X 12". Coil spec is 24" X 12"
H - 7	60 X 24	10.00	600	6,000	0.50	26 X 21		1.157	0.894	0.263	1.825" @ Traverse 1,322	5,013	BC for AHU S - 8
H - 8	42 X 18	5.25	571	3,000	0.20	23 X 12		1.271	1.0241	0.2469	0.8005 @ Traverse 1,260	2,415	BC is located in the HW corner of the Penthouse. The duct traverse is only 20" X 20". Coil spec is 42" X 18"
H - 9	54 X 30	11.25	676	7,600	0.20	34 X 20		1.445	0.09987	1.34513	1,740	8,217	S - 10
H - 10	42 X 24	7.00	686	4,800	0.20	20 X 20		1.208	1.03	0.178	0.6632 @ Traverse 1,499	4,164	BC is located in the HW corner of the Penthouse. The duct traverse is only 20" X 20". Coil spec is 42" X 18"
H - 11	42 X 18	5.25	571	3,000	0.20	16 X 20		1.111	0.7686	0.3424	0.4844 @ Traverse 1,353	3,007	BC is located in the NW corner of the Penthouse. The duct traverse is only 16" X 20". Coil spec is 42" X 18"
S - 5 H - 12	24 X 12	2.00	375	750	4.60	12 X 12		0.9723	0.4211	0.5512	0.397 @ Traverse 1,100	1,100	BC is located in the SW corner of the Penthouse. The duct traverse is only 12" X 12".

S -6 H - 12	24 X 12	2.00	500	1,000	4.60	12 X 12		1.401	0.3272	1.0738	0.3128 @ Traverse 820	820	Coil spec is 24" X 12" BC is located in the Western walk-way of the Penthouse. The duct traverse is only 12" X 12". Coil spec is 24" X 12"
H - 13	24 X 6	1.00	400	400	0.70								
H - 13	24 X 6	1.00	500	500	0.70								
H - 14	36 X 12	3.00	333	1,000	0.10								
H - 15	12 X 6	0.50	300	150	0.20								
H - 15	12 X 6	0.50	400	200	0.20								
H - 16	18 X 6	0.75	400	300	0.40								
H - 17	18 X 9	1.13	533	600	1.20								
				78,400 CFM								63,100 CFM	Total CFM of Booster Coils H-1 to H-17 Total CFM of Booster Coils tested

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	111515

1991 Report 2022 Survey

Fan ID	AHU - 1
Location	Mech Room 510
ABC Unit Number	0544 - 019B
Service	Perimeter Skylights
Fan Manufacturer	Trane
Model #	CCDBO8BAEOK
Serial #	K90B04615
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Century
Model #	6 - 3555641 - 01
Serial #	NA
Horsepower	2.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	3.9
RPM	1745
Frame / Service Factor	S182T 1.15
Efficiency	100%
Motor Sheave Make	Browning
Motor Sheave Info	4.75 7/8
Actual Diameter	4.75
Fan Sheave Make	Browning
Fan Sheave Make	6.8 7/8
Actual Diameter	6.8
Center distance	18
# Belts/ Make/Size	1 / Gates / AX53
Actual length	53
Heater Make	1028 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	4,200	4,589	4,628
Return Air CFM	4,175	4,500	4,628
Outside Air CFM	25	89	0
Design Exhaust CFM	25	89	0
Outside Air Percentage	15%	14%	17%
Fan RPM	928	948	919
Motor RPM	1745	1742	1768

Static Pressure In	-0.3	-1.55	-1.455
Static Pressure Out	0.3	0.20	0.05
Total System SP	2.0	1.75	1.51
External Static Pres	0.60		0.6834

Outside Air Damper	39%		
Return Air Damper	61%		
Exhaust Air Damper	32%		

Outside Air Temp	-3.0	-8	
Return Air Temp	77.0	68	
Mixed Air Temp	67.0	63	
(RAT-MAT)/ (RAT-OAT)	13%	7%	

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	3.9	3.4	3.4
Power Factor	1.0	1.0	0.865
Voltage	460	453	453

Number of Filters	1
Filter size	12 X 24 X 2
MERV Rating	10
Number of Filters	1
Filter size	12 X 12 X 2
MERV Rating	10
Number of Filters	2
Filter size	24 X 24 X 2
MERV Rating	10
Number of Filters	2
Filter size	12 X 24 X 2
MERV Rating	10

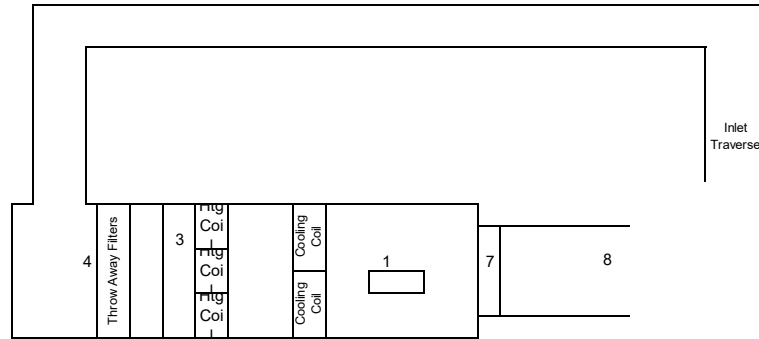
Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.4532
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Notes

System Profile Sheet

5/4/2022

AHU 1



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	Pre OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Traverse		
	Supply Air		Return Air		Outside Air		DDC	Outside Air	Outside Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																	
4/29/2022			4628	None			DDC				1768	3.8, 3.7 3.6	60.0%		-1.415		-0.9618	-0.6334				0.05	
							Actual	0.0			919												
							DDC																
							Actual																

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU - 1 **AREA SERVED** Main Duct

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU-1 Supply	48 X 16	5.33	788	4,200				No good place to traverse the supply ductwork
AHU-1 Return	40 X 12	3.33	1260	4,200		1388	4628	The unit is 1005 Return Air
AHU-1 Outside Air							0	There is no outside air for this unit

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	Unknown

Fan ID	AHU - 2
Location	Mech Room 510
ABC Unit Number	Unknown
Service	Perimeter Skylights
Fan Manufacturer	Trane
Model #	CCDBD8AEOK
Serial #	K90V04616
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Century
Model #	NA
Serial #	NA
Horsepower	3.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	3.9
RPM	1745
Frame / Service Factor	S182T 1.15
Efficiency	85.5%
Motor Sheave Make	Browning
Motor Sheave Info	1VP50 7/8
Actual Diameter	4.75
Fan Sheave Make	Browning
Fan Sheave Make	7 7/8
Actual Diameter	7.75
Center distance	18.5
# Belts/ Make/Size	1 / Gates / A53
Actual length	53
Heater Make	1028 NEMA
Heaters Size	Size 1
Starter Location	

1991 Report 2022 Survey

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	4,200	4,514	5,400
Return Air CFM	4,200	4,514	5,400
Outside Air CFM	0	0	0
Design Exhaust CFM	0	0	0
Outside Air Percentage	12%	4%	14%
Fan RPM	900	905	893
Motor RPM	1745	1745	1782

Static Pressure In	0.0	-1.32	-1.131
Static Pressure Out	0.0	0.22	0.3217
Total System SP	2.0	1.54	1.45
External Static Pres	0.60	0.80	0.8

Outside Air Damper	25%		
Return Air Damper	75%		
Exhaust Air Damper	25%		

Outside Air Temp	-3.0	-8	-8%
Return Air Temp	77.0	68	68%
Mixed Air Temp	67.0	63	63%
(RAT-MAT)/ (RAT-OAT)	13%	7%	7%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	3.9	3.0	3.8
Power Factor	Air	1.0	86.5
Voltage	460	453	484

Number of Filters	1
Filter size	12 X 24 X 2
MERV Rating	10
Number of Filters	1
Filter size	12 X 12 X 2
MERV Rating	10
Number of Filters	2
Filter size	24 X 24 X 2
MERV Rating	10
Number of Filters	2
Filter size	12 X 24 X 2
MERV Rating	10

Reheat Coil			
Airflow	Delta P		0.1584
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.3058
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Notes

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

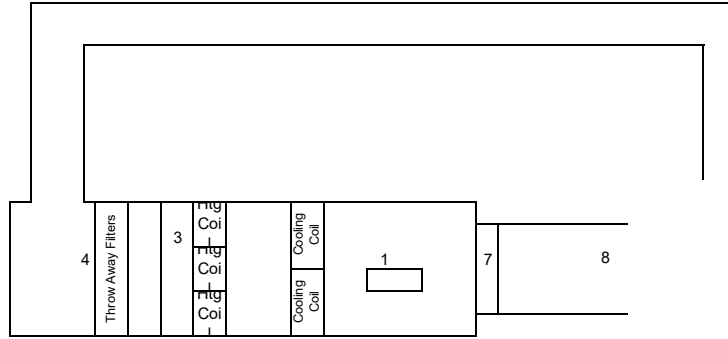
PROJECT 2022 Building Survey

SYSTEM AHU - 2 **AREA SERVED** Main Duct

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
								No good place to traverse the supply ductwork
AHU-2 Return	38 X 16	4.22	995	4,200	-0.2318	1279	5400	The unit is 1005 Return Air
AHU-1 Outside Air							0	There is no outside air for this unit
AHU-1 Return								

System Profile Sheet

AHU 2



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan				Return Fan				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	Pre OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Traverse	
	Supply Air		Return Air		Outside Air		DDC	Outside Air	Outside Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																				
4/29/2022			5400				DDC				1782	3.8, 3.7, 3.8	60.0%						-1.131	-0.8252	-0.6668	-0.4362			0.3217	
							Actual	0.0			893															
							DDC																			
							Actual																			

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112209

1991 Report 2022 Survey

Fan ID	AHU - 3
Location	Mech Room 510
ABC Unit Number	0544 - 021A
Service	Paige Court Skylight
Fan Manufacturer	Trane
Model #	CCDB068UUK
Serial #	K90C07657
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Century
Model #	NA
Serial #	NA
Horsepower	2.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	2.6
RPM	1745
Frame / Service Factor	S182T 1.15
Efficiency	85%
Motor Sheave Make	Browning
Motor Sheave Info	2VL34 7/8
Actual Diameter	3.3
Fan Sheave Make	Browning
Fan Sheave Info	4.2 7/8
Actual Diameter	4.1
Center distance	15
# Belts/ Make/Size	1 / Gates / AX40
Actual length	40
Heater Make	1028 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	2,000	2,158	1642
Return Air CFM	1,800	2,158	1,642
Outside Air CFM	200	0	0
Design Exhaust CFM	200	0	0
Outside Air Percentage	10%		
Fan RPM	1325	981	964
Motor RPM	1745		1755

Static Pressure In	0.0	-0.52	-0.6616
Static Pressure Out	0.0	0.18	0.2035
Total System SP	1.0	0.70	0.8651
External Static Pres	0.80	0.80	0.4531

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	
Return Air Temp	77.0	68	
Mixed Air Temp	67.0	63	
(RAT-MAT)/ (RAT-OAT)	13%	7%	

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	2.6	1.1	1.1
Power Factor	1.0	1.0	0.85
Voltage	460	453	484

Number of Filters	3
Filter size	24 x 24 x 2
MERV Rating	MERV - 10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.2921
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Transfer fan TF-1 serves this AHU.
Transfers to Mechanical Room 510

Goofy long linkage between the OA and RA damper.

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

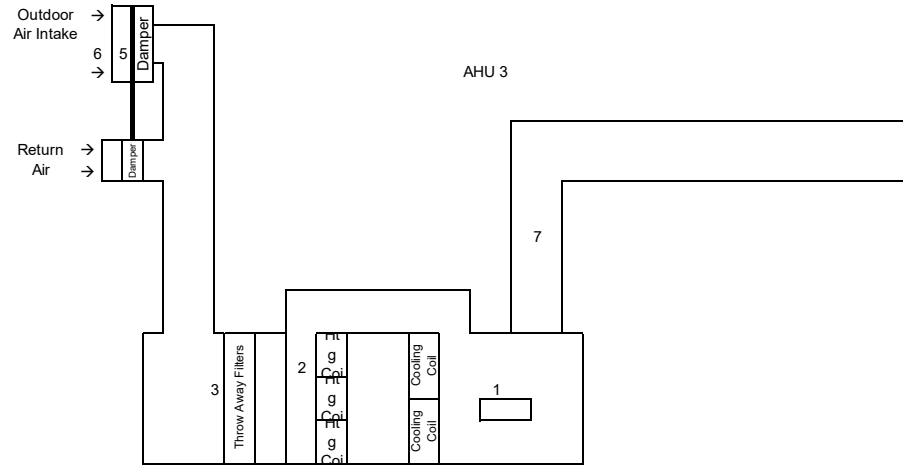
BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU - 3 AREA SERVED _____

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU-3 Supply	24 X 12	2.00			0.074	821	1642	

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan				Return Fan				Supply Fan Suction	Pre Cooling and Heating Coils	Pre Filter	Pre OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Traverse
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	6	7	8
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS												1	2	3	4	6	7	8
4/29/2022 on 100% OA Face and Bypass Damper stroked 100%	1642		0		Goofy long linkage between the OA and RA damper.		DDC	100%	0%	100%	1755	1.2	1.1	60.0%	on								0.2035	0.074
							Actual	100.0		100.0	964	1.2						-0.662	-0.3695	-0.25				
							DDC																	
							Actual																	

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112205

1991 Report 2022 Survey

Fan ID	AHU - 4
Location	Mech Room 510
ABC Unit Number	0544 - 019A
Service	Mayer Print Center 272
Fan Manufacturer	Trane
Model #	CCDB068UUK
Serial #	K90BO4617
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Century
Model #	NA
Serial #	NA
Horsepower	3.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	2.6
RPM	1745
Frame / Service Factor	S182T 1.15
Efficiency	85.5%
Motor Sheave Make	Browning
Motor Sheave Info	5.5 7/8
Actual Diameter	5.4
Fan Sheave Make	Browning
Fan Sheave Info	4 7/8
Actual Diameter	3.9
Center distance	15
# Belts/ Make/Size	1 / Gates / A42
Actual length	41
Heater Make	1028 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	1,900	1,950	2,012
Return Air CFM	200	212	1,977
Outside Air CFM	1,700	1,735	24
Design Exhaust CFM	1,700	1,735	24
Outside Air Percentage	12%	13%	13%
Fan RPM	2709	2571	2614
Motor RPM	1745	1760	1768

Static Pressure In	0.0	-1.4	-0.9178
Static Pressure Out	0.0	0.80	0.6732
Total System SP	3.75	2.20	1.591
External Static Pres	1.50	2.20	0.9321

Outside Air Damper	100%	10%	
Return Air Damper	0%	90%	
Exhaust Air Damper	100%	10%	

Outside Air Temp	-3.0	-8	
Return Air Temp	77.0	68	
Mixed Air Temp	67.0	63	
(RAT-MAT)/ (RAT-OAT)	13%	7%	

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	3.9	2.6	2.2
Power Factor	1.0	1.0	0.865
Voltage	460	453	484

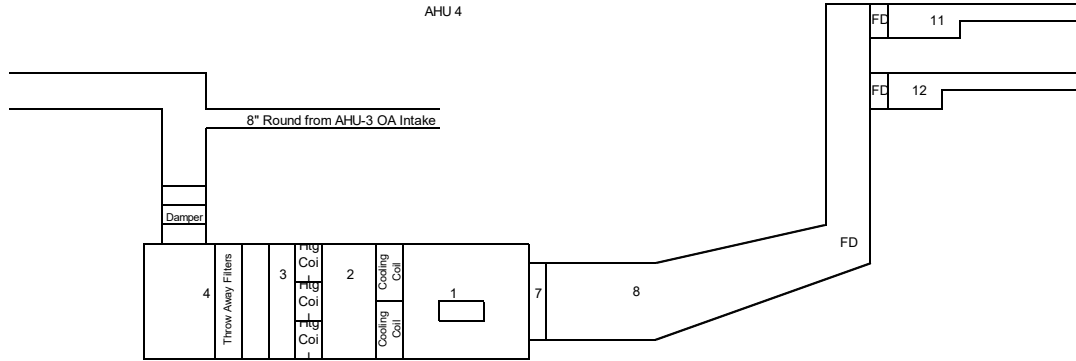
Number of Filters	4
Filter size	20 X 20 X 2
MERV Rating	MERV 10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.2734
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

The AHU, in 1990, now has a DX Cooling Coil.

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan				Return Fan				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	Pre OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Traverse	Return Fan Suction	Return Fan Discharge	Post the first Dis. Elbow	Post first 1R elbow	Post 90 Deg Elbow vane	Out of the chase	
	Supply Air		Return Air		Outside Air		Outside Air	Return air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS												Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	Pre OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Traverse	Return Fan Suction	Return Fan Discharge	Post the first Dis. Elbow	Post first 1R elbow	Post 90 Deg Elbow vane	Out of the chase	
4/29/2022	2012		1977		24		DDC			1768	2.3	60.0%					-0.9178	-0.6444		-0.2589			0.6732									
							Actual			2614	2.3																					
							DDC																									
							Actual																									

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU - 4 **AREA SERVED** Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU-4 Supply Down Northern Chase	18 X 10	1.25			0.3506	827	1034	
AHU-4 Supply Down N. Center Chase	16 X 11	1.22			0.5054	800	978	
								AHU - 4 Total Supply Air Flow 2012
AHU-4 Return	24 X 12	2.00			-0.0933	989	1977	
AHU-4 Outside Air	8 Inch Round	0.349			-0.1603	68	24	

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112212

1991 Report 2022 Survey

Fan ID	AHU S-1
Location	Mech Room 510
ABC Unit Number	0544 - 023
Service	Serves 3+4 South & West
Fan Manufacturer	Trane
Model #	NA
Serial #	K116983
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	EM3313T
Serial #	F0402121414
Horsepower	10.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	12.9
RPM	1760
Frame / Service Factor	215T 1.15
Efficiency	91.7%
Motor Sheave Make	Browning
Motor Sheave Info	6 7/8
Actual Diameter	6
Fan Sheave Make	Browning
Fan Sheave Make	7 7/8
Actual Diameter	7
Center distance	25
# Belts/ Make/Size	3 / Gates / BX68
Actual length	68
Heater Make	1028 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	11,000	10,353	8,889
Return Air CFM	9,900	6,983	7,591
Outside Air CFM	1,100	10,353	8,889
Design Exhaust CFM	1,100	10,353	7,592
Outside Air Percentage	14%	13%	
Fan RPM	1630	1558	1541
Motor RPM	1745	1761	1751

Static Pressure In	0.0	-1.62	-1.876
Static Pressure Out	0.0	1.10	0.7589
Total System SP	3.00	2.72	2.63
External Static Pres	1.00	1.50	1.14

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	41
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	41
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

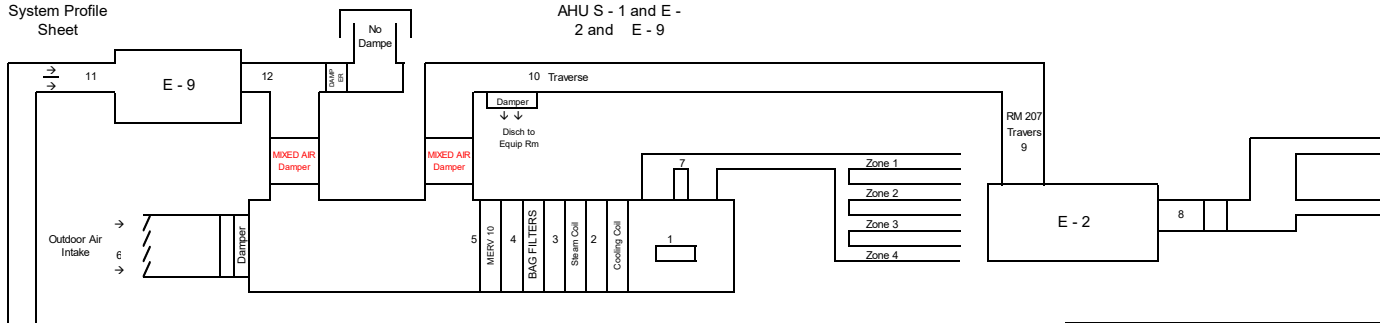
Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	13.3	9.6	8.1
Power Factor	1.0	1.0	0.87
Voltage	460	453	483

Number of Filters	5
Filter size	20" X 24" x 2"
MERV Rating	10
Number of Filters	5
Filter size	12" X 24" X 2"
MERV Rating	10
Number of Filters	5
Filter size	20H X 20W X 22 (95%)
MERV Rating	5P
Number of Filters	4
Filter size	24H X 12W X 29 (95%)
MERV Rating	3P

Reheat Coil			
Airflow	Delta P		0.083
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.293
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-2 and E-9 (Return Fans)



Date and Conditions	Air Flow Rates						Damper Positions		Supply Fan S - 1				Return Fan E - 2 & E - 9				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coils	Pre BAG filters	Pre MERV 10 Filter	Atm to Equip Rm	Supply Fan Dia	E - 2 Suction Pressure	E-2 Discharge Pressure	E-2 Discharge Traverse CFM	E-2 Penthouse Ductwork Pressure	E-2 Penthouse Ductwork CFM	E - 9 Suction Pressure	E-9 Discharge Pressure	E-9 Discharge Traverse CFM		
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	8	9	10	10	11	12	12	
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																											
4/22/2022 AHU S - 1 E - 2 AND E - 9	8889	None	E - 2 - 2835	None	NA	NA	DDC	15 PSI		1751	7.8	60.0	ON	1768	1.65	60.0		-1.876	-1.543	-1.46	-0.5203	-0.3833	na	0.7589	-0.6385	0.3214	2835 CFM	0.1674	2714 CFM				
			E - 9 4757				Actual	100%	0%	100%	1508	8.4	8.0					756	1.65														
							DDC							1768	.95	60.0	On																
							Actual							486	.95																		4757 CFM

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 1, E - 2 and E - 9 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-1 Supply	22 X 12	1.83			0.3610	960	1760	Zone 1 Fifth Fl Gallery 10
AHU S-1 Supply	24 X 16	2.67			0.4513	1001	2670	Zone 2 Fourth Fl Gallery 7
AHU S-1 Supply	24 X 12	2.00			0.4073	777	1555	Zone 3 Fourth Fl Gallery 6
AHU S-1 Supply	24 X 16	2.67			0.5179	1089	2905	Zone 4 Fifth Fl Gallery
							8889	S - 1 Supply Air Total
E - 2 Return / Relief for AHU S - 1	20 x 20	2.78		4,300	0.1674	1021	2,835	Traverse Taken in Penthouse 4/28/2022
E - 2 Return / Relief for AHU S - 1	20 x 20	2.78		4,300	0.3273	977	2,714	Traverse taken at the unit in Room 207 at Discharge
					0.1599		-121	Pressure Drop in the Chase CFM Lose
E - 9 Return /Exh Fan for AHU S - 1	28 X 18	3.50			-0.4879	962	3366	
E - 9 Return /Exh Fan for AHU S - 1	58 X 4	1.61			-0.4458	863	1390	Exhaust Air Total (E-9) 4757 CFM
								Exhaust Air Total (E-2+E-9) 7591 CFM

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112211

1991 Report 2022 Survey

Fan ID	AHU S-2
Location	Mech Room 510
ABC Unit Number	0544 - 022
Service	Serves 1,2,3+4 South and East
Fan Manufacturer	Trane
Model #	M - 25
Serial #	K116984
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	EM2513T
Serial #	Z1202101706
Horsepower	15.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	17.7
RPM	1765
Frame / Service Factor	254T 1.15
Efficiency	100%
Motor Sheave Make	Browning
Motor Sheave Info	8 7/8
Actual Diameter	7.9
Fan Sheave Make	Browning
Fan Sheave Make	7,5 7/8
Actual Diameter	7.4
Center distance	26
# Belts/ Make/Size	3 / Gates /
Actual length	68
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	11,000	9,927	13,380
Return Air CFM	9,900	0	6,048
Outside Air CFM	1,100	9,927	13,380
Design Exhaust CFM	1,100	6,070	6,048
Outside Air Percentage	14%	13%	
Fan RPM	1630	1771	2014
Motor RPM	1745	1739	1751

Static Pressure In	0.0	-1.85	-2.976
Static Pressure Out	0.0	1.60	1.819
Total System SP	3.00	3.45	4.80
External Static Pres	1.00	1.50	2.4171

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	13.3	13.7	15.4
Power Factor	1.0	1.0	0.86
Voltage	460	453	484

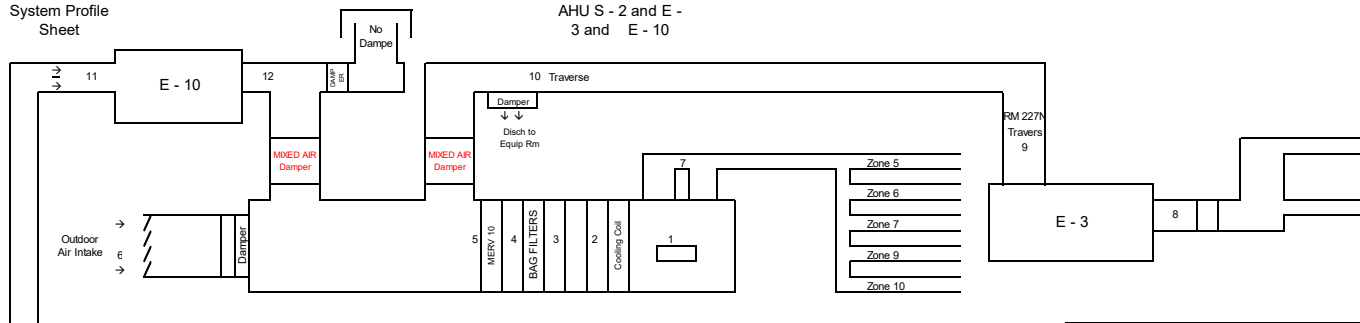
Number of Filters	5
Filter size	20" X 24" x 2"
MERV Rating	10
Number of Filters	5
Filter size	12" X 24" X 2"
MERV Rating	10
Number of Filters	5
Filter size	20H X 20W X 22 (95%)
MERV Rating	5P
Number of Filters	4
Filter size	24H X 12W X 29 (95%)
MERV Rating	3P

Reheat Coil			
Airflow	Delta P		0
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.578
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-3 and E-10 (Return Fans)

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 2				Return Fan E -3 & E - 10				Supply Fan Suction	Pre Cooling Coils		Pre BAG filters	Pre MERV 10 Filter	Atm to Equip Rm	Supply Fan Dis	E - 3 Suction Pressure	E-3 Discharge Pressure	E-3 Discharge Traverse CFM	E-3 Penthouse Ductwork Pressure	E-3 Penthouse Ductwork CFM	E - 10 Suction Pressure	E-10 Discharge Pressure	E-10 Discharge Traverse CFM					
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	8	9	10	10	11	12	12					
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																															
4/22/2022 AHU S - 2 E - 3 AND E - 10	13380	None	E - 3 - 3194 CFM	None	NA	NA	DDC	15 PSI			1765	16, 15, 15.1	60.0	ON	1775	2.4, 2.4, 2.4	60.0	On	-2.976	-2.398	-2.398	-0.8924	-0.5981	na	1.819	-0.3518	0.4554	NO PLACE TO TRAVERSE	0.055	3194 CFM							
			E - 10 2854 CFM				None	DDC	15 PSI			2017	1770	.95, .95, .95	60.0	On	546																				
							Actual	100%	0%	100%					1189																						
							Actual																														

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 2, E - 3 and E - 10 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S - 2 Supply	12 X 12	1.00			0.5677	1410	1410	Zone - 10
								H - 5
								310 South Lobby 220
AHU S - 2 Supply	12 X 25	2.08			0.704	1535	3197	Zone - 7
								H - 1
								Fourth Fl Gallery 8
AHU S - 2 Supply	20 X 24	3.33			1.007	1560	5201	Zone - 6
								H - 3
								Fifth Fl Gallery
AHU S - 2 Supply	20 X 12	1.67			0.5624	1393	2322	Zone - 5
								H - 1
								174 - 35 L174
AHU S - 2 Supply	12 X 10	0.83			0.9361	1500	1250	Zone - 9
								H - 4
								29 362 Print Gallery
							13380	S - 2 Supply Air Total
E - 3 Return / Relief for AHU S - 2	20 X 20	2.78			0.0500	1150	3194	Traverse Taken in Penthouse 4/28/2022
E - 3 Return / Relief for AHU S - 2	20 X 20	2.78		4,300	0.4554		3,194	No place to Traverse the unit in Room 272N
					0.4054		0	Pressure Drop in the Chase CFM Lose
E - 10 Return /Exh Fan for AHU S - 2	20 X 12	1.67			-0.2631	1033	1722	
E - 10 Return /Exh Fan for AHU S - 2	58 X 4	1.61			-0.2856	703	1132	Exhaust Air Total (E-10) 2854 CFM
								Exhaust Air Total (E-3 + E-10) 6048 CFM

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112203

1991 Report 2022 Survey

Fan ID	AHU S-3
Location	Mech Room 510
ABC Unit Number	0544 - 018
Service	Serves 1,2,3+4 North
Fan Manufacturer	Trane
Model #	M - 25
Serial #	K118985
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	E13313T
Serial #	F8402290489
Horsepower	10.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	12.9
RPM	1760
Frame / Service Factor	215T 1.15
Efficiency	92%
Motor Sheave Make	Browning
Motor Sheave Info	6.5 7/8
Actual Diameter	6.5
Fan Sheave Make	Browning
Fan Sheave Make	7.25 7/8
Actual Diameter	7.25
Center distance	25
# Belts/ Make/Size	3 / Gates / B68
Actual length	68
Heater Make	1041 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	11,000	10,266	11,060
Return Air CFM	9,900	254	254
Outside Air CFM	1,100	10,266	11,060
Design Exhaust CFM	1,100	4,386	6,171
Outside Air Percentage	14%	13%	13%
Fan RPM	1755	1771	1746
Motor RPM	1630	1733	1766

Static Pressure In	0.0	-2.00	-1.970
Static Pressure Out	0.0	1.40	1.531
Total System SP	3.00	3.40	3.50
External Static Pres	1.00	1.50	1.9845

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	13.3	12.0	12.0
Power Factor	1.0	1.0	77.2
Voltage	460	453	484

Number of Filters	5
Filter size	20" X 24" x 2"
MERV Rating	10
Number of Filters	5
Filter size	12" X 24" X 2"
MERV Rating	10
Number of Filters	5
Filter size	20H X 20W X 22 (95%)
MERV Rating	5P
Number of Filters	4
Filter size	24H X 12W X 29 (95%)
MERV Rating	3P

Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.395
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-6 and E-11 (Return Fans)

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 3, E - 6 and E - 11 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S - 3 Supply	10 X 12	0.83			0.9087	1150	959	Zone - 15
								H - 4
								Rm 362
AHU S - 3 Supply	20 X 12	1.67			0.6527	1450	2416	Zone - 13
								H - 1
								North Lobby 200 K
AHU S - 3 Supply	24 X 12	2.00			0.6287	1196	2393	Zone - 12
								H - 1
								4th FL Gallery 6 Rm 450 NE Corner
AHU S - 3 Supply	28 X 20	3.89			0.9285	1361	5292	Zone - 11
								H - 6
								Rm 470 East Wall Center Rm Gallery 7
						11060	S - 3 Supply Air Total	
E - 6 Return / Relief for AHU S - 3	20 X 20	2.78			0.0087	855	2374	Traverse Taken in Penthouse 4/28/2022
E - 6 Return / Relief for AHU S - 3	22 X 22	3.36			0.2736	1205	4051	Traverse taken at the unit in Room 247
					0.2649		1,677	Pressure Drop in the Chase CFM Lose
E - 11 Return /Exh Fan for AHU S - 3	20 X 16	2.22			-0.3512	1160	2577	
E - 11 Return /Exh Fan for AHU S - 3	58 X 4	1.61			-0.2986	757	1220	Exhaust Air Total (E-11) 3797 CFM
								Exhaust Air Total (E-6+E-11) 6170 CFM

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112201

1991 Report 2022 Survey

Fan ID	AHU S-4
Location	Mech Room 510
ABC Unit Number	0544 - 017
Service	Serves 1,2,3+4 North
Fan Manufacturer	Trane
Model #	M - 25
Serial #	K116986
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	E13313T
Serial #	F8402290489
Horsepower	10.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	12.9
RPM	1760
Frame / Service Factor	215T / 1.15
Efficiency	91.7%
Motor Sheave Make	Browning
Motor Sheave Info	6 / 7/8
Actual Diameter	6
Fan Sheave Make	Browning
Fan Sheave Info	7 / 7/8
Actual Diameter	7
Center distance	25
# Belts/ Make/Size	2 / Gates / BX68
Actual length	68
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	12,000	10,165	10,102
Return Air CFM	9,900	2,857	NA
Outside Air CFM	1,100	10,165	NA
Design Exhaust CFM	1,100	7,308	Na
Outside Air Percentage	14%	13%	NA
Fan RPM	1755	1859	1870
Motor RPM	1780	1760	1785

6/22/2022

Static Pressure In	0.0	-1.83	-0.35	-2.895
Static Pressure Out	0.0	1.40	3.524	0.69
Total System SP	3.25	3.23	3.87	3.59
External Static Pres	1.00	1.50	3.674	1.380

Outside Air Damper	100%	100%	100%	0%
Return Air Damper	0%	0%	0%	100%
Exhaust Air Damper	100%	100%	100%	0%

Outside Air Temp	-3.0	-8	42	NA
Return Air Temp	77.0	68	72	NA
Mixed Air Temp	67.0	63	42	NA
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%	NA

Frequency Drive Manu.				NA
Displayed Htz	60.0	60.0	60.0	60.0
Percent output				ON
Amperes - (Coul / Sec)	13.3	13.9	9.0	13.6
Power Factor	1.0	1.0	77.2	NA
Voltage	460	453	484	NA

Number of Filters	5
Filter size	20" X 24" x 2"
MERV Rating	10
Number of Filters	5
Filter size	12" X 24" X 2"
MERV Rating	10
Number of Filters	5
Filter size	20H X 20W X 22 (95%)
MERV Rating	5P
Number of Filters	4
Filter size	24H X 12W X 29 (95%)
MERV Rating	3P

Reheat Coil				
Airflow	Delta P			
Water Flow				
	Gpm			
	Delta P			0.119
Face /Bypass Position				
Cooling Coil				
Airflow	Delta P		0.255	0.376
Water Flow				
	Gpm			
	Delta P			
Reclaim Coil				
Airflow	Delta P			
Water Flow				
	Gpm			
	Delta P			

Misc. Notes

Interlocked with E-7 and E-12 (Return Fans)

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 4, E - 7 and E - 12 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S - 4 Supply	23 X 24	3.83			3.534	0	0	Z - 19
								H - 6
								Rm 420
AHU S - 4 Supply	24 X 12	2.00			3.534	0	0	Z - 18
								H - 1
								18-Mar
AHU S - 4 Supply	24 X 16	2.67			3.534	0	0	Z - 17
								H - 2
								New Coil
AHU S - 4 Supply	24 X 12	2.00			3.534	0	0	Z - 16
								H - 1
								5th Gallery 12
							0	S - 4 Supply Air Total
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.0007	52	144	Traverse Taken in Penthouse 4/28/2022 (EF-7 was off)
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.4097	1258	3495	Traverse taken at the unit in Room 227
					0.409			Pressure Drop in the Chase
							3,354	CFM Lose
E - 12 Return /Exh Fan for AHU S - 4	28 X 16	3.11			-0.3664	1041	3239	
E - 12 Return /Exh Fan for AHU S - 4	58 X 4	1.61			-0.4051	958	1544	Exhaust Air Total (E-12) 4783 CFM
								Exhaust Air Total (E-7+E-12) 4783 CFM

DUCT TRAVERSE READINGS

DATE 5/4/2022

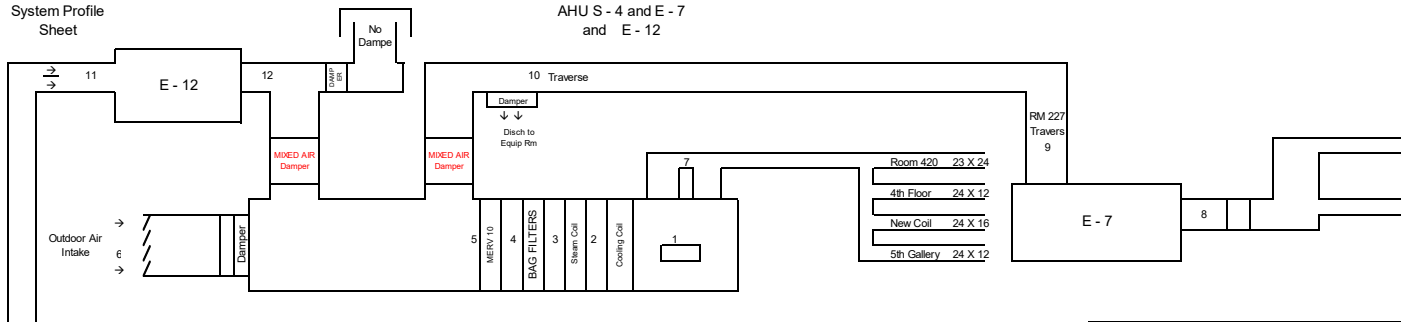
ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 4, E - 7 and E - 12 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S - 4 Supply	23 X 24	3.83			0.5093	1019	3906	Z - 19
								H - 6
								Rm 420 6/22/2022
AHU S - 4 Supply	24 X 12	2.00			0.2988	805	1610	Z - 18
								H - 1
								18-Mar 6/22/2022
AHU S - 4 Supply	24 X 16	2.67			0.4678	1056	2816	Z - 17
								H - 2
								New Coil 6/22/2022
AHU S - 4 Supply	24 X 12	2.00			0.4063	885	1770	Z - 16
								H - 1
								5th Gallery 12 6/22/2022
							10102	S - 4 Supply Air Total
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.0007	52	144	Traverse Taken in Penthouse 4/28/2022 (EF-7 was off)
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.4097	1258	3495	Traverse taken at the unit in Room 227
					0.409			Pressure Drop in the Chase
							3,354	CFM Lose
E - 12 Return /Exh Fan for AHU S - 4	28 X 16	3.11			-0.3664	1041	3239	
E - 12 Return /Exh Fan for AHU S - 4	58 X 4	1.61			-0.4051	958	1544	Exhaust Air Total (E-12) 4783 CFM
								Exhaust Air Total (E-7+E-12) 14886 CFM



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 4				Return Fan E - 7 & E - 12				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre BAG filters	Pre MERV 10 Filter	Aim to Equip Rm	Supply Fan Dis	E - 7 Suction Pressure	E - 7 Discharge Pressure	E - 7 Discharge Traverse CFM	E - 7 Penthouse Ductwork Pressure	E - 7 Penthouse Ductwork CFM	E - 12 Suction Pressure	E - 12 Discharge Pressure	E - 12 Discharge Traverse CFM		
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	9	9	10	10	11	12	12		
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																												
6/22/2022 AHU S - 4 E - 7 AND E - 12	500?	None	E - 7 3495 CFM	None	NA	NA	DDC	15 PSI		1770	9.0	60.0	ON	1745	1.8, 2.0, 2.0	60.0	On	NA	NA	NA	NA	NA	3.514	-0.6385	0.4097	3495 CFM	0.05	3495i CFM						
			E - 12 4783 CFM				None	DDC	15 PSI					1757			1.4	60.0	On															
	10102						DDC	3.0	100%	NA	1775	13.6,13.2, 14											0.69											
			Actual		3	100%	NA	1870																										

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112196

1991 Report 2022 Survey

Fan ID	AHU S-5
Location	Mech Room 510
ABC Unit Number	0544 - 014
Service	Serves 1 and 2 North
Fan Manufacturer	Trane
Model #	M - 21
Serial #	K116681
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	NA
Serial #	NA
Horsepower	7.5
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	10
RPM	1760
Frame / Service Factor	213T 1.15
Efficiency	100%
Motor Sheave Make	Browning
Motor Sheave Info	12 7/8
Actual Diameter	11.9
Fan Sheave Make	Browning
Fan Sheave Info	10 7/8
Actual Diameter	9.9
Center distance	18
# Belts/ Make/Size	1 / Gates / B54
Actual length	54
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Found
		Actual	Actual
Supply CFM	10,400	0	7,613
Return Air CFM	1,000	0	0
Outside Air CFM	9,400	0	7,613
Design Exhaust CFM	9,400	0	5,989
Outside Air Percentage	14%	13%	100%
Fan RPM	1250	1247	1621
Motor RPM	1780	1780	1774

Static Pressure In	0.0	-1.00	-1.26
Static Pressure Out	0.0	0.50	1.11
Total System SP	2.20	1.50	2.37
External Static Pres	1.00	1.50	1.790

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	7.6	6.8	7.8
Power Factor	1.0	1.0	1.0
Voltage	460	453	453

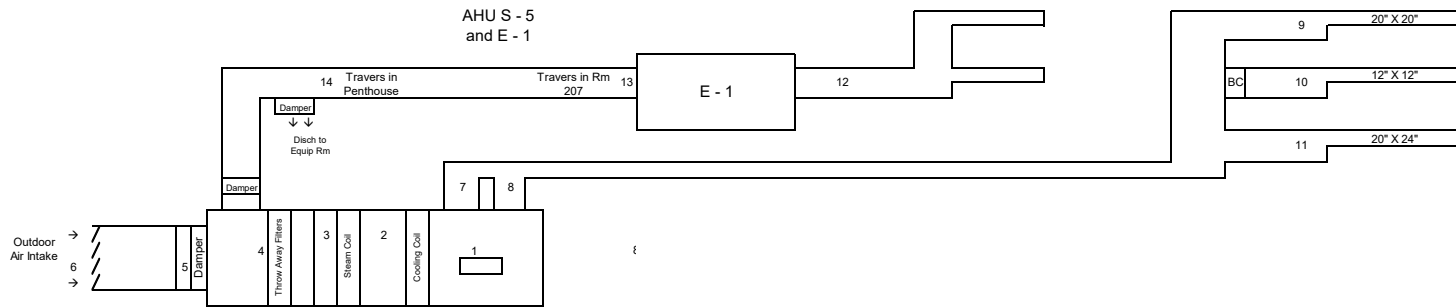
Number of Filters	10
Filter size	20 X 20 X 2
MERV Rating	MERV 10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		0.0372
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.3188
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-1 (Return Fan)

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 5			Return Fan E - 1			Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Dis	Duct Traverse	Duct Traverse	Duct Traverse	E - 1 Suction Pressure	E-1 Discharge Pressure	E-1 Rm 207 Traverse	E - 1 Penthouse Ductwork Pressure	E - 1 Penthouse Duct Traverse					
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	9	10	11	12	13	13	14	14			
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS	15 PSI																													
4/21/2022 S - 5 & E - 1	7613	None	5989	None	NA	NA	DDC	15 PSI			1750	7.5, 8.5, 7.5	60.0	ON	1768, 559	2.7, 2.8, 2.9	60.0	On	-1.259	-0.9402	-0.9033	-0.680	NA	NA	1.115	1.058	0.831	0.374	0.472	-0.391	0.321	6708	0.0943	0.3911		
							DDC																													
							Actual	100%	0%	100%	1725																									
							DDC																													
							Actual																													

DUCT TRAVERSE READINGS

DATE 5/4/2022 **ZONE TOTALS**

BUILDING NAME Elvehjem Arts Building

PROJECT 2022 Building Survey

SYSTEM AHU S - 5 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			100% Economizer
			Velocity	CFM	SP	Velocity	CFM	
AHU S-5 Supply Duct	20 X 24	3.33			0.4718	1076	3587	Supply Air Total 7613 CFM
AHU S-5 Supply Duct	12 x 12	1.00			Entering 0.3737 Leaving Delta	1110	1110	BC H - 12
AHU S-5 Supply Duct	20 X 20	2.78			0.8306	1050	2917	
E - 1 Return / Relief for AHU S - 5	28 x 22	4.28		8,400	0.0943	1400	5989	Traverse Taken in Penthouse 4/28/2022
E - 1 Return / Relief for AHU S - 5	22 x 32	4.89		8,400	0.3214	1372	6,708	Traverse taken at the unit in Room 207 at Discharge
					0.2271		719	Pressure Drop in the Chase CFM Lose
								Measured Difference between S-5 & E-1 1624 CFM

All the fans are on 100% economizer.

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112198

1991 Report 2022 Survey

Fan ID	AHU S-6
Location	Mech Room 510
ABC Unit Number	0544 - 015
Service	Serves 1 and 2 West
Fan Manufacturer	Trane
Model #	M - 21
Serial #	K116682
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Unknown
Model #	EM3311P
Serial #	F0401090898
Horsepower	7.5
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	10
RPM	1760
Frame / Service Factor	213T 1.15
Efficiency	91%
Motor Sheave Make	Browning
Motor Sheave Info	5.6 7/8
Actual Diameter	5.5
Fan Sheave Make	Browning
Fan Sheave Info	10 7/8
Actual Diameter	9.9
Center distance	18
# Belts/ Make/Size	2 / Gates / BX64
Actual length	54
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	9,325	0	10,067
Return Air CFM	7,650	0	0
Outside Air CFM	1,675	0	10,067
Design Exhaust CFM	1,675	0	4,253
Outside Air Percentage	14%	13%	13%
Fan RPM	901	811	1711
Motor RPM	1780	1780	1766

Static Pressure In	0.0	-0.70	-1.115
Static Pressure Out	0.0	0.45	1.343
Total System SP	1.0	1.15	2.46
External Static Pres	2.12	1.50	1.768

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	7.6	6.2	6.2
Power Factor	1.0	1.0	79.0
Voltage	460	459	459

Number of Filters	2
Filter size	20 X 20 X 2
MERV Rating	10
Number of Filters	
Filter size	
MERV Rating	

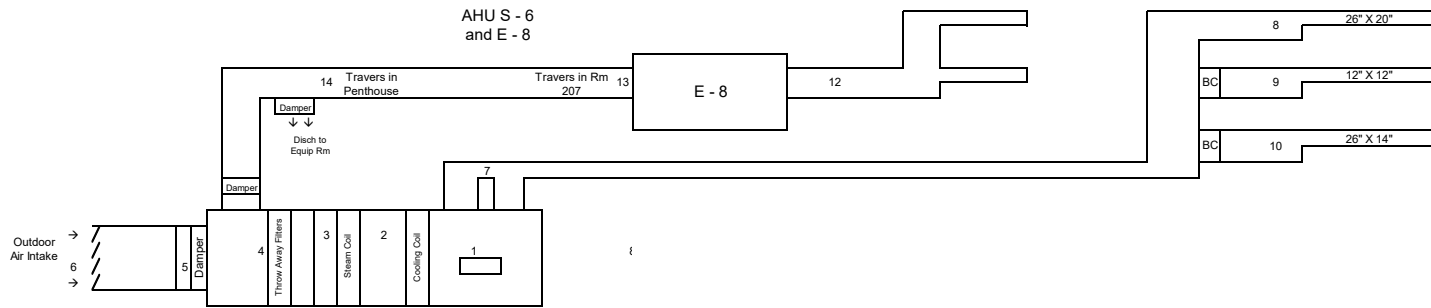
Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.4400
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Power Factor 0.79

Misc. Notes

Interlocked with E-8 (Return Fan)

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 6			Return Fan E -8			Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	OA Damper	Atm to Equip Rm	Supply Fan Dis	Duct Traverse	Duct Traverse	Duct Traverse	E - 8 Suction Pressure	E-8 Discharge Pressure	E-8 Rm 227 Traverse	E - 8 Penthouse Ductwork Pressure	E - 8 Penthouse Duct Traverse						
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	9	10	12	13	13	14	14				
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																														
4/25/2022 S - 6 & E - 8	10067	None	4253	None	10067	NA	DDC 15 PSI			1785	7.5, 8.5, 7.5	60.0	ON	1775	2.2, 2.2, 2.1	60.0	On	-1.12	-0.645	-0.58	-0.425	NA	NA	1.343	1.274	0.125	1.222		-0.4386	0.4097	No place to traverse	0.0674	4253			
							Actual	100%	0%	100%	1719			478																						
							DDC																													
							Actual																													
							DDC																													
							Actual																													

DUCT TRAVERSE READINGS

DATE 5/4/2022 **ZONE TOTALS**

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM S - 6 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-6 Supply	26 X 20	3.61			0.7112	1539	5558	BC H - 7
AHU S-6 Supply	12 X 12	1.00			0.3128	820	820	BC H -12
AHU S-6 Supply	26 X 14	2.53			1.046	1460	3690	BC H -12
							10067	Total for AHU S - 6 10067
E - 8 Return / Relief for AHU S - 6	26 x 22	3.97		8,400	0.0674	1071	4253	Traverse Taken in Penthouse 4/28/2022
E - 8 Return / Relief for AHU S - 6	22 x 32	4.89		8,400	0.4097	0	0	No Traverse taken at the unit in Room 227 at Discharge
					0.3423		-4,253	Pressure Drop in the Chase CFM Lose
								Measured Difference between S-7 & E-4 -4253 CFM

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112207

1991 Report 2022 Survey

Fan ID	AHU S-7
Location	Mech Room 510
ABC Unit Number	0544 - 020
Service	Serves 1 and 2 South & North
Fan Manufacturer	Trane
Model #	M - 21
Serial #	K116683
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	BALDOR
Model #	EM3311T
Serial #	F0401091013
Horsepower	7.5
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	10
RPM	1760
Frame / Service Factor	213T / 1.15
Efficiency	91%
Motor Sheave Make	Browning
Motor Sheave Info	6.9 / 7/8
Actual Diameter	6.9
Fan Sheave Make	Browning
Fan Sheave Info	6.5 / 7/8
Actual Diameter	6.5
Center distance	22.5
# Belts/ Make/Size	2 / Gates / B64
Actual length	64
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	9,700	0	9,673
Return Air CFM	8,400	0	0
Outside Air CFM	1,300	0	9,673
Design Exhaust CFM	1,300	0	6,760
Outside Air Percentage	14%	13%	13%
Fan RPM	911	802	1803
Motor RPM	1780	1769	1768

Static Pressure In	0.0	-0.69	-1.268
Static Pressure Out	0.0	0.42	1.420
Total System SP	1.0	1.11	2.688
External Static Pres	2.12	1.50	1.9052

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	7.6	6.4	7.8
Power Factor	1.0	1.0	0.79
Voltage	460	458	484

Number of Filters	10
Filter size	24 X 24 X 2
MERV Rating	10
Number of Filters	
Filter size	
MERV Rating	

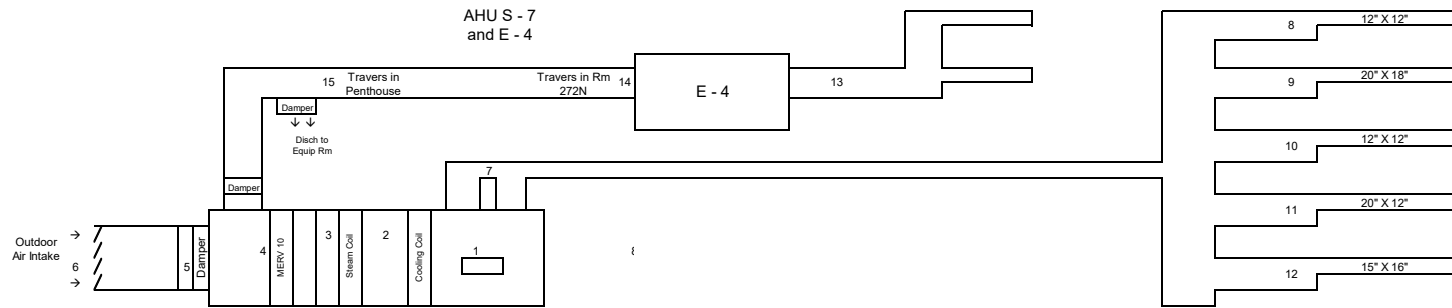
Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.4388
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-4 (Return Fan)

There are balancing volume dampers in nearly every branch of this unit.

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 7				Return Fan E - 4				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	OA Damper	Ain to Equip Rm	Supply Fan Dis	Duct Traverse	Duct Traverse	Duct Traverse	Duct Traverse	E - 4 Suction Pressure	E-4 Discharge Pressure	E-4 Rm 272N Traverse	E - 4 Penthouse Ductwork Pressure	E - 4 Penthouse Duct Traverse		
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	9	10	10	13	14	14	15	15		
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																													
4/29/2022 S - 7 & E - 4	9,673	None	6,760	None	9,673	NA	DDC 15 PSI			1768	7.5, 8.5, 7.5	60.0	ON	1772, 836	8.5, 8.5, 8.2	60.0	On	-1.27	-0.8292	-0.7782	-0.5842	NA	NA	1.420	0.936	0.836	0.741	1.689	-1.218	1.685	No place to traverse	0.0959	6760		
							DDC																												
							Actual	100%	0%	100%	1803																								
							DDC																												
							Actual																												

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU S - 7 & E - 4 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-7 Supply South Zone 30	12 x 12	1.00			0.9363	907	907	
AHU S-7 Supply South Zone 29	20 x 18	2.50			0.8364	1646	4115	
AHU S-7 Supply South Zone 28	12 x 12	1.00			0.7406	928	928	
AHU S-7 Supply South Zone 27	20 x 12	1.67			1.689	1074	1791	
AHU S-7 Supply South Zone 29	15 x 16	1.67			1.4195	1160	1934	
								Total for AHU S - 7 9673
E - 4 Return / Relief for AHU S - 7	24 x 32	5.33		8,400	0.0959	1268	6760	Traverse Taken in Penthouse 4/28/2022
E - 4 Return / Relief for AHU S - 7	22 x 32	4.89		8,400	1.685	0	0	No Traverse taken at the unit in Room 272N at Discharge
					1.5891		-6,760	Pressure Drop in the Chase CFM Lose
								Measured Difference between S-7 & E-4 2913 CFM

Note: The suction pressure of E - 4 was really high. It was -1.218" of H2O.

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112206

1991 Report 2022 Survey

Fan ID	AHU S-8
Location	Mech Room 510
ABC Unit Number	0544 - 019
Service	Serves 160
Fan Manufacturer	Trane
Model #	M - 14
Serial #	K116684
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	BALDOR
Model #	EM3218T
Serial #	F0401223443
Horsepower	5.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	6.5
RPM	1750
Frame / Service Factor	184T 1.15
Efficiency	89.5%
Motor Sheave Make	Browning
Motor Sheave Info	6 7/8
Actual Diameter	5.9
Fan Sheave Make	Browning
Fan Sheave Info	8 7/8
Actual Diameter	7.9
Center distance	24
# Belts/ Make/Size	1 / Gates / B68
Actual length	68
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	5,725	0	5014
Return Air CFM	5,550	0	0
Outside Air CFM	175	0	5,014
Design Exhaust CFM	175	0	3,925
Outside Air Percentage	14%	13%	13%
Fan RPM	925	912	1275
Motor RPM	1780	1769	1775

Static Pressure In	0.0	-0.66	-1.009
Static Pressure Out	0.0	0.41	1.321
Total System SP	1.0	1.07	2.330
External Static Pres	1.95	1.50	1.9052

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	5.2	4.9	5.6
Power Factor	1.0	1.0	0.80
Voltage	460	459	484

Number of Filters	6
Filter size	20 X 20 X 2
MERV Rating	10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.3000
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-5 (Return Fan)

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU S - 8 & E -5 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-8 Supply	26 x 21	3.79			1.1825	1322	5014	
E - 5 Return / Relief for AHU S - 8	22 x 22	3.36		8,400	0.2213	1168	3925	Traverse Taken in Penthouse 5/3/2022
E - 5 Return / Relief for AHU S - 8	22 x 22	3.36		8,400	0.3823	999	3357	No Traverse taken at the unit in Room 247 at Discharge
					0.161		-567	Pressure Drop in the Chase CFM Lose

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112199

Fan ID	AHU S-9
Location	Mech Room 510
ABC Unit Number	0544 - 016
Service	Serves L130, L140 & L150
Fan Manufacturer	Trane
Model #	M -21
Serial #	K116685
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	Baldor
Model #	EM3313T
Serial #	F0402121839
Horsepower	10.0
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	12.9
RPM	1780
Frame / Service Factor	215T 1.15
Efficiency	81.7%
Motor Sheave Make	Browning
Motor Sheave Info	6.0 7/8
Actual Diameter	5.9
Fan Sheave Make	Browning
Fan Sheave Make	6.00 7/8
Actual Diameter	5.9
Center distance	26
# Belts/ Make/Size	1 / Gates / B55
Actual length	55
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

1991 Report 2022 Survey

Test Data	Design	1991 Actual	2022 Survey As Left
Supply CFM	10,800	0	9,013
Return Air CFM	10,100	0	0
Outside Air CFM	700	0	9,013
Design Exhaust CFM	700	0	5,760
Outside Air Percentage	14%	13%	13%
Fan RPM	1025	1001	1775
Motor RPM	1780	1755	1778

Static Pressure In	0.0	-0.98	-1.482
Static Pressure Out	0.0	0.58	1.514
Total System SP	2.0	1.56	2.996
External Static Pres	1.00	1.68	2.054

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	12.5	10.2	10.5
Power Factor	1.0	1.0	0.80
Voltage	460	458	483

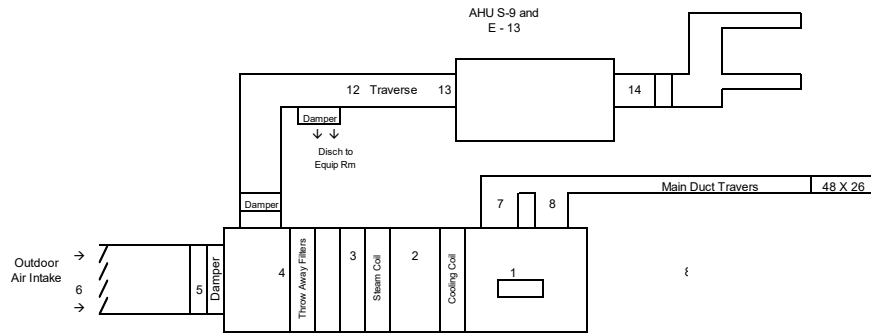
Number of Filters	10
Filter size	20 X 20 X 2
MERV Rating	10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		0.0458
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.4833
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-13 (Return Fan)

System Profile Sheet



Date and Conditions	Air Flow Rates						Damper Positions			Supply Fan S - 9				Return Fan E -13				Supply Fan Suction	Pre Cooling Coils	Pre HTG Coil	Pre Filter	OA Damper	Atm to Equip Rm	Supply Fan Dis	Supply Fan Dis	E-13 Equip Rm Traverse	E-13 Equip Rm Traverse	E-13 Dis Pressure	E - 13 Suc Pressure
	Supply Air		Return Air		Outside Air		Outside Air	Return Air	Exhaust Air	Motor / Fan RPM	AMPS	Hz	DDC Output	Motor / Fan RPM	AMPS	Hz	DDC Output	1	2	3	4	5	6	7	8	12	13	13	14
	Dis. Duct Traverse	AFMS	Inlet Duct	AFMS	Inlet Duct	AFMS																							
4/22/2022 S-9 & E -13	9013	None	5760	None	NA	NA	DDC	15 PSI		1778	11, 10.8, 9.8	60.0	ON	1775	3.5, 3.5, 3.5	60.0	On	-1.482	-0.9987	-0.9529	-0.5398	NA	NA	1.514	1.305	5760	-0.9392	0.1000	-0.9392
							Actual																						
							DDC																						
							Actual																						

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU - S -9 & E - 13 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-9 Supply	48 X 26	8.67			1.3802	1040	9013	Supply Air Total 9013 CFM
E - 13 Return / Exhaust (In Penthouse) Serves S - 9	48 x 20	6.67			-0.9289	864	5760	Exhaust Air Total 5760 CFM
								Measured Difference between S-9 & E-13 3253 CFM

2022 ABCMSW April Survey of Elvehjem Arts Building - Summary on 6_22_2022

Date	5/4/2022
Building Name	Elvehjem
Building Number	0544
ABC Work Order #	0108
Phase	010

Contact Person	Michael J. Wimmer, P.E.
Problem	Building Pressure and Humidity Control
UW Asset Number	112208

1991 Report 2022 Survey

Fan ID	AHU S-10
Location	Mech Room 510
ABC Unit Number	0544 - 016
Service	Serves L160
Fan Manufacturer	Trane
Model #	M - 17
Serial #	K116686
Type / Class	FC / I
Arrangement	Horizontal Draw Thru
Motor Manufacturer	BALDOR
Model #	EM3311T
Serial #	F0401090959
Horsepower	7.5
Volts / Phase / Hz	460 / 3 / 60
Full Load Amps	10.3
RPM	1775
Frame / Service Factor	184 / 1.15
Efficiency	91%
Motor Sheave Make	Browning
Motor Sheave Info	6.9 / 7/8
Actual Diameter	6.9
Fan Sheave Make	Browning
Fan Sheave Info	6.00 / 7/8
Actual Diameter	6
Center distance	21
# Belts/ Make/Size	1 / Gates / BX 63
Actual length	63
Heater Make	1039 NEMA
Heaters Size	Size 1
Starter Location	

Test Data	Design	As Found	As Left
		Actual	Actual
Supply CFM	7,600	0	8,057
Return Air CFM	7,000	0	0
Outside Air CFM	600	0	8,057
Design Exhaust CFM	600	0	4,457
Outside Air Percentage	14%	13%	13%
Fan RPM	880	744	2052
Motor RPM	1780	1760	1785

Static Pressure In	0.0	-1.10	-1.227
Static Pressure Out	0.0	0.53	1.687
Total System SP	2.22	1.63	2.91
External Static Pres	1.00	0.80	2.08

Outside Air Damper	100%	100%	100%
Return Air Damper	0%	0%	0%
Exhaust Air Damper	100%	100%	100%

Outside Air Temp	-3.0	-8	42
Return Air Temp	77.0	68	72
Mixed Air Temp	67.0	63	42
(RAT-MAT)/ (RAT-OAT)	13%	7%	100%

Frequency Drive Manu.			
Displayed Htz	60.0	60.0	60.0
Percent output			
Amperes - (Coul / Sec)	10.3	9.3	9.6
Power Factor	1.0	1.0	0.79
Voltage	460	459	484

Number of Filters	10
Filter size	24 X 24 X 2
MERV Rating	10
Number of Filters	
Filter size	
MERV Rating	

Reheat Coil			
Airflow	Delta P		0.1385
Water Flow			
	Gpm		
	Delta P		
Face /Bypass Position			
Cooling Coil			
Airflow	Delta P		0.4441
Water Flow			
	Gpm		
	Delta P		
Reclaim Coil			
Airflow	Delta P		
Water Flow			
	Gpm		
	Delta P		

Misc. Notes

Interlocked with E-14 (Return Fan)

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM AHU S - 10 **AREA SERVED** Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
AHU S-10 Supply	34 X 20	4.72			0.708	1710	8075	Supply Air Total 8075 CFM
E - 14 Return / Exhaust (In Penthouse)	22 x 22	3.36			0.0721	1326	4457	Exhaust Air Total 4457 CFM
								Measured Difference between S - 10 & E -14 3618 CFM

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	112194	112195	112188

Fan ID	E - 1		E - 2		E - 3	
Location	Room 207		Room 207		Room 272 N	
UW PM #	NA		NA		NA	
Service	AHU S - 5 Ret / Exh		AHU S - 1 Ret / Exh		AHU S - 2 Ret / Exh	
Manufacture	Dreyer Dynamics		Dreyer Dynamics		Dreyer Dynamics	
Model #	T.C.2		240		300	
Serial #	7302		7312		7309	
Type/ Class	FC / 1		FC / 1		NA / 1	
Motor Make/ Style	Dayton / Open		Baldor / Open		Century	
Model #	5W304		EM3116T		6-311455-01	
Serial #	NA		F0702224022		NA	
Horse Power	2.0		1.0		1.5	
Volts / Phase / Hertz	460	/ 3 / 60	460	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	2.9	1.15	1.5	1.15	2.5	1.15
RPM	1735		1765		1745	
Frame / Power Factor	145T	0.77	143T	0.71	145T	1.0
Efficiency	86.5%		87.50%		85%	
Motor Sheave Make	Browning- 2AK39		Browning - AK34 H H7/		Browning	
Dia / Bore	2AK39	0.875	2AK34	0.875	3.4"	NA
Actual Diameter	3.7		3.3		3.4	
Fan Sheave Make	Browning		Unknown		Unknown	
Dia / Bore	12.0	1.9375	QBA82B86	NA	9.5"	NA
Actual Diameter	11.8		8.6		9.4	
Center to Center Distance	31		23.5		26.5	
# of belts / Make / Size	2 / Gates / AX 85		2/ Gates / AX64		2 / Gates / AX 71	
Actual belt Length	85		64		26.5	
Heater Make						
Heater Size						
Starter Location						
	Size 330 / CFM 8400		Size 240 / CFM 4300		Size 300 / CFM 655	
Additional Information from the original	SP 0.75 / A-PH 1.6		SP 0.75 / A-PH .81		SP 0.75 / A-PH 1.23	
Manufactures Tag	Const STD. Temp STD		Const STD. Temp STD		Const STD. Temp STD	

	Design	Actual	Design	Actual	Design	Actual
		2022 Survey		2022 Survey		2022 Survey
Fan Total CFM	8400	5,989	4300	2,835	6550	3,194
Inlet CFM						
Fan RPM	500	488	660	756	555	546
Motor RPM		1730	1730	1768	1720	1775
Freq. Drive Hz	60	60	60	60	60	60
Static Pressure In		-0.3911		-0.6385		-0.3518
Static Pressure Out		0.3842		0.3214		0.4554
Inlet VP						
Fan Delta P						
System SP Delta P		0.7753		0.9599		0.8072
Voltage		484	440	484	440	484
Amperage		2.7		1.65		2.4
Amperage		2.8		1.60		2.4
Amperage		2.9		1.65		2.4
Average Amps		2.8	1.8	1.63	2.3	2.4

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 1, E - 2 and E - 3 AREA SERVED Main Ductwork

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E - 1 Return / Relief for AHU S - 5	28 x 22	4.28		8,400	0.0943	1400	5989	Traverse Taken in Penthouse 4/28/2022
E - 1 Return / Relief for AHU S - 5	22 x 32	4.89		8,400	0.3214	1372	6,708	Traverse taken at the unit in Room 227
					0.2271		719	Pressure Drop in the Chase CFM Lose
E - 2 Return / Relief for AHU S - 1	20 x 20	2.78		4,300	0.1674	1021	2,835	Traverse Taken in Penthouse 4/28/2022
E - 2 Return / Relief for AHU S - 1	20 x 20	2.78		4,300	0.33	977	2,714	Traverse taken at the unit in Room 227
					0.1599		-121	Pressure Drop in the Chase CFM Lose
E - 3 Return / Relief for AHU S - 2	20 x 20	2.78		6,550	0.05	1150	3,194	Traverse Taken in Penthouse 4/28/2022
E - 3 Return / Relief for AHU S - 2	20 x 20	2.78		6,550	0.4554		3,194	No place to Traverse the unit in Room 272N
					0.4054		0	Pressure Drop in the Chase CFM Lose

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	112189	112190	112191

Fan ID	E - 4		E - 5		E - 6	
Location	Room 272N		Room 247		Room 247	
UW PM #	NA		NA		NA	
Service	AHU S - 7 Ret / Exh		AHU S - 8 Ret / Exh		AHU S - 3 Ret / Exh	
Manufacture	Dreyer Dynamics		Dreyer Dynamics		Dreyer Dynamics	
Model #	T.C. 2		T.C. 2		T.C. 2	
Serial #	7307		7829			
Type/ Class	Unknown / 1		Unknown / 1		Unknown / 1	
Motor Make/ Style	Baldor / Open		Baldor / Open		Baldor / Open	
Model #	EM3311T		EM31547			
Serial #	F1008181615		FC508054166?			
Horse Power	7.5		1.5		1.0	
Volts / Phase / Hertz	460	/ 3 / 60	460	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	9.7	1.15	2.1	1.15	1.35	1.15
RPM	1770		1740		1745	
Frame / Power Factor	213T	1.0	145T	1.0	N143T	1.0
Efficiency	91.0%		86.5%		82.5%	
Motor Sheave Make	Browning		Browning		Browning	
Dia / Bore	2AK61H	H 1 - 3/8	3.2	0.625	3.75	0.625
Actual Diameter	6.0		3.2		3.7	
Fan Sheave Make	Browning		Browning		Browning	
Dia / Bore	12.0	SK 1-15/16	8.5	SK 1-15/16	9	SK 1-15/16
Actual Diameter	11.8		8.4		8.9	
Center to Center Distance	32.125		25.5		25.5	
# of belts / Make / Size			2-Gates- BX 68		2-Gates- BX 68	
Actual belt Length	91		68		68	
Heater Make						
Heater Size						
Starter Location						
	Size 330 / CFM 8400		Size 870 / CFM 5500		Size 270 / CFM 4900	
Additional Information	SP 0.75 / A-PH 1.6		SP 0.75 / A-PH 1.08		SP 0.75 / A-PH .88	
from the original	RPM 500 / Class 1		RPM 608 / Class 1		RPM 597 / Class 1	
Manufactures Tag	Const STD. Temp STD		Const STD. Temp STD		Const STD. Temp STD	

	Design	Actual	Design	Actual	Design	Actual
		2022 Survey		2022 Survey		2022 Survey
Fan Total CFM	8400	6760	5550	3925	4900	2,374
Inlet CFM						
Fan RPM	500	836	608	546	585	836
Motor RPM	1770	1776	1740	1765	1745	1772
Freq. Drive Hz	60	60	60	60	60	60
Static Pressure In		-1.218		-0.4585		-0.5433
Static Pressure Out		1.685		0.4358		0.2736
Inlet VP						
Fan Delta P						
System SP Delta P		2.903		0.8943		0.8169
Voltage	460	474	460	475	440	475
Amperage		8.5		2.2		1.8
Amperage		8.5		2		1.9
Amperage		8.2		2		1.9
Average Amps	9.7	8.40	2.1	2.07	1.35	1.87

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 4, 5 & 6 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E - 4 Return / Relief for AHU S - 7	24 x 32	5.33		8,400	0.0959	1268	6760	Traverse Taken in Penthouse 4/28/2022
E - 4 Return / Relief for AHU S - 7	22 x 32	4.89		8,400	1.685	0	0	No Traverse taken at the unit in Room 272N at Discharge
					1.5891		-6,760	Pressure Drop in the Chase CFM Lose
E - 5 Return / Relief for AHU S - 8	22 x 22	3.36		8,400	0.2213	1168	3925	Traverse Taken in Penthouse 5/3/2022
E - 5 Return / Relief for AHU S - 8	22 x 22	3.36		8,400	0.3823	999	3357	Traverse taken at the unit in Room 247
					0.161		-567	Pressure Drop in the Chase CFM Lose
E - 6 Return / Relief for AHU S - 3	20 X 20	2.78			0.0087	855	2374	Traverse Taken in Penthouse 4/28/2022
E - 6 Return / Relief for AHU S - 3	22 X 22	3.36			0.2736	1205	4051	Traverse taken at the unit in Room 247
					0.2649		1,677	Pressure Drop in the Chase CFM Lose

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	112193	112192	112214

Fan ID	E - 7		E - 8		E - 9	
Location	Room 227		Room 227		Mech Rm 510	
UW PM #	0544010		0544009		0544-045	
Service	AHU S - 4 Ret / Exh		AHU S - 6 Ret / Exh		AHU S - 1 Ret / Exh	
Manufacture	Dreyer Dynamics		NA		Dreyer Dynamics	
Model #	T.C. - 2		T.C. - 2		T.C. - 2	
Serial #	7311		7327		7310	
Type/ Class	NA / 1		NA / 1		NA / 1	
Motor Make/ Style	GE / Open		Baldor / Open		Baldor / Open	
Model #	5K143AL202		EM3157T		M3116T	
Serial #	25BC02XP		NA		F200	
Horse Power	1.0		2.0		1.0	
Volts / Phase / Hertz	440	/ 3 / 60	460	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	1.8	1.15	2.7	1.15	1.4	1.15
RPM	1730		1725		1725	
Frame / Power Factor	143T	1.0	145T	1.0	143T	1.0
Efficiency	80%		100%		100%	
Motor Sheave Make	Browning		Browning		Browning	
Dia / Bore	2AK39H	H 7/8	2BK35H	H 7/8	3.125	0.875
Actual Diameter	3.8		3.4		3.1	
Fan Sheave Make	Browning		Browning		Browning	
Dia / Bore	2QB 86	1-11/16	2 A 120	1-11/16	2A 115	1-15/16
Actual Diameter	8.5		11.9		11.0	
Center to Center Distance	23		29		27	
# of belts / Make / Size	2 / Gates / AX 64		2-Gates- BX 85		2-Gates- BX 75	
Actual belt Length	64		85		75	
			Rotation is Clock Wise			
Heater Make						
Heater Size						
Starter Location						
	Size 240 / CFM 4000		Size 330 / CFM 7650		Size 300 / CFM 5600	
Additional Information	SP 0.75 / A-PH 0.72		SP 0.75 / A-PH 1.43		SP 0.50 / A-PH .70	
from the original	RPM 656 / Class 1		RPM 508 / Class 1		RPM 460 / Class 1	
Manufactures Tag	Const STD. Temp STD		Const STD. Temp STD		Const STD. Temp STD	

	Design	Actual	Design	Actual	Design	Actual
		2022 Survey		2022 Survey		2022 Survey
Fan Total CFM	4000	3,495	7650	4,253	5600	4757
Inlet CFM						
Fan RPM	645	717	508	478	452	486
Motor RPM	1730	1745	1725	1775	1730	1773
Freq. Drive Hz	60	60	60	60	60	60
Static Pressure In		-0.5251		-0.4386		-0.5650
Static Pressure Out		0.5624		0.4097		-0.1739
Inlet VP						
Fan Delta P						
System SP Delta P	0.8	1.0875		0.8483	0.8	0.3911
Voltage	440	484	460	484	440	484
Amperage		1.8		2.2		0.95
Amperage		2.0		2.2		0.9
Amperage		2.0		2.1		0.95
Average Amps	1.8	1.93	2.7	2.17	1.8	0.93

When E - 9 is on, the discharge chamber is NEGATIVE (from the Penthouse) to S - 1. ALSO, when E - 9 is OFF, the discharge chamber is still as negative as it was when the fan was on to the Penthouse.

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 7, E - 8 & E - 9 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.0007	52	3495i	Traverse Taken in Penthouse 4/28/2022 (EF-7 was off)
E - 7 Return / Relief for AHU S - 4	20 X 20	2.78			0.4097	1258	3495	Traverse taken at the unit in Room 227
					0.409		#####	Pressure Drop in the Chase CFM Lose
E - 8 Return / Relief for AHU S - 6	26 x 22	3.97		8,400	0.0674	1071	4253	Traverse Taken in Penthouse 4/28/2022
E - 8 Return / Relief for AHU S - 6	22 x 32	4.89		8,400	0.4097	0	0	No Traverse taken at the unit in Room 227 at Discharge
					0.3423		-4,253	Pressure Drop in the Chase CFM Lose
E - 9 Return /Exh Fan for AHU S - 1	28 X 18	3.50			-0.4879	962	3366	
E - 9 Return /Exh Fan for AHU S - 1	58 X 4	1.61			-0.4458	863	1390	Exhaust Air Total (E-9) 4757 CFM

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	112213	112204	112202

Fan ID	E - 10		E - 11		E - 12	
Location	Room 510		Room 510		Mech Rm 510	
UW PM #	0544-043		0544-038		0544-037	
Service	AHU S - 2 Ret / Exh		AHU S - 3 Ret / Exh		AHU S - 4 Ret / Exh	
Manufacture	Dreyer Dynamics		Dreyer Dynamics		Dreyer Dynamics	
Model #	T.C. - 2		T.C. - 2		T.C. - 2	
Serial #	7328		7331		7313	
Type/ Class	NA / 1		NA / 1		NA / 1	
Motor Make/ Style	Baldor / Open		Baldor / Open		Baldor / Open	
Model #	M3112A		EM3581T		EM3116T	
Serial #	NA		F0502243463		FP511054513	
Horse Power	0.75		1.0		1.0	
Volts / Phase / Hertz	460	/ 3 / 60	460	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	1.5	1.15	1.4	1.15	1.4	1.15
RPM	1725		1750		1740	
Frame / Power Factor	56	1.0	145T	1.0	143T	1.0
Efficiency	100%		100%		100%	
Motor Sheave Make	Browning		Browning		Browning	
Dia / Bore	AK 34H	H 5/8	OD 4.0	H 7/8	AK 32	H 7/8
Actual Diameter	3.3		3.9		3.1	
Fan Sheave Make	Browning		Browning		Browning	
Dia / Bore	AK 99H	H 1 3/8	OD 9.75	1-15/16	AK125	1-15/16
Actual Diameter	9.8		9.6		12.4	
Center to Center Distance	20.5		25		28.75	
# of belts / Make / Size	2 / Gates / AX 60		2-Gates- BX 68		2-Gates- A 80	
Actual belt Length	60		68		80	
Heater Make						
Heater Size						
Starter Location						
	Size 220 / CFM 3300		Size 270 / CFM 4800		Size 330 / CFM 6800	
Additional Information	SP 0.50 / A-PH .43		SP 0.50 / A-PH .60		SP 0.50 / A-PH .86	
from the original	RPM 665 / Class 1		RPM 520 / Class 1		RPM 410 / Class 1	
Manufactures Tag	Const STD. Temp STD		Const STD. Temp STD		Const STD. Temp STD	

	Design	Actual	Design	Actual	Design	Actual
		2022 Survey		2022 Survey		2022 Survey
Fan Total CFM	3300	2,854	4800	3797	6800	4,783
Inlet CFM						
Fan RPM	620	1189	512	676	405	388
Motor RPM	1725	1770	1730	1752	1730	1757
Freq. Drive Hz	60	60	60	60	60	60
Static Pressure In		-0.38		-0.7525		-0.6673
Static Pressure Out		-0.05		-0.1257		-0.0571
Inlet VP						
Fan Delta P						
System SP Delta P	0.55	0.33	0.8	0.6268	0.8	0.6102
Voltage	460	484	440	484	440	484
Amperage		0.9				
Amperage		0.9				
Amperage		0.95				
Average Amps	1.4	0.92	1.8	1.4	1.8	1.4

No access to disconnect on E - 11 so I entered the FLA

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 10, E - 11 and E - 12 AREA SERVED Main Duct

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E - 10 Return /Exh Fan for AHU S - 2	20 X 12	1.67			-0.2631	1033	1722	
E - 10 Return /Exh Fan for AHU S - 2	58 X 4	1.61			-0.2856	703	1132	Exhaust Air Total (E-10) 2854 CFM
E - 11 Return /Exh Fan for AHU S - 3	20 X 16	2.22			-0.3512	1160	2577	
E - 11 Return /Exh Fan for AHU S - 3	58 X 4	1.61			-0.2986	757	1220	Exhaust Air Total (E-11) 3797 CFM
E - 12 Return /Exh Fan for AHU S - 4	28 X 16	3.11			-0.3664	1041	3239	
E - 12 Return /Exh Fan for AHU S - 4	58 X 4	1.61			-0.4051	958	1544	Exhaust Air Total (E-12) 4783 CFM

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	112200	112210	120493

Fan ID	E - 13		E - 14		E - 15	
Location	Room 510		Room 510		Mech Rm 510	
UW PM #	0544-035		0544-040		0544-041	
Service	AHU S - 9 Ret / Exh		AHU S - 10 Ret / Exh		Kitchen 371	
Manufacture	Dryer Dynamics Corp		Dryer Dynamics Corp		Dryer Dynamics Corp	
Model #	T.C. - 2		T.C. - 2		T.C. - 2	
Serial #	7297		7296		7359	
Type/ Class	NA / 1		NA / 1		NA / 1	
Motor Make/ Style	Baldor / Open		Baldor / Open		NO TAG	
Model #	EM3211T		EM3154T		NO TAG	
Serial #	F0905143544		F0601061343		NO TAG	
Horse Power	3.00		1.5		1.5	
Volts / Phase / Hertz	460	/ 3 / 60	460	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	4	1.15	2.1	1.15	2.1	1.15
RPM	1755		1740		1750	
Frame / Power Factor	182T	0.77	145T	1.0	NO TAG	1.0
Efficiency	90.2%		86.5%		86.5%	
Motor Sheave Make	Browning		Browning		BROWNING	
Dia / Bore	4.0	1.125	NA	H 7/8	2VP42	NA
Actual Diameter	3.1		3.5		4.1	
Fan Sheave Make	Browning		Browning		BROWNING	
Dia / Bore	2 B 110	SK 1-15/16	2B 124	SK 1-15/16	2VP38	NA
Actual Diameter	10.5		12.3		3.4	
Center to Center Distance	31		31		13	
# of belts / Make / Size	2 / Gates / BX85		2-Gates- AX85		2 / GATES / AP35	
Actual belt Length	87		85		13	
Heater Make						
Heater Size						
Starter Location						
	Size 360 / CFM 10100		Size 330 / CFM 7000		Size 90 / CFM 800	
Additional Information	SP 0.75 / A-PH 1.9		SP 0.75 / A-PH 1.25		SP 0.50 / A-PH .14	
from the original	RPM 470 / Class 1		RPM 490 / Class 1		RPM 1750 / Class 1	
Manufactures Tag	Const STD. Temp STD		Const STD. Temp STD		Const STD. Temp STD	

	Design	Actual	Design	Actual	Design	Actual
		2022 Survey		2022 Survey		2022 Survey
Fan Total CFM	10100	5,760	7000	4457	600	0
Inlet CFM						
Fan RPM	426	472	465	441	1680	0
Motor RPM		1775		1769		
Freq. Drive Hz	60	60	60	60		
Static Pressure In		-0.9392		-0.5298		
Static Pressure Out		0.1000		0.1587		
Inlet VP						
Fan Delta P						
System SP Delta P		1.0392		0.6885	0.3	0
Voltage	460	482	460	484		484
Amperage		3.5		2.1		
Amperage		3.5		1.9		
Amperage		3.5		1.8		
Average Amps	4.0	3.5	2.1	1.93		0

EF - 14 Relief damper disconnected. Reconnected by balancer - Note from 1991

EF - 15 - It appears the motor is burnt out. No Tag; however, data entered to make Summary sheet function ok

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 13, 14 & 15 AREA SERVED Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E - 13 Return / Exhaust (In Penthouse) Serves S - 9	48 x 20	6.67			-0.9289	864	5760	Exhaust Air Total 5760 CFM
E - 13 Return / Exhaust (In Penthouse) Serves S - 9	48 x 20	6.67			-0.2898	502	3347	Rotation Changed to CCW to check flows
E - 14 Return / Exhaust (In Penthouse)	22 x 22	3.36			0.0721	1326	4457	Exhaust Air Total 4457 CFM
E-15							0	Fan is off for an unknown reason

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	120470	No Asset Number	No Asset Number

Fan ID	E - 16		E - 17		E - 18	
Location	Room 510		Room 510		Mech Rm 510	
UW PM #	0544-042		0544-036		0544-039	
Service	Shop 101 C		TR EX 126		TR EX 162	
Manufacture	Dryer Dynamics		Dryer DYNAMICS CORP		Dryer	
Model #	T.C. 2		BI FLO		T.C. 2	
Serial #	7353		7352		7349	
Type/ Class	NA / 1		NA / 1		NA / 1	
Motor Make/ Style	CENTURY / OPEN		Dayton / Open		A O Smith / Open	
Model #	CAT C403		2N013R		CAT H850	
Serial #	BW1 - 095		R60069R		BW1-055	
Horse Power	0.33		0.5		0.5	
Volts / Phase / Hertz	115	/ 1 / 60	440	/ 3 / 60	460	/ 3 / 60
Full Load Amps / SF	6.6	1	2.2	1.25	1.5	1.25
RPM	1725		1725		1725	
Frame / Power Factor	J56	1.0	F56	1.0	LA 56	1.0
Efficiency	86.5%		86.5%		86.5%	
Motor Sheave Make	BROWNING		Browning		Browning	
Dia / Bore	2VP42	NA	1 VP 40		2 AK44H	0.625
Actual Diameter	4.1		3.9		43.0	
Fan Sheave Make	BROWNING		NA		Browning	
Dia / Bore	2BK48	NA	4		40	
Actual Diameter	4.7		4		4	
Center to Center Distance	14		14		14.5	
# of belts / Make / Size	2/ GATES / AX-35		1 / Gates /		1/ Gates / AX 40	
Actual belt Length	35		35		40	
Heater Make						
Heater Size						
Starter Location						
	Size 100 / CFM 600		SIZE 150 / CFM 1800		SIZE 135 / CFM 1300	
Additional Information	SP 1.00 / A-PH .17		SP 0.75 / A - PH .35		SP 0.73 / A - PH .244	
from the original	RPM 1725 / Class 1		RPM 1250 / CLASS 1		RPM 127 / CLASS 1	
Manufactures Tag	Const STD. Temp STD		CONST STD/TEMP STD			

	Design	Actual	Design	Actual	Design	Actual
Fan Total CFM	600	462	1800	1,725	1300	1,299
Inlet CFM						
Fan RPM	1725	1541	1160	1200	1210	1750
Motor RPM		1778		1725		1725
Freq. Drive Hz	60	60	60	60	60	60
Static Pressure In		-0.3951		-0.5300		1.396
Static Pressure Out		0.0500		0.1200		0.1025
Inlet VP						
Fan Delta P						
System SP Delta P	0.3	0.4451		0.6500		-1.2935
Voltage		484	440	484	460	484
Amperage				1.0		1.0
Amperage				1.0		1.0
Amperage				1.0		1.0
Average Amps		6.5		1.0		1.0

EF - 14 Relief damper disconnected. Reconnected by balancer

DUCT TRAVERSE READINGS

DATE 5/4/2022

ZONE TOTALS

BUILDING NAME Elvehjem Arts

PROJECT 2022 Building Survey

SYSTEM E - 16, 17 & 18 **AREA SERVED** Main Ducts

Area Served	Duct Size	Area Sq. Ft.	Design		Actual			
			Velocity	CFM	SP	Velocity	CFM	
E-16	8 X 12	0.67		600	-0.3456	693	462	2022 Survey
E-17	24 x 14	2.33		1,800	-0.4377	739	1,725	2022 Survey
E-18	22 x 8	1.22		1,300	0.1886	1062	1,299	2022 Survey

Return / Exhaust Fan Summary Sheet

Date	5/4/2022	Contact Person	Michael J. Wimmer, PE
Building Name	Elvehjem	Action item	
Building Number	0544		
ABCMWS WO #	0108		
Phase	010		
UW Asset Number	None Shown		

Fan ID	TF - 1		
Location	Room 550		
UW PM #	0544 - 018A		
Service	Exhaust for skylight		
Manufacture			
Model #			
Serial #			
Type/ Class			
Motor Make/ Style			
Model #			
Serial #			
Horse Power	0.75		
Volts / Phase / Hertz	120 / 1 / 60		
Full Load Amps / SF			
RPM			
Frame / Power Factor			
Efficiency			
Motor Sheave Make			
Dia / Bore			
Actual Diameter			
Fan Sheave Make			
Dia / Bore			
Actual Diameter			
Center to Center Distance			
# of belts / Make / Size			
Actual belt Length			
Heater Make			
Heater Size			
Starter Location			
	-		
Additional Information	-		
from the original	-		
Manufactures Tag	-		

	Design	Actual	Design	Actual	Design	Actual
Fan Total CFM	5000	4200				
Inlet CFM						
Fan RPM	630					
Motor RPM	1780					
Freq. Drive Hz	60					
Static Pressure In						
Static Pressure Out						
Inlet VP						
Fan Delta P						
System SP Delta P	0.25					
Voltage						
Amperage						
Amperage						
Amperage						
Average Amps		0				

