No: MC-01

SUBMITTAL COVERSHEET
Nanuet UFSD –Phase 3 Projects

Architect:
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215 W 40th Street,15th Floor
New York, NY 10018

Owner:
Nanuet Union Free School District
101 Church Street
Nanuet, NY 10954

Construction Manager:
Jacobs
One Penn Plaza, 54th floor
New York, NY 10019

Contractor: Joe Lombardo Plumbing & Heating of Rockland Inc

Contract: Ron Lombardo

Address: 321 Spook Rock Road Suite 109A
Suffern, New York 10901

Telephone: 845-357-6537

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School Name: Nanuet Union Free School District Phase 3 Bond Projects @ Barr Middle School & Nanuet High School

Type of Submittal:

Re-submittal: [ ] No [ ] Yes

[ ] Shop Drawings **[ ]** Product Data **[ ]** Schedule **[ ]** Sample **[ ]** _____
[ ] Test Report **[ ]** Certificate **[ ]** Color Sample **[ ]** Warranty **[ ]** _____

Submittal Description: testing and balancing

Product Name:

Manufacturer:

Subcontractor/ Supplier: DL FLOWTECH

References:

Spec. Section No.: 230593

Drawing No(s):

Paragraph:

Rm. or Detail No(s):

Architect's/ Engineer's Review Stamp	Contractor Review Statement: These documents have been checked for accuracy and coordinated with job conditions and Contract requirements by this office and have been found to comply with the provisions of the Contract Documents. Ronald J. Lombardo 9/11/2024 Name: Date: Company Name: Joe Lombardo Plumbing & Heating of Rockland Inc.

Remarks:

Date: 9/11/2024 *FT#: 23-299* *Technician: MN*

PROJECT:

Nanuet Union Free School District
Bond Projects Phase 3
Nanuet Senior High School
Barr Middle School

PREPARED FOR:

Joe Lombardo Plumbing & Heating
321 Spook Rock Rd.
Suffern NY 10901

ARCHITECT

KSQ Architects

ENGINEER:

Sage Engineering

REPORT SUMMARY

September 11, 2024

FT #: 23-299.MS

Project: Nanuet Union Free School District
Bond Projects Phase 3
Barr Middle School
Preliminary report

Our professional services have been performed and our findings obtained in accordance with customary principles in the engineering field. It should be noted that evaluations are inherently limited in the sense that conclusions are drawn from information obtained during dL Flow Tech's visit to the site. Balancing and testing has been performed as per the Procedural Standards set forth by the National Environmental Balancing Bureau (NEBB) to within the physical limits of the system testing. In NEBB's definition of a TAB report they note it "does not guarantee that systems included are balanced to design flows." This is noted to highlight the fact as a TAB contractor we do not perform testing and balancing services and guarantee it will work as intended, as we did not design it or install it. The dL Flow Tech, Co highly recommends that any commendations or suggestions noted in this report should be reviewed with your design professional.

General Notes:

1. Where available pump or fan capacity is less than the total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to the other parts.
2. The number 1 seen in the AK column indicates a direct CFM reading.
3. Units with ECM motors are balanced proportionate with available airflow due to many manufacturers in their IOM requiring that no adjustments be made on the ECM setting.
4. Due to system effect, static pressure readings are for reference only, static pressure readings may conflict with manufacturers published data, due to field conditions.

Project Notes:

- EF-MS-8: Fan is low on flow. System static pressure is much high than design. Possible existing dirty registers, closed dampers, closed FSDs. Further investigation would be needed. The fan wheel was noticed to be hitting the housing while on site.
- EF-MS-10: Fan is low on flow. System static pressure is much high than design. Possible existing dirty registers, closed dampers, closed FSDs. Further investigation would be needed.
- EF-MS-21: Fan found to not be running.
- EF-MS-23: Fan is low on flow. System static pressure is much high than design. Possible existing dirty registers, closed dampers, closed FSDs. Further investigation would be needed.

dL flow tech

Equipment Summary

Fan #	Service	Rated CFM	Operating CFM	Remarks
Exhaust Fans				
EF-MS-8	Science Labs 222/224	1980	1327	*See Summary*
EF-MS-10	Science Labs 228/230	2050	900	
EF-MS-21	Boys Locker Room	1650	0	
EF-MS-23	Cafeteria 108	9500	1192	

	New	*New*	*New*	*New*
Fan Number	**EF-MS-8**	**EF-MS-10**	**EF-MS-21**	**EF-MS-23**
Location	Roof	Roof	Roof	Roof
Service	Science Labs 222/224	Science Labs 228/230	Boys Locker Room	Cafeteria 108
Manufacturer	Acme	Acme	Acme	Acme
Model/Size	PV165DEC	PV165DEC	PV150DEC	PV300
Fan Type	Down blast	Down blast	Down blast	Down blast
Speed Control	100%	100%		VFD @ 60Hz
Horsepower	0.5	0.5	0.75	3
Safety Factor	Thermal	Thermal	Thermal	1.15
Volts/Phase	115/1	115/1	115/1	230/3
Rated Amperage	6.2	6.2	8.8	8.4
Actual Amperage	6.2	6.2		7.2
Sheave Position	Direct Drive	Direct Drive	Direct Drive	100% Closed
Design Fan RPM	1173	1188	1269	866
Actual Fan RPM	1326	1326		909
Design Static Pressure	.800	.800	1.00	1.100
Actual Static Pressure	-1.45 / .28	-1.39 / .22		-2.03 / .26
Required CFM	1980	2050	1650	9500
Actual CFM	1327	900		1192
Remarks:	*On 100% seed fan blade / Wheel is hitting it's housing. 9/5/24*		*Commanded ON - Not Running 9/5/24*	

flow tech

Date: 9/11/2024

Sheet: DT

Zone	Internal Duct Size	Eff Area	Design FPM	Actual FPM	Design CFM	Actual CFM	SP	Remarks
EF-MS-8					**1980**	**1327**		***Max Exhaust Air Flow 9/5/24***
DT-1	24 X 16	2.67	***	337	***	899	-0.04	
DT-2	18 X 14	1.75	***	245	***	429	-0.04	
EF-MS-10					**2050**	**900**		***Max Exhaust Air Flow 9/5/24***
DT-1	20 X 14	1.94	***	148	***	288	-0.01	
DT-2	22 X 14	2.14	***	286	***	612	-0.01	
EF-MS-21						**0**		***On But Not Running 9/5/24***
	X	0.00	#DIV/0!			0		
EF-MS-23					**9500**	**1192**		***Max Exhaust Air Flow 9/5/24***
	48 X 24	8.00	1188	149	9500	1192	-0.0020	

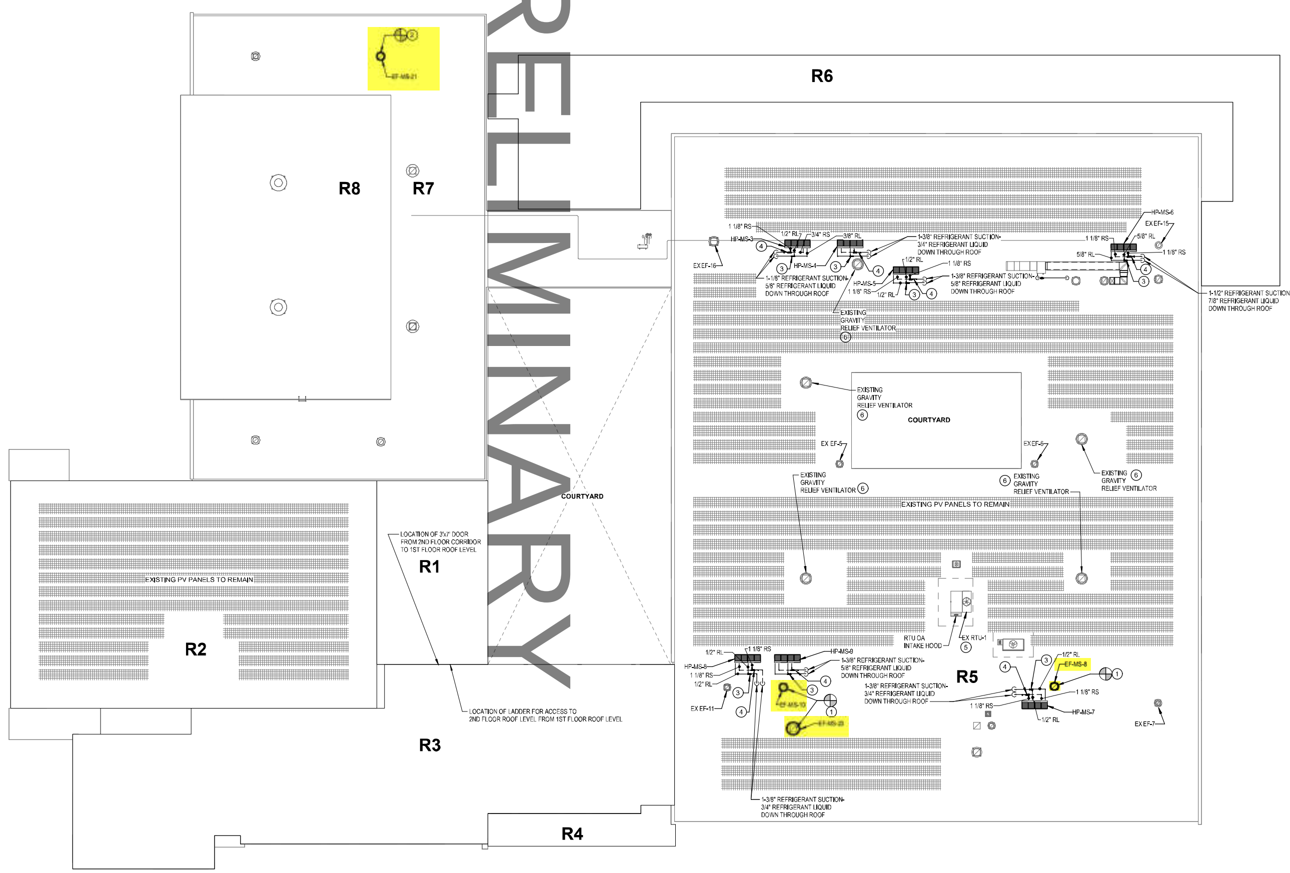
Location	Unit Size	#	Supply CFM	Design OSA	% OSA	Fan Speed	Computer Setpoint	Remarks
Unit Vent Minimum Outside Air Test Procedure *(for typical units)*								
1) Fan speed is set to design CFM according to the MFG's fan performance table.								
2) The outside air damper is indexed fully closed (100% return) and a return air velocity is taken.								
3) The outside air damper is then indexed until the return velocity is reduced to achieve the proper OSA percentage.								
4) The OSA computer setpoint and fan speed is then logged.								
Sp. Ed. Classroom	100B	UV-MS-1	1	1083	360	33%	Medium	40%
Sp. Ed. Classroom	100B	UV-MS-2	2	747	295	39%	Medium	45%
Sp. Ed. Classroom	102B	UV-MS-3	3	1330	630	47%	High	45%
7th/ 8th Grades Classroom	104	UV-MS-4	4	1083	555	51%	Medium	50%
5TH/6TH Grades Classroom	106	UV-MS-5	5	1083	555	51%	Medium	50%
Faculty Lounge	107	UV-MS-38	6	747	100	13%	High	30%
Tech Classroom	108	UV-MS-41	7	1083	550	51%	Medium	50%
5th Grade Classroom	120	UV-MS-12	8	1083	430	40%	Medium	43%
5th Grade Classroom	118	UV-MS-11	9	1083	475	44%	Medium	40%
Fabrication Classroom	110	UV-MS-39	10	1083	440	41%	Medium	40%
Fabrication Classroom	110	UV-MS-40	11	1083	440	41%	Medium	45%
Receiving Custodial	119	UV-MS-6	12	1083	495	46%	Medium	47%
Storeage	123	UV-MS-7	13	1083	500	46%	Medium	50%
5th Grade Classroom	114.5	UV-MS-8	14	1083	540	50%	Medium	50%
5th Grade Classroom	116	UV-MS-10	15	1083	460	42%	Medium	40%
5th Grade Classroom	116.5	UV-MS-9	16	1083	460	42%	Medium	45%
6th Grade Classroom	200	UV-MS-13	17	1083	435	40%	Medium	47%
6th Grade Classroom	200	UV-MS-14	18	1083	435	40%	Medium	47%
6th Grade Classroom	204	UV-MS-16	19	1083	440	41%	Medium	47%
6th Grade Classroom	206	UV-MS-19	20	1083	435	40%	Medium	47%
6th Grade Classroom	208	UV-MS-21	21	1083	435	40%	Medium	49%

Location	#	Unit Size	Supply CFM	Design OSA	% OSA	Fan Speed	Computer Setpoint	Remarks
6th Grade Classroom	210	UV-MS-22	1083	445	41%	Medium	45%	
7th Grade Classroom	212	UV-MS-23	1083	485	45%	Medium	50%	
7th Grade Classroom	214	UV-MS-24	1083	360	33%	Medium	40%	
7th Grade Classroom	216	UV-MS-25	1083	365	34%	Medium	40%	
7th Grade Classroom	207	UV-MS-20	1083	485	45%	Medium	45%	
7th Grade Classroom	205	UV-MS-17	1083	480	44%	Medium	50%	
Sp. Ed. Classroom	203	UV-MS-15	1083	480	44%	Medium	50%	
Classroom	236	UV-MS-35	1083	455	42%	Medium	45%	
Classroom	238	UV-MS-36	1083	455	42%	Medium	45%	
6th Grade Classroom	240	UV-MS-37	1083	490	45%	Medium	45%	
Classroom	234	UV-MS-34	1083	455	42%	Medium	47%	
Classroom	232	UV-MS-33	1083	455	42%	Medium	40%	
Science Lab	230	UV-MS-32	1083	520	48%	Medium	45%	
Science Lab	228	UV-MS-31	1083	545	50%	Medium	50%	
Computer Classroom	226	UV-MS-30	1083	445	41%	Medium	50%	
Science Lab	224	UV-MS-39	1083	440	41%	Medium	50%	
Science Lab	222	UV-MS-28	1083	565	52%	Medium	50%	
7th Grade Classroom	218	UV-MS-27	1083	455	42%	Medium	45%	
7th Grade Classroom	220	UV-MS-26	1083	455	42%	Medium	45%	

Code	Remarks
AS Reqt'd	Final airflow has been adjusted to suit requests of occupants
ABV CLG	Register (ETC) is located above ceiling line
BKN DPR	Volume Damper (VD), Face Damper (OPD), Splitter Damper (SD) is broken/stuck
CC	Ceiling conflict; kinked flex duct causing low flow
CS	Circuit Setter
DD	Unit is direct drive; no adjustment can be made without a speed controller.
DD on HI	Direct drive fan set to High, medium (MED) or low (LO)
DT	Duct Traverse
DLF	DL Flow Tech Inc.
FACE	Velocity taken at the balance point
HDW MSG	Volume or splitter damper hardware is missing
Inline	Fan is an inline fan; Actual RPM can not be obtained
Long Flex	Flexible duct configuration and length is probable cause for low flow
Locked	No key available at time of balance
Max Flow	Maximum flow achievable
MAN OPN'D	Temporarily opened manually to set
New outlet	Outlet not shown on contract drawing; no CFM given; CFM assigned by DLF
Noisey	Register (ETC) has been set low to reduce objectionable air noise.
NPA	No provision to adjust; requires installation of volume damper / face damper
NI	Outlet not installed
NW	Device not working
TP	Test point location for duct traverse and/or static pressure
PT	Poor take -off / inlet flex to VAV box causing turbulence / probable cause for low flow
RAW	Raw opening -- Ductwork and collar is installed; register (etc.) is missing; tap is balanced high to compensate.
Set High	Set high due to missing register and/or to maintain total room flow (etc).
T'stat REV	The t'stat is reverse or opposite of design
T'stat LOC	T'stat not in area served
VD FO	Volume Dampers are in their maximum open position
VD FC	Volume Dampers are in their full closed position
VAV	Variable air volume box
CAV	Constant Volume Box
FPVAV	Fan powered variable air volume box
Register Types	
CD	Ceiling Diffuser
CR	Ceiling Register
EC	Egg Crate Type register
ER	Exhaust Register
FH	Fume Hood
LD	Linear Diffuser
LT	Light Troffer
WMS	Wire Mesh Screen
TR	Top Register
BR	Bottom Register
RAW	Raw opening
No CC	Flow metering device not installed, temp/pressure differential across elements used to determine flow.
Simulated flow	Where available pump or fan capacity is less than the total flow requirements, flow temporarily restricted to other parts.

KEYED NOTES:

1. DISCONNECT AND REMOVE CURB CAP OVER EXISTING ROOF CURB AND PROVIDE ROOF CURB ADAPTER ON TOP OF THE EXISTING ROOF CURB. MOUNT EXHAUST FAN ON TOP OF CURB ADAPTER AND TRANSITION FROM EXISTING EA RISER BELOW ROOF CURB CAP UP TO INLET OF REPLACEMENT ROOFTOP EXHAUST FAN.
2. DISCONNECT AND REMOVE CURB CAP OVER EXISTING ROOF CURB AND PROVIDE ROOF CURB ADAPTER ON TOP OF THE EXISTING ROOF CURB. MOUNT EXHAUST FAN ON TOP OF CURB ADAPTER AND TRANSITION FROM EXISTING EA RISER BELOW ROOF CURB CAP UP TO INLET OF REPLACEMENT ROOFTOP EXHAUST FAN.
3. LIQUID OUTDOOR MULTI-CONNECTION PIPING KIT.
4. SUCTION OUTDOOR MULTI-CONNECTION PIPING KIT.
5. REBALANCE EXISTING LIBRARY/MEDIA CENTER RTU-1 TO PROVIDE 1,700 CFM OUTSIDE AIR THROUGH THE RTU OA INTAKE HOOD DURING NON-ECONOMIZER, OCCUPIED OPERATION.
6. MECHANICAL VENTILATION IS PROVIDED TO CLASSROOM SPACES VIA FLOOR MOUNTED UNIT VENTILATORS. THE EXISTING RELIEF AIR MECHANISM FOR THE VENTILATION IS PROVIDED BY THE EXISTING TO REMAIN GRAVITY RELIEF AIR SYSTEM WITHIN THE BUILDING WHICH IS NOT BEING MODIFIED IN THIS PROJECT.



A15 OVERALL ROOF PLAN

1/16" = 1'-0"

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NUFSD BOND PROJECTS PH3

☐ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
■ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

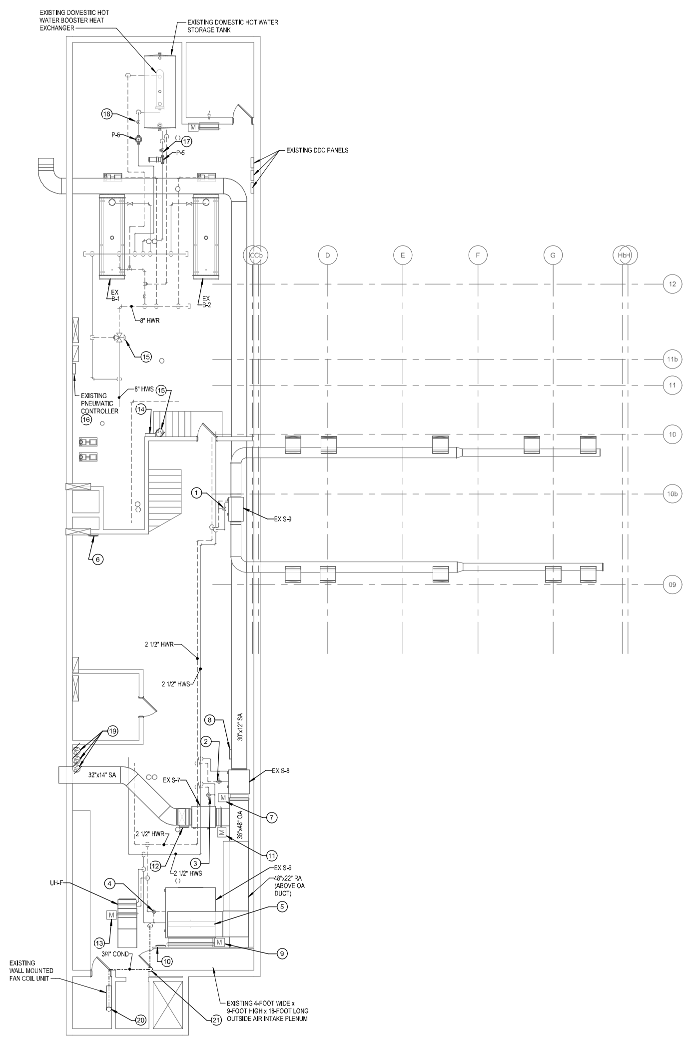
REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/16" = 1'-0"
SHEET NAME: OVERALL ROOF PLAN
SHEET NUMBER: BM-M103

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00



A18 OVERALL BASEMENT PLAN
1/8" = 1'-0"

PRELIMINARY

KEYED NOTES:

1. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-9 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 4.9 GPM. DISCONNECT AND REMOVE ALL S-9 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-9 INTO THE EXISTING S-9 DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 6.
2. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-8 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 9.6 GPM. DISCONNECT AND REMOVE ALL S-8 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-8 INTO THE EXISTING S-9 DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 8.
3. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-7 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 9.6 GPM. DISCONNECT AND REMOVE ALL S-7 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-7 INTO THE EXISTING S-9 DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 12.
4. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-6 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 28.5 GPM. DISCONNECT AND REMOVE ALL S-6 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-6 INTO THE EXISTING S-6 DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 10.
5. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-6 PNEUMATIC MOTORIZED RETURN AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR. TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-3. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
6. LOCATION OF EXISTING AIR HANDLING UNIT S-9 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATOR. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE OUTLINED IN KEYED NOTE 1 INTO THE S-9 DDC CONTROLLER AS REQUIRED.
7. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-8 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR. TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-8. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
8. LOCATION OF EXISTING AIR HANDLING UNIT S-8 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE DAMPER ELECTRIC-TO-PNEUMATIC TRANSDUCER AND 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATORS. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE AND ELECTRONIC MOTORIZED DAMPER OUTLINED IN KEYED NOTES 2 AND 7 INTO THE S-8 DDC CONTROLLER AS REQUIRED.
9. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-6 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR . TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-6. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
10. LOCATION OF EXISTING AIR HANDLING UNIT S-6 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE DAMPER ELECTRIC-TO-PNEUMATIC TRANSDUCER AND 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATORS. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE AND ELECTRONIC MOTORIZED DAMPERS OUTLINED IN KEYED NOTES 4, 5 AND 9 INTO THE S-6 DDC CONTROLLER AS REQUIRED.
11. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-7 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR . TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-7. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
12. LOCATION OF EXISTING AIR HANDLING UNIT S-7 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE DAMPER ELECTRIC-TO-PNEUMATIC TRANSDUCER AND 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATORS. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE AND ELECTRONIC MOTORIZED DAMPER OUTLINED IN KEYED NOTES 3 AND 11 INTO THE S-8 DDC CONTROLLER AS REQUIRED.
13. DISCONNECT AND REMOVE EXISTING HYDRONIC UNIT HEATER UH-F DUAL PNEUMATIC FACE AND BAYPASS DAMPER AT LOCATION SHOWN AND REPLACE WITH MANUAL DAMPER OPERATOR LOCKED IN OPEN POSITION. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
14. LOCATION OF EXISTING BUILDING HEATING PLANT DDC SYSTEM CONTROLLER.
15. DISCONNECT AND REMOVE MAIN BUILDING HEATING LOOP 3-WAY PNEUMATIC MIXING CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. DISCONNECT AND REMOVE 3 -WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATOR LOCATED ADJACENT TO BUILDING HEATING PLANT DDC SYSTEM CONTROLLER. REMOVE ASSOCIATED WIRING BACK TO CONTROL PANEL AS REQUIRED. AT LOCATIONG OF REMOVED PNEUMATIC 3-WAY MIXING VALVE PROVIDE AN ELECTRONIC 3-WAY MIXING CONTROL VALVE RATED AT 550 GPM. TIE OPERATION OF MIXING VALVE INTO EXISTING BUILDING HEATING PLANT DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 14.
16. DISCONNECT AND REMOVE PNEUMATIC PIPING AND ASSOCIATED PRESSURE DIAL WITHIN THE PNEUMATIC CONTROL PANEL RELATED TO THE CONTROL PRESSURE ON THE MAIN HOT WATER SUPPLY 3-WAY VALVE OUTLINED IN KEYED NOTE 15. REMOVE PNEUMATIC PIPING BACK TO ASSOCIATED PIPING MAIN AND CAP.
17. DISCONNECT AND REMOVE EXISTING DOMESTIC HOT WATER STORAGE TANK 2-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 160 GPM. DISCONNECT AND REMOVE ALL STORAGE TANK PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM THE STORAGE TANK INTO THE EXISTING DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 14.
18. DISCONNECT AND REMOVE EXISTING DOMESTIC HOT WATER BOOSTER HEATER HEAT EXCHANGER 2-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 20 GPM. DISCONNECT AND REMOVE ALL HEAT EXCHANGER PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM THE HEAT EXCHANGER INTO THE EXISTING DDC SYSTEM CONTROLLER OUTLINED IN KEYED NOTE 14.
19. DISCONNECT AND REMOVE ALL EXISTING AIR HANDLING UNITS S-6, S-7 AND S-8 PNEUMATIC CONTROL FAN OPERATORS, SENSORS AND RELAY DEVICES. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. CONVERT ALL PNEUMATIC CONTROL DEVICES SERVING S-6, S-7 AND S-8 TO ELECTRONIC AND PROVIDE RELAYS FROM FAN START/STOP MOTOR STARTER TO EXISTING DDC CONTROL PANELS SERVING EACH UNIT TO ALLOW FOR ELECTRONIC FAN DIGITAL START/STOP OPERATION. DISCONNECT AND REMOVE PNEUMATIC TUBING BETWEEN PNEUMATIC CONTROL DEVICES AND EXISTING S-6, S-7 AND S-8 SPACE SENSORS. PROVIDE RELAYS FROM EXISTING S-6, S-7 AND S-8 SPACE SENSORS TO EXISTING DDC CONTROL PANELS SERVING EACH UNIT TO ALLOW FOR ELECTRONIC ANALOG INPUT OF EACH SPACE TEMPERATURE TO THE DDC SYSTEM.
20. DISCONNECT AND REMOVE OPEN-ENDED PVC HOSE FROM CONDENSATE DRAIN OUTLET CONNECTION ON EXISTING ELEVATOR MACHINE ROOM FAN COIL UNIT AND PROVIDE A 3/4" HARD PIPED CONNECTION TO THE CONDENSATE OUTLET. PROVIDE A P-TRAP BELOW FAN COIL UNIT, THEN ROUTE 3/4" CONDENSATE PIPING THROUGH ELEVATOR MACHINE ROOM TO MECHANICAL AREA OF BASEMENT AS SHOWN.
21. PROVIDE 3/4" CONDENSATE DROP DOWN AT LOCATION SHOWN TO FLOOR LEVEL, THEN ROUTE 3/4" CONDENSATE PIPING BELOW BOTTOM OF DOOR OPENING TO OA INTAKE PLENUM, THEN ROUTE 3/4" CONDENSATE PIPING ALONG FLOOR LEVEL TO NEW FLOOR DRAIN BEING PROVIDED ON PLUMBING DRAWINGS. TERMINATE CONDENSATE PIPING OPEN-ENDED ABOVE NEW FLOOR DRAIN.

ARCHITECT
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KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME:
BASEMENT PLANS
SHEET NUMBER:
BM-M110

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00

KEYED NOTES:

(1) DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-4 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 4 GPM. DISCONNECT AND REMOVE ALL S-4 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-4 INTO THE EXISTING SIEMENS DDC SYSTEM.

(2) DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-3 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 6.2 GPM. DISCONNECT AND REMOVE ALL S-3 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-3 INTO THE EXISTING SIEMENS DDC CONTROLLER SERVING S-3.

(3) DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-3 PNEUMATIC MOTORIZED RETURN AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR. TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-3. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.

(4) DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-3 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR. TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM CONTROLLER SERVING S-3. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.

(5) LOCATION OF EXISTING AIR HANDLING UNIT S-3 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE DAMPER ELECTRIC-TO-PNEUMATIC TRANSDUCER AND 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATORS. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE AND ELECTRONIC MOTORIZED DAMPERS OUTLINED IN KEYED NOTES 2, 3 AND 4 INTO THE S-3 DDC CONTROLLER AS REQUIRED.

(6) PROVIDE FLOOR MOUNTED UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE UNIT VENTILATOR WITH FULLY CLOSED ADAPTER-BACK WITH REAR OUTDOOR AIR OPENING TO BE CUT IN FIELD TO MATCH EXISTING WALL OUTDOOR AIR OPENING SIZE. CONNECT TO EXISTING OA DUCT SLEEVE AS REQUIRED AND EXTEND INTO REAR OUTDOOR AIR OPENING ON THE UNIT VENTILATOR. CONNECT TO HWS/HWR PIPING ROUTED WITHIN UNIT VENTILATOR SHELVING SYSTEM PIPING TUNNEL AND PROVIDE 1" HWS/HWR BRANCH CONNECTIONS TO UV HEATING COIL CONNECTIONS AS REQUIRED.

(7) PROVIDE REPLACEMENT TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF UNIT VENTILATOR LOCATED WITHIN SAME SPACE AS SENSOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR DDC CONTROLLER AS REQUIRED.

(8) PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT.

(9) AT LOCATIONS CALLED OUT, PROVIDE 21-7/8" DEEP PERIMETER SHELVING CABINETS. THE CABINETS SHALL BE 30" HIGH THAT INCLUDE A BASE CABINET, ONE SHELF, A STEEL TOP WITH LOUVER OUTLET, A FRONT SKIRT WITH LOUVER INLET AND A BACK WALL ANGLE. THE SHELVING CABINETS SHALL INCLUDE A 5-7/8" DEEP PIPE SPACING CAVITY AT THE REAR OF THE CABINET SYSTEM. THE SHELF SHALL BE 10-1/2" DEEP AND THE SYSTEM SHALL INCLUDE A 3" HIGH OPENING AT THE BOTTOM (COVERED BY THE LOUVERED INLET FRONT SKIRT) THAT ALLOWS AIR MOVEMENT THROUGH THE BOTTOM-FRONT OF THE SYSTEM AND OUT THE TOP-REAR OF THE SYSTEM. PROVIDE PERIMETER SHELVING CABINET SYSTEM FILLER SECTIONS WHERE REQUIRED TO TERMINATE SHELVING SYSTEMS AT END POINTS SHOWN. THE FILLER SECTION SHALL BE FIELD CUT TO FIT BETWEEN THE END PANEL AND THE LAST SHELVING CABINET SYSTEM. THE FILLER SECTION SHALL INCLUDE A FLOOR ANGLE, FRONT PANEL, STEEL TOP, BACK WALL ANGLE. THE SYSTEM SHALL BE MANUFACTURED BY HVAC CUSTOM ENCLOSURE CO.; LLC DRAWING NUMBER SC164-0028 OR EQUAL.

(10) PROVIDE 12" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS AND THE 3/4" CONDENSATE RISER DROP FROM THE SECOND FLOOR UV DRAIN PAN. ROUTE VERTICAL SUCTION/LIQUID PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. ROUTE CONDENSATE DRAIN PIPING TO PIPING TUNNEL AND CONNECT TO HORIZONTAL CONDENSATE DRAIN PIPING FROM FIRST FLOOR UV DRAIN PAN OUTLET PRIOR TO EXITING THROUGH EXTERIOR WALL. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.

KEYED NOTES (CONTINUED):

(11) CONNECT TO EXISTING 1-1/4" HWR RISER AT FLOOR LEVEL AND ROUTE 1-1/4" HWR PIPING MAIN WITHIN SHELVING CABINET PIPING TUNNEL AS SHOWN.

(12) ROUTE 1-1/4" COMBINED CONDENSATE DRAIN PIPING FROM FIRST FLOOR UV DRAIN PAN OUTLET AND CONDENSATE FROM SECOND FLOOR UV DRAIN PAN(S) OUT THROUGH EXTERIOR WALL. TERMINATE PIPING WITH MITER CUT ELBOW FACING GRADE LEVEL AND PITCH PIPING TOWARDS THE EXTERIOR WALL PENETRATION AS REQUIRED.

(13) TYPICAL REFRIGERANT LIQUID BRANCH CONNECTOR 'Y' FITTING JOINT.

(14) TYPICAL RERIGERANT SUCTION BRANCH CONNECTOR 'Y' FITTING JOINT.

(15) 3/4" CONDENSATE DRAIN RISER UP THROUGH FLOOR. ROUTE TO VERTICAL PIPING ENCLOSURE AND DROP DOWN INTO SHELVING SYSTEM PIPING TUNNEL.

(16) PROVIDE UNIT VENTILATOR SYSTEM SHELVING/CABINET FILLER PIECE BETWEEN END OF UNIT VENTILATOR AND WALL AT LOCATIONS SHOWN.

(17) PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT. PROVIDE UNIT VENTILATOR SYSTEM SHELVING/CABINET FILLER PIECE BETWEEN END OF UTILITY COMPARTMENT AND WALL TO FILL GAP BETWEEN UTILITY COMPARTMENT END AND WALL.

(18) ROUTE HWS/HWR PIPING MAINS WITHIN PIPING TUNNELS AT REAR OF UNIT VENTILATORS AND UNIT VENTILATOR SHELVING CABINET SYSTEMS.

(19) PROVIDE 1-1/4" EXPANSION COMPENSATORS ON THE HWS/HWR PIPING MAINS ROUTED WITHIN THE UNIT VENTILATOR PIPING TUNNEL AT LOCATION SHOWN. THE COMPENSATORS SHALL BE 13.812" LONG. PROVIDE ANCHORS ON EACH END OF BOTH THE HWS/R RUNS AND PROVIDE PIPE GUIDES WITHIN 14 PIPE DIAMETERS OF THE COMPENSATORS ON BOTH THE HWS AND HWR COMPENSATORS.

(20) CONNECT TO BOTTOM OF EXISTING 1-1/2" HWS RISER AT CONNECTION POINT SHOWN AND ROUTE 1-1/2" HWS WITHIN UV-MS-38 AND ASSOCIATED SHELVING CABINET SYSTEM PIPING TUNNEL. RECONNECT HORIZONTAL 1-1/2" HWS PIPING TO EXISTING HWS AT CONNECTION POINT SHOWN AT WALL PENETRATION TO TECH CLASSROOM 108 AND ROUTE 1" HWR PIPING FROM UV-MS-38 HEATING COIL WITHIN PIPING TUNNEL SYSTEM AND RECONNECT TO HWR MAIN AT WALL PENETRATION AS SHOWN.

(21) ROUTE 5/8" REFRIGERANT SUCTION-3/8" REFRIGERANT LIQUID DOWN TO UV UTILITY COMPARTMENT WITHIN VERTICAL CHASE WALL SYSTEM.

(22) PROVIDE HORIZONTAL PIPING ENCLOSURE UNIT BETWEEN END OF UV-MS-41 AND END OF EXISTING PIPING ENCLOSURE AT LOCATION SHOWN. THE SIZE OF THE HORIZONTAL PIPING ENCLOSURE UNIT SHALL MATCH THE SIZE OF THE EXISTING ENCLOSURE INSTALLED ADJACENT TO THE NEW UNIT.

(23) DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-4 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER ACTUATOR AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATOR . TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.

(24) DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 1.5 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. PROVIDE SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM. PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.

(25) DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENCLOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 2.0 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE EXISTING SPACE TEMPERATURE SENSOR INLCUDING ASSOCIATED PNEUMATIC TUBING AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM. PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.

(26) DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 2.4 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE EXISTING SPACE TEMPERATURE SENSOR INLCUDING ASSOCIATED PNEUMATIC TUBING AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM. PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.

KEYED NOTES (CONTINUED):

(27) ROUTE 1-1/4" CONDENSATE DRAIN PIPING DOWN THROUGH CEILING ALONG WALL AND TERMINATE ABOVE FLOOD RIM OF EXISTING DRINKING FOUNTAIN AT LOCATION SHOWN WITH MITER CUT OPEN-ENDED OUTLET.

(28) PROVIDE CLEANOUT PLUG AT LOCATION SHOWN WITHIN CONDENSATE DRAIN PIPING.

(29) CONNECT TO EXISTING 1-1/4" HWS RISER AT BASE OF RISER AND ROUTE 1-1/4" HWS PIPING MAIN THROUGH 24" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE. PROVIDE PIPE ENCLOSURE UNITS AROUND PERIMETER OF SPACE AS SHOWN. TERMINATE HORIZONTAL ENCLOSURE AT SIDE OF UV-MS-2. MOUNT TOP OF ENCLOSURE EVEN WITH TOP OF UNIT VENTILATOR UV-MS-2. PROVIDE A 1" HWS BRANCH TO UV-MS-2 AND A 1" HWR CONNECTION TO UV-MS-2 HEATING COIL. CONTINUE 1-1/4" HWS AND 1" HWR THROUGH UV PIPING TUNNEL TO CLASSROOM 100B.

(30) PROVIDE 8" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS. ROUTE VERTICAL SUCTION/LIQUID PIPING DOWN THROUGH TOP OF HORIZONTAL PIPING ENCLOSURE UNIT AND CONNECT TO UV-MS-2 DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF HORIZONTAL PIPING ENCLOSURE UNIT TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.

(31) ROUTE 3/4" CONDENSATE DRAIN PIPING FROM UV DRAIN PAN OUTLET OUT THROUGH EXTERIOR WALL. TERMINATE PIPING WITH MITER CUT ELBOW FACING GRADE LEVEL AND PITCH PIPING TOWARDS THE EXTERIOR WALL PENETRATION AS REQUIRED.

(32) PROVIDE 36" WIDE x 10-3/8" HIGH OUTSIDE AIR LOUVER FURNISHED WITH UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE A 36"x10" OUTSIDE AIR DUCT SLEEVE FROM THE INTERIOR OF THE LOUVER CONNECTION TO THE REAR OF UV-MS-2. PROVIDE AN OPENING IN THE REAR OF THE UV OUTSIDE AIR DUCT PLENUM THE SIZE OF THE DUCT SLEEVE.

(33) PROVIDE WALL MOUNTED SPACE TEMPERATURE SENSOR AT LOCATION SHOWN SERVING UV-MS-2. PROVIDE CONTROL WIRING FROM NEAREST DDC CONTROLLER TO SENSOR AND UV DDC CONTROLLER AS REQUIRED.

(34) PROVIDE 24" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE ON EITHER SIDE OF UV-MS-1. MOUNT TOP OF ENCLOSURE EVEN WITH TOP OF UNIT VENTILATOR UV-MS-1. PROVIDE 1" HWS/R BRANCHES TO UV-MS-1 HEATING COIL AND ROUTE 1-1/4" HWS/R MAINS THROUGH UV PIPING TUNNEL TO CLASSROOM 102A.

(35) PROVIDE 1-1/4" EXPANSION COMPENSATORS ON THE HWS/HWR PIPING MAINS ROUTED WITHIN THE FIN TUBE ENCLOSURE SYSTEM AT LOCATION SHOWN. THE COMPENSATORS SHALL BE 13.812" LONG. PROVIDE ANCHORS ON EACH END OF BOTH THE HWS/R RUNS AND PROVIDE PIPE GUIDES WITHIN 14 PIPE DIAMETERS OF THE COMPENSATORS ON BOTH THE HWS AND HWR COMPENSATORS.

(36) PROVIDE WALL-TO-WALL, 24" HIGH x 5-5/16" DEEP FIN TUBE ENCLOSURE WITHIN WITHIN CLASSROOM 102A. PROVIDE 20-FEET OF ACTIVE FIN TUBE FT-MS-1 WITHIN THE ENCLOSURE CENTERED IN THE CLASSROOM. PROVIDE 1" HWS/R BRANCH CONNECTIONS FROM THE 1-1/4" HWS/R MAINS TO THE ACTIVE FIN TUBE. ROUTE THE 1-1/4" HWS MAIN BELOW THE ACTIVE FIN TUBE AND THE 1-1/4" HWR MAIN ABOVE THE ACTIVE FIN TUBE AS REQUIRED. BALANCE FLOW THROUGH 20-FEET OF ACTIVE FIN TUBE TO 2.3 GPM.

(37) PROVIDE A 16" DEEP x 8" WIDE VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM 102A TO CONCEAL 3/4" CONDENSATE DRAIN RISER AND 1" HWS/R RISERS. ROUTE 3/4" CONDENSATE FROM UV-MS-3 DRAIN PAN, COMBINE WITH 3/4" DRAIN RISER ROUTED UP THROUGH FLOOR TO A 1" CONDENSATE MAIN, DROP 1" CONDENSATE RISER DOWN THROUGH VERTICAL ENCLOSURE, THEN ROUTE 1" CONDENSATE DRAIN PIPING FROM UV DRAIN PAN OUTLET OUT THROUGH EXTERIOR WALL. TERMINATE PIPING WITH MITER CUT ELBOW FACING GRADE LEVEL AND PITCH PIPING TOWARDS THE EXTERIOR WALL PENETRATION AS REQUIRED. CONNECT TO 1-1/4" HWS/R MAINS WITHIN 18" HIGH HORIZONTAL PIPE ENCLOSURE WITHIN CLASSROOM 102A AND PROVIDE 1" HWS/R BRANCHES TO HORIZONTAL, SEMI-RECESSED UV-MS-3 HEATING COIL. ROUTE HWS/R RISERS TO ABOVE CEILING WITHIN VERTICAL PIPE ENCLOSURE. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF HORIZONTAL PIPING ENCLOSURE UNIT TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.

GENERAL NOTES:

1. REFRIGERANT PIPING NOTE: 90 DEGREE ELBOWS SHALL BE KEPT A MINIMUM OF 20" FROM CEILING UV DX COILS AND 20" FROM BRANCH CONNECTOR 'Y' JOINTS. IN ADDITION, BRANCH CONNECTOR 'Y' JOINTS SHALL BE A MINIMUM OF 40" FROM ANOTHER BRANCH 'Y' CONNECTOR JOINT.
2. REFRIGERANT PIPING NOTE: THE HEAT PUMP SYSTEM MANUFACTURER SHALL INSPECT ALL FIELD INSTALLED REFRIGERANT PIPING PRIOR TO INSULATION INSTALLATION.
3. THE EXISTING SUSPENDED CEILING SYSTEMS LOCATED WITHIN THE SCOPE OF WORK AREA OUTSIDE OF AREAS BEING RENOVATED BY THE GENERAL CONTRACTOR SHALL BE DISCONNECTED AND REMOVED TO ALLOW FOR THE INSTALLATION WORK AND REINSTALLED FOLLOWING COMPLETION OF THE WORK BY THE MECHANICAL CONTRACTOR. THE SUSPENDED CEILING GRID SYSTEMS SHALL BE REMOVED AND MODIFIED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF WORK. THE CEILING TILES SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF THE INSTALLATION WORK. ANY CEILING TILES DAMAGED DURING THE INSTALLATION WORK SHALL BE REPLACED BY THE MECHANICAL CONTRACTOR TO MATCH THE EXISTING CEILING TILES.
4. ALL CUTTING, PATCHING, AND FIREPROOFING ASSOCIATED WITH THE INSTALLATION WORK SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR. PATCHED AREAS SHALL MATCH EXISTING CONDITIONS. ALL REFRIGERANT PIPING AND CONDENSATE PIPING PENETRATIONS THROUGH CORRIDOR WALLS SHALL BE FIREPROOFED PER SPECIFICATION SECTION 078400.
5. ROUTE REFRIGERANT SUCTION AND LIQUID PIPING FROM THE UNIT VENTILATOR DX COIL CONNECTIONS TO THE HEAT PUMP UNITS. SIZE PIPING AND PROVIDE BRANCH CONNECTOR 'Y' JOINTS PER THE DRAWING. CONFIRM PIPING SIZES AND BRANCH CONNECTOR 'Y' JOINT LOCATIONS REQUIRED WITH HEAT PUMP SYSTEM MANUFACTURER.
6. THE SMALLEST VOLUME ROOM THAT THE REFRIGERANT PIPING SYSTEMS ROUTE THROUGH FOR EACH OF THE HEAT PUMP SYSTEMS IS BELOW THE ASHRAE STANDARD 15 REFRIGERANT CONCENTRATION LIMIT OF 26 POUNDS PER 1,000 CUBIC FEET OF ROOM VOLUME FOR OCCUPIED SPACES.
7. PROVIDE FIRESTOPPING PER SPECIFICATION SECTION 078400 AT ALL PIPING PENETRATIONS THROUGH CORRIDOR WALLS AND STORAGE ROOM WALLS.
8. THE UV UTILITY COMPARTMENT SHALL INCLUDE A REMOVABLE FRONT PANEL, STANDARD #1/4-20 HEX FASTENER, STEEL TOP AND BACK WALL F-CHANNEL.
10. ROUTE REFRIGERANT SUCTION-LIQUID PIPING WITHIN UNIT VENTILATOR PIPING TUNNELS AND UNIT VENTILATOR SHELVING SYSTEM TUNNELS TO DX COOLING COIL CONNECTIONS AND UV EXPANSION VALVE KITS PER THE MANUFACTURER'S RECOMMENDATIONS.

KEYED NOTES (CONTINUED):

(38) PROVIDE SEMI-RECESSED HORIZONTAL UNIT VENTILATOR UV-MS-3 AT LOCATION SHOWN. PROVIDE UV WITH BOTTOM RETURN AIR INLET STAMPED REGISTER, REAR DUCTED OUTSIDE AIR INLET AND FRONT DISCHARGE DUCTED SA OUTLET. EXTEND EXISTING OA PLENUM TO REAR OUTSIDE AIR INLET ON UV AS REQUIRED.

(39) PROVIDE WALL MOUNTED SPACE TEMPERATURE SENSOR AT LOCATION SHOWN SERVING UV-MS-3 AND FIN TUBE RADIATION FT-MS-1 CONTROL VALVE. PROVIDE CONTROL WIRING FROM NEAREST DDC CONTROLLER TO SENSOR AND UV DDC CONTROLLER AS REQUIRED.

(40) PROVIDE 72"x5" SA PLENUM CONNECTED TO FRONT DISCHARGE OUTLET ON UV-MS-3. INSULATE THE SA PLENUM WITH 2" THICK FLEXIBLE GLASS FIBER DUCT WRAP INSULATION. CONNECT THE EXISTING, THREE 10" ROUND SA BRANCHES TO THE TOP OF THE 72"x5" SA PLENUM AS REQUIRED. INSTALL UV-MS-3 SO THAT THE THE BOTTOM OF THE SA PLENUM, WITH INSULATION, IS ABOVE THE TOP OF THE EXISTING SUSPENDED CEILING SYSTEM.

(41) REBALANCE SUPPLY AIRFLOW THROUGH EXISTING LAY-IN SA DIFFUSERS UTILIZING EXISTING IN-DUCT VOLUME DAMPERS ON EACH SA BRANCH TO 430 CFM WITH UV-MS-3 OPERATING AT DESIGN SUPPLY AIRFLOW.

(42) REBALANCE SUPPLY AIRFLOW THROUGH EXISTING LAY-IN SA DIFFUSER UTILIZING EXISTING IN-DUCT VOLUME DAMPERS ON EACH SA BRANCH TO 480 CFM WITH UV-MS-3 OPERATING AT DESIGN SUPPLY AIRFLOW.

(43) PROVIDE EXTERNALLY MOUNTED WIRED NAVIGATION REMOTE CONTROLLER, VARIABLE REFRIGERANT VOLUME CONTROL BOX AND VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT SERVING HORIZONTAL UNIT VENTILATOR UV-MS-3 AT LOCATION SHOWN ABOVE EXISTING SUSPENDED CEILING SYSTEM. ROUTE LIQUID/SUCTION REFRIGERANT PIPING TO EXPANSION VALVE KIT AND UV DX COIL AS REQUIRED.

(44) PROVIDE 24" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE ON EITHER SIDE OF UV-MS-4. MOUNT TOP OF ENCLOSURE EVEN WITH TOP OF UNIT VENTILATOR UV-MS-4. PROVIDE 1" HWS/R BRANCHES TO UV-MS-4 HEATING COIL AND ROUTE HWS/R MAINS THROUGH UV PIPING TUNNEL TO CLASSROOM 106.

(45) PROVIDE 16" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS AND THE 3/4" CONDENSATE RISER DROP FROM THE TWO SECOND FLOOR CONDENSATE RISERS DROPS. ROUTE VERTICAL SUCTION/LIQUID PIPING DOWN THROUGH TOP OF HORIZONTAL PIPING ENCLOSURE AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. ROUTE CONDENSATE DRAIN PIPING FROM VERTICAL DROP THROUGH HORIZONTAL PIPING ENCLOSURE AND CONNECT TO HORIZONTAL CONDENSATE DRAIN PIPING FROM FIRST FLOOR UV DRAIN PAN OUTLET PRIOR TO EXITING THROUGH EXTERIOR WALL. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF HORIZONTAL PIPING ENCLOSURE UNIT TO UNDERSIDE OF EXISTING SUSPENDED CEILING SYSTEM.

(46) PROVIDE 24" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE ON EITHER SIDE OF UV-MS-5. MOUNT TOP OF ENCLOSURE EVEN WITH TOP OF UNIT VENTILATOR UV-MS-5. PROVIDE 1" HWS/R BRANCHES TO UV-MS-5 HEATING COIL AND ROUTE 1-1/4" HWR MAIN THROUGH UV PIPING TUNNEL PAST UV-MS-5, THROUGH THE HORIZONTAL PIPING ENCLOSURE AND CONNECT TO THE EXISTING 1-1/4" HWR RISER AT THE CONNECTION POINT SHOWN AT BOTTOM RISER.

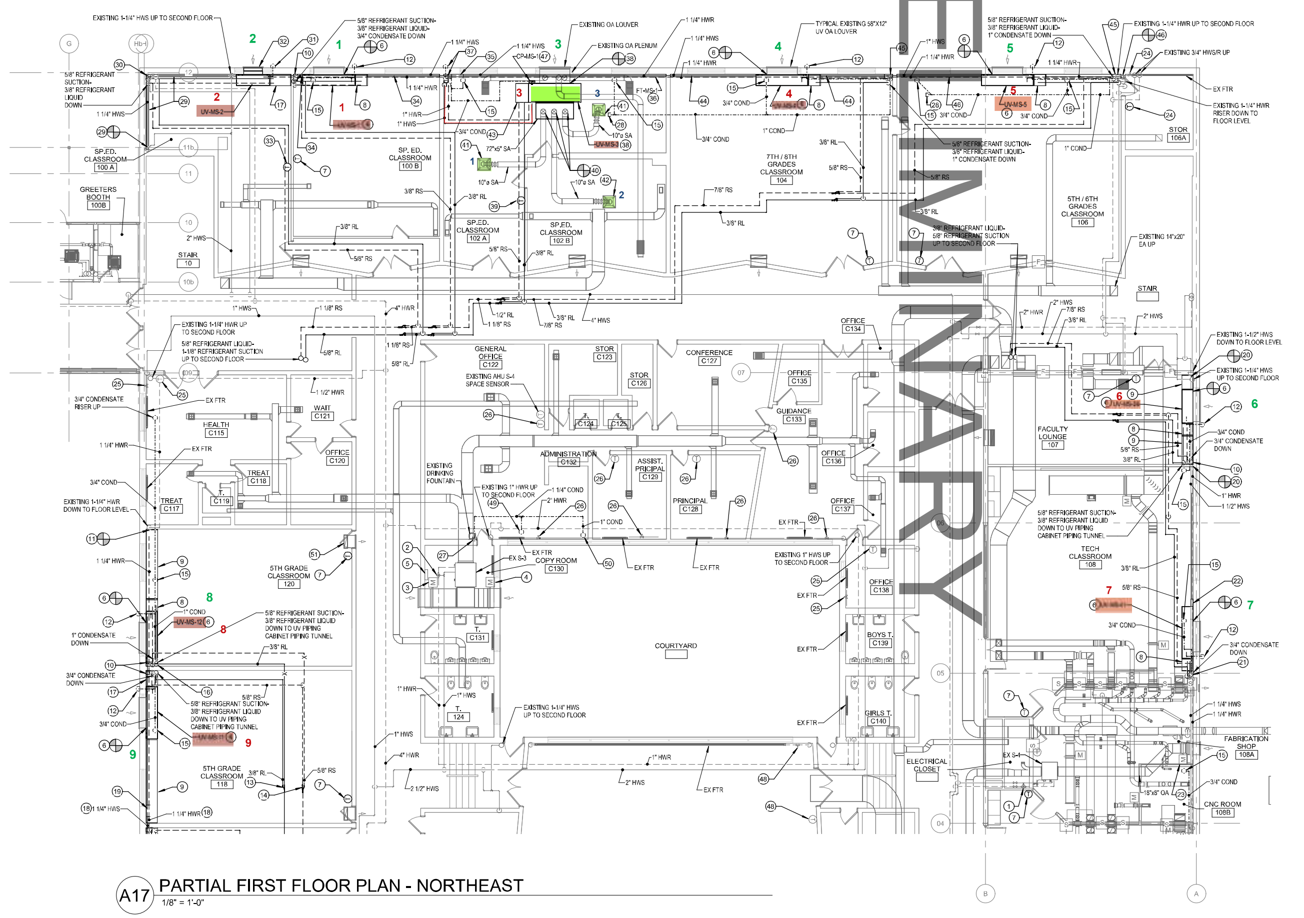
(47) PROVIDE MINI-CONDENSATE REMOVAL PUMP AT LOCATION SHOWN ATTACHED TO UV-MS-3. ROUTE CONDENSATE FROM HORIZONTAL UV DRAIN PAN OUTLET TO INLET OF PUMP, THEN ROUTE CONDENSATE DRAIN PIPING FROM OUTLET OF PUMP TO 3/4" CONDENSATE DRAIN PIPING LINE AS SHOWN.

(48) DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 8.7 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. DISCONNECT AND REMOVE EXISTING SPACE TEMPERATURE SENSOR INLCUDING ASSOCIATED PNEUMATIC TUBING AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM. PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.

(49) 3/4" CONDENSATE DRAIN RISER UP THROUGH FLOOR. ROUTE CONDENSATE PIPING TO DRINKING FOUNTAIN TERMINATION OUTLET AS OUTLINED IN KEYED NOTE 27.

(50) PROVIDE 1" CONDENSATE DRAIN RISER UP THROUGH FLOOR AT LOCATION SHOWN.

(51) LOCATION OF TYPICAL CEILING MOUNTED RELIEF AIR REGISTER DUCTED THROUGH CORRIDOR WALL TO CORRIDOR CEILING PLENUM, TERMINATED OPEN-ENDED ABOVE CEILING PLENUM FOR RELIEF AIR OF CLASSROOMS.



A17 PARTIAL FIRST FLOOR PLAN - NORTHEAST
1/8" = 1'-0"

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REGISTRATION EXPIRES: 11/30 2023

NUFSD BOND PROJECTS PH3

☐ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
■ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME:
PARTIAL FIRST FLOOR PLAN - NORTHEAST
SHEET NUMBER:
BM-M111

ISSUE FOR BID SET

KEYED NOTES:

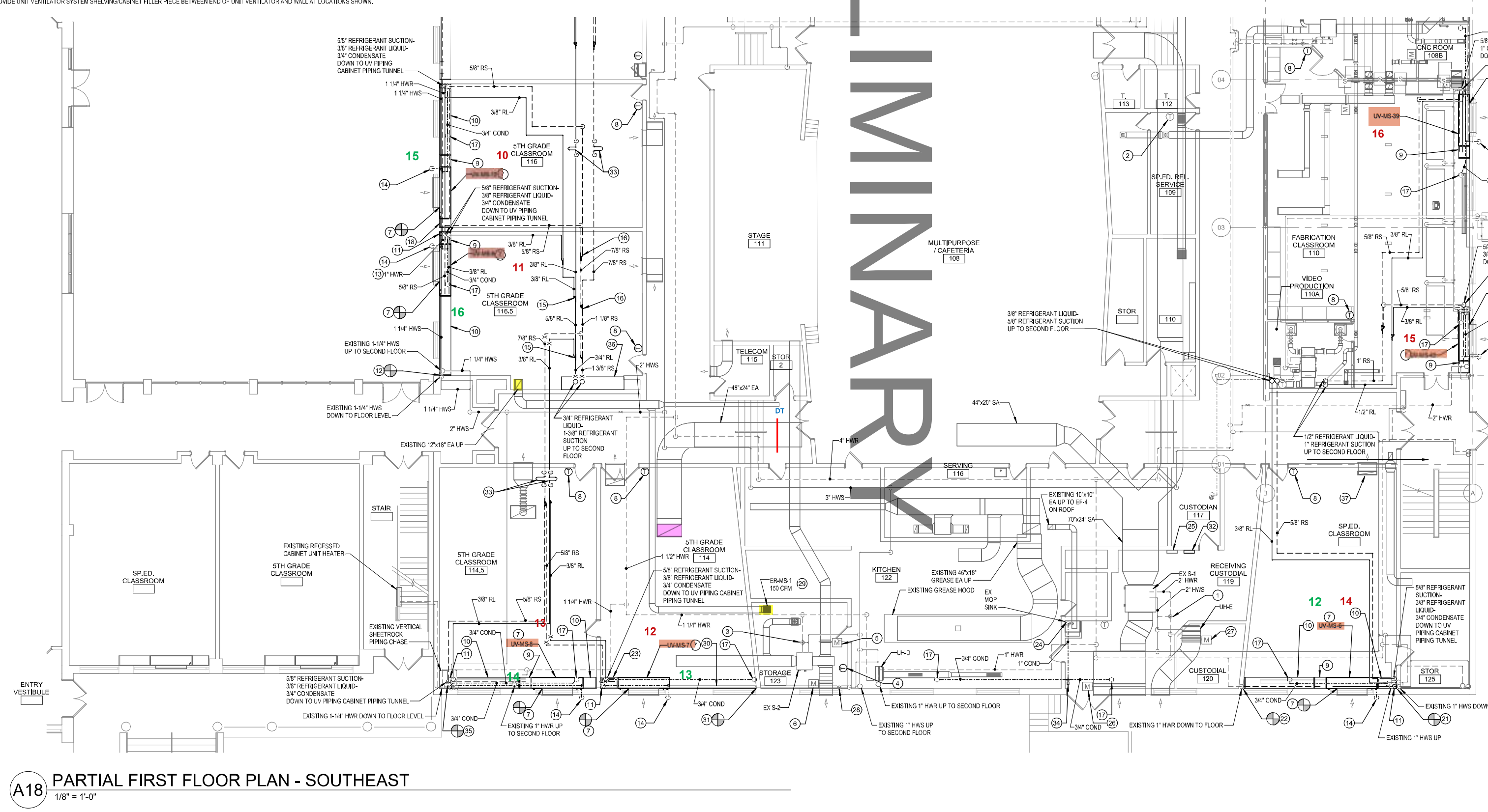
1. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-1 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 39 GPM. DISCONNECT AND REMOVE ALL S-1 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-1 INTO THE EXISTING SIEMENS DDC SYSTEM.
2. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-4 PNEUMATIC THERMOSTAT. CAP PNEUMATIC TUBING ABOVE CEILING SYSTEM. PROVIDE DDC SYSTEM SPACE SENSOR AT LOCATION OF REMOVED PNEUMATIC THERMOSTAT CONNECTED TO S-4 OPERATION.
3. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-2 3-WAY PNEUMATIC CONTROL VALVE. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 3-WAY CONTROL VALVE RATED AT 39 GPM. DISCONNECT AND REMOVE ALL S-2 PNEUMATIC SENSORS AND CONTROL DEVICES AND CONVERT TO ELECTRONIC. TIE ALL ELECTRONIC SENSORS FROM S-2 INTO THE EXISTING SIEMENS DDC SYSTEM.
4. PROVIDE DDC SYSTEM SPACE SENSOR AT LOCATION OF REMOVED PNEUMATIC THERMOSTAT CONNECTED TO EXISTING AHU S-2 OPERATION IN CONJUNCTION WITH REPLACEMENT 2-WAY CONTROL VALVE OUTLINED IN KEYED NOTE 28.
5. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-2 PNEUMATIC MOTORIZED RETURN AIR DAMPER AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER. TIE CONTROL OF DAMPER INTO DDC SYSTEM. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
6. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-2 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER. TIE CONTROL OF DAMPER INTO DDC SYSTEM. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
7. PROVIDE FLOOR MOUNTED UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE UNIT VENTILATOR WITH FULLY CLOSED ADAPTER-BACK WITH REAR OUTDOOR AIR OPENING TO BE CUT IN FIELD TO MATCH EXISTING WALL OUTDOOR AIR OPENING SIZE. CONNECT TO EXISTING OA DUCT SLEEVE AS REQUIRED AND EXTEND INTO REAR OUTDOOR AIR OPENING ON THE UNIT VENTILATOR. CONNECT TO HWS/HWR PIPING ROUTED WITHIN UNIT VENTILATOR SHELVING SYSTEM PIPING TUNNEL AND PROVIDE 1" HWS/HWR BRANCH CONNECTIONS TO UV HEATING COIL CONNECTIONS AS REQUIRED.
8. PROVIDE REPLACEMENT TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF UNIT VENTILATOR LOCATED WITHIN SAME SPACE AS SENSOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR DDC CONTROLLER AS REQUIRED.
9. PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT.
10. AT LOCATIONS CALLED OUT, PROVIDE 21-7/8" DEEP PERIMETER SHELVING CABINETS. THE CABINETS SHALL BE 30" HIGH THAT INCLUDE A BASE CABINET, ONE SHELF, A STEEL TOP WITH LOUVER OUTLET, A FRONT SKIRT WITH LOUVER INLET AND A BACK WALL ANGLE. THE SHELVING CABINETS SHALL INCLUDE A 5-7/8" DEEP PIPE SPACING CAVITY AT THE REAR OF THE CABINET SYSTEM. THE SHELF SHALL BE 10-1/2" DEEP AND THE SYSTEM SHALL INCLUDE A 3" HIGH OPENING AT THE BOTTOM (COVERED BY THE LOUVERED INLET FRONT SKIRT) THAT ALLOWS AIR MOVEMENT THROUGH THE BOTTOM-FRONT OF THE SYSTEM AND OUT THE TOP-REAR OF THE SYSTEM. PROVIDE PERIMETER SHELVING CABINET SYSTEM FILLER SECTIONS WHERE REQUIRED TO TERMINATE SHELVING SYSTEMS AT END POINTS SHOWN. THE FILLER SECTION SHALL BE FIELD CUT TO FIT BETWEEN THE END PANEL AND THE LAST SHELVING CABINET SYSTEM. THE FILLER SECTION SHALL INCLUDE A FLOOR ANGLE, FRONT PANEL, STEEL TOP, BACK WALL ANGLE. THE SYSTEM SHALL BE MANUFACTURED BY HVAC CUSTOM ENCLOSURE CO.; LLC DRAWING NUMBER SC164-0028 OR EQUAL.
11. PROVIDE 12" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS AND THE 3/4" CONDENSATE RISER DROP FROM THE SECOND FLOOR UV DRAIN PAN. ROUTE VERTICAL SUCTION/LIQUID PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. ROUTE CONDENSATE DRAIN PIPING FROM TO PIPING TUNNEL AND CONNECT TO HORIZONTAL CONDENSATE DRAIN PIPING FROM FIRST FLOOR UV DRAIN PAN OUTLET PRIOR TO EXITING THROUGH EXTERIOR WALL. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.
12. CONNECT TO EXISTING 1-1/4" HWS RISER AT FLOOR LEVEL AND ROUTE 1-1/4" HWS PIPING MAIN WITHIN SHELVING CABINET PIPING TUNNEL AS SHOWN.
13. ROUTE 1" HWR FROM UV-MS-9 HEATING COIL WITHIN SHELVING CABINET PIPING TUNNEL TO CLASSROOM 116 PIPING TUNNEL.
14. ROUTE 1-1/4" COMBINED CONDENSATE DRAIN PIPING FROM FIRST FLOOR UV DRAIN PAN OUTLET AND CONDDENSATE FROM SECOND FLOOR UV DRAIN PAN OUT THROUGH EXTERIOR WALL. TERMINATE PIPING WITH MITER CUT ELBOW FACING GRADE LEVEL AND PITCH PIPING TOWARDS THE EXTERIOR WALL PENETRATION AS REQUIRED.
15. TYPICAL REFRIGERANT LIQUID BRANCH CONNECTOR 'Y' FITTING JOINT.
16. TYPICAL RERIGERANT SUCTION BRANCH CONNECTOR 'Y' FITTING JOINT.
17. 3/4" CONDENSATE DRAIN RISER UP THROUGH FLOOR. ROUTE TO VERTICAL PIPING ENCLOSURE AND DROP DOWN INTO SHELVING SYSTEM PIPING TUNNEL.
18. PROVIDE UNIT VENTILATOR SYSTEM SHELVING/CABINET FILLER PIECE BETWEEN END OF UNIT VENTILATOR AND WALL AT LOCATIONS SHOWN.

KEYED NOTES (CONTINUED):

19. ROUTE 3/4" CONDENSATE DRAIN FROM RISER UP THROUGH FLOOR AND THE 3/8" LIQUID-5/8" SUCTION PIPING DROPS DOWN THROUGH VERTICAL CHASE TO WITHIN UNIT VENTILATOR PIPING TUNNEL. ROUTE SUCTION/LIQUID PIPING TO EXPANSION VALVE KIT WITHIN UTILITY COMPARTMENT AND UV DX COIL AS REQUIRED. ROUTE CONDENSATE DRAIN PIPING TO UV-MS-40 CONDENSATE DRAIN LINE AS REQUIRED.
20. COMBINE TWO 3/4" CONDENSATE DRAINS FROM TWO RISER LOCATIONS UP THROUGH FLOOR TO ONE 1" CONDENSATE RISER DROP, AND THE 3/8" LIQUID-5/8" SUCTION PIPING DROPS DOWN THROUGH VERTICAL CHASE TO WITHIN UNIT VENTILATOR PIPING TUNNEL. ROUTE SUCTION/LIQUID PIPING TO EXPANSION VALVE KIT WITHIN UTILITY COMPARTMENT AND UV DX COIL AS REQUIRED. ROUTE 1" CONDENSATE DRAIN PIPING TO UV-MS-39 CONDENSATE DRAIN LINE AS REQUIRED.
21. CONNECT TO EXISTING 1" HWS DROP AT BASE OF RISER AND ROUTE 1" HWS TO UV-MS-6 HEATING COIL.
22. CONNECT TO EXISTING 1" HWR DROP AT BASE OF RISER AND ROUTE 1" HWR TO UV-MS-6 HEATING COIL.
23. PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT. PROVIDE UNIT VENTILATOR SYSTEM SHELVING/CABINET FILLER PIECE BETWEEN END OF UTILITY COMPARTMENT AND WALL TO FILL GAP BETWEEN UTILITY COMPARTMENT END AND WALL.
24. ROUTE 1" CONDENSATE DRAIN PIPING TO 6" ABOVE EXISTING SLOP SINK FLOOD RIM. TERMINATE OPEN-ENDED WITH MITER CUT OUTLET.
25. LOCATION OF EXISTING AIR HANDLING UNIT S-1 DDC SYSTEM CONTROLLER. DISCONNECT AND REMOVE DAMPER ELECTRIC-TO-PNEUMATIC TRANSDUCER AND 3-WAY CONTROL VALVE ELECTRIC-TO-PNEUMATIC TRANSDUCER INCLUDING ASSOCIATED PNEUMATIC TUBING AND PNEUMATIC DIAL OPERATORS. REMOVE PNEUMATIC TUBING BACK TO PNEUMATIC PIPING MAIN AND CAP. TIE ELECTRONIC CONTROL VALVE AND ELECTRONIC MOTORIZED DAMPER OUTLINED IN KEYED NOTES 1 AND 26 INTO THE S-1 DDC CONTROLLER AS REQUIRED.
26. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT S-1 PNEUMATIC MOTORIZED OUTSIDE AIR DAMPER AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER. TIE CONTROL OF DAMPER INTO EXISTING DDC SYSTEM. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
27. DISCONNECT AND REMOVE EXISTING HYDRONIC UNIT HEATER UH-E DUAL PNEUMATIC FACE AND BAYPASS DAMPER ACTUATORS AT LOCATION SHOWN AND REPLACE WITH ELECTRONIC MOTORIZED DAMPER ACTUATORS. TIE CONTROL OF DAMPERS INTO EXISTING DDC SYSTEM. REMOVE PNEUMATIC TUBING FROM REMOVED DAMPER BACK TO PNEUMATIC PIPING MAIN.
28. DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 1.5 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. PROVIDE SPACE TEMPERATURE SENSOR AT LOCATION SHOWN OUTLINED IN KEYED NOTE 4 AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM.
29. PROVIDE EXHAUST REGISTER ER-MS-1 AT LOCATION SHOWN AT LOCATION OF MISSING REGISTER. CONNECT EXISTING 12"x12" EA DROP TO REGISTER AS REQUIRED. BALANCE AIRFLOW THROUGH REGISTER TO 150 CFM WITH EXISTING EXHAUST FAN EF-11 OPERATING.
30. PROVIDE 24" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE BETWEEN END OF UV-MS-7 AND WALL BETWEEN STORAGE 123 AND CLASSROOM 114. ROUTE HWS/R BRANCH PIPING ROUTED FROM STORAGE 123 INTO THE PIPING ENCLOSURE.
31. CONNECT TO EXISTING HWS/R ROUTED THROUGH STORAGE ROOM 123 WALL INTO CLASSROOM 114. ROUTE HWS/R THROUGH HORIZONTAL PIPE ENCLOSURE, PROVIDE 1" HWS/R BRANCHES TO UV-MS-7 HEATING COIL, THEN ROUTE 1" HWS TO UV-MS-8 WITHIN CLASSROOM 114.5 THROUGH THE UV PIPING TUNNELS, AND ROUTE 1-1/4" HWS THROUGH THE UV PIPING TUNNELS TO THE SECOND CONNECTION POINT SHOWN UPSTREAM OF THE HWR PENETRATION THROUGH THE EXISTING VERTICAL CHASE. PROVIDE A 1" HWR CONNECTION TO THE UV-MS-8 HEATING COIL AS REQUIRED.
32. PROVIDE DAIKIN MODEL DCM014A51 BACNET INTERFACE AT LOCATION SHOWN CAPABLE OF INTEGRATION WITH THE BUILDING'S EXISTING DIRECT DIGITAL CONTROL (DDC) SYSTEM. THE DDC SHALL PROVIDE A LOW VOLTAGE CONNECTION FROM THE NEAREST DDC CONTROL PANEL TO THE BACNET INTERFACE AS REQUIRED. THE BACNET INTERFACE DEVICE SHALL ALLOW THE DDC SYSTEM TO MONITOR AND CONTROL THE VARIABLE REFRIGERANT VOLUME INDOOR AND OUTDOOR UNITS INSTALLED. TWISTED PAIR COMMUNICATION WIRING SHALL BE PROVIDED FROM EACH ROOFTOP HEAT PUMP UNIT TO THE BACNET INTERFACE DEVICE, AND TWISTED PAIR COMMUNICATION WIRING SHALL BE PROVIDED FROM EACH HEAT PUMP UNIT TO EACH CONTROLLER KIT LOCATED WITHIN THE UTILITY COMPARTMENT OF EACH NEW UNIT VENTILATOR.
33. PROVIDE UL-207 LISTED EXPANSION LOOP FOR THE 3/8" REFRIGERANT LIQUID AND 7/8" REFRIGERANT SUCTION LINES AT LOCATION SHOWN. THE 3/8" LOOP SHALL BE 28-1/2" LONG x 17-1/2" HIGH. THE 7/8" LOOP SHALL BE 28-1/2" LONG x 19-3/4" WIDE. PROVIDE PIPE GUIDES ON EITHER SIDE OF LOOP AND PIPE ANCHORS AT END OF PIPING RUNS PER MANUFACTURER'S RECOMMENDATIONS. INSTALL REFRIGERANT MAINS AT DIFFERENT ELEVATIONS TO ALLOW LOOPS TO AVOID CONFLICT WITHIN CEILING PLENUM.
34. PROVIDE CLEANOUT PLUG AT LOCATION SHOWN WITHIN CONDENSATE DRAIN PIPING.
35. CONNECT TO EXISTING 3/4" HWS AND 1-1/4" HWR PIPING LINES AT CONNECTION POINT SHOWN UPSTREAM OF PIPING PENETRATIONS THROUGH EXISTING VERTICAL SHEETROCK PIPING CHASE.
36. DISCONNECT, REMOVE AND REINSTALL EXISTING PLYWOOD SERVING AS BOTTOM OF SOFFIT WITHIN CLASSROOM 116.5 AS REQUIRED TO PROVIDE REFRIGERANT RISERS CALLED OUT. UTILIZE EXISTING SCREWS WITHIN PLYWOOD SOFFIT AS REQUIRED TO REMOVE/REINSTALL.
37. LOCATION OF TYPICAL CEILING MOUNTED RELIEF AIR REGISTER DUCTED THROUGH CORRIDOR WALL TO CORRIDOR CEILING PLENUM, TERMINATED OPEN-ENDED ABOVE CEILING PLENUM FOR RELIEF AIR OF CLASSROOMS.

GENERAL NOTES:

1. REFRIGERANT PIPING NOTE: 90 DEGREE ELBOWS SHALL BE KEPT A MINIMUM OF 20" FROM BRANCH CONNECTOR 'Y' JOINTS. IN ADDITION, BRANCH CONNECTOR 'Y' JOINTS SHALL BE A MINIMUM OF 40" FROM ANOTHER BRANCH 'Y' CONNECTOR JOINT.
2. REFRIGERANT PIPING NOTE: THE HEAT PUMP SYSTEM MANUFACTURER SHALL INSPECT ALL FIELD INSTALLED REFRIGERANT PIPING PRIOR TO INSULATION INSTALLATION.
3. THE EXISTING SUSPENDED CEILING SYSTEMS LOCATED WITHIN THE SCOPE OF WORK AREA OUTSIDE OF AREAS BEING RENOVATED BY THE GENERAL CONTRACTOR SHALL BE DISCONNECTED AND REMOVED TO ALLOW FOR THE INSTALLATION WORK AND REINSTALLED FOLLOWING COMPLETION OF THE WORK BY THE MECHANICAL CONTRACTOR. THE SUSPENDED CEILING GRID SYSTEMS SHALL BE REMOVED AND MODIFIED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF WORK. THE CEILING TILES SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF THE INSTALLATION WORK. ANY CEILING TILES DAMAGED DURING THE INSTALLATION WORK SHALL BE REPLACED BY THE MECHANICAL CONTRACTOR TO MATCH THE EXISTING CEILING TILES.
4. ALL CUTTING, PATCHING, AND FIREPROOFING ASSOCIATED WITH THE INSTALLATION WORK SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR. PATCHED AREAS SHALL MATCH EXISTING CONDITIONS. ALL REFRIGERANT PIPING AND CONDENSATE PIPING PENETRATIONS THROUGH CORRIDOR WALLS SHALL BE FIREPROOFED PER SPECIFICATION SECTION 078400.
5. ROUTE REFRIGERANT SUCTION AND LIQUID PIPING FROM THE UNIT VENTILATOR DX COIL CONNECTIONS TO THE HEAT PUMP UNITS. SIZE PIPING AND PROVIDE BRANCH CONNECTOR 'Y' JOINTS PER THE DRAWING. CONFIRM PIPING SIZES AND BRANCH CONNECTOR 'Y' JOINT LOCATIONS REQUIRED WITH HEAT PUMP SYSTEM MANUFACTURER.
6. THE SMALLEST VOLUME ROOM THAT THE REFRIGERANT PIPING SYSTEMS ROUTE THROUGH FOR EACH OF THE HEAT PUMP SYSTEMS IS BELOW THE ASHRAE STANDARD 15 REFRIGERANT CONCENTRATION LIMIT OF 26 POUNDS PER 1,000 CUBIC FEET OF ROOM VOLUME FOR OCCUPIED SPACES.
7. PROVIDE FIRESTOPPING PER SPECIFICATION SECTION 078400 AT ALL PIPING PENETRATIONS THROUGH CORRIDOR WALLS AND STORAGE ROOM WALLS.
8. THE UV UTILITY COMPARTMENT SHALL INCLUDE A REMOVABLE FRONT PANEL, STANDARD #1/4-20 HEX FASTENER, STEEL TOP AND BACK WALL F-CHANNEL.
10. ROUTE REFRIGERANT SUCTION-LIQUID PIPING WITHIN UNIT VENTILATOR PIPING TUNNELS AND UNIT VENTILATOR SHELVING SYSTEM TUNNELS TO DX COOLING COIL CONNECTIONS AND UV EXPANSION VALVE KITS PER THE MANUFACTURER'S RECOMMENDATIONS.



A18 PARTIAL FIRST FLOOR PLAN - SOUTHEAST
1/8" = 1'-0"

ARCHITECT

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NANUET

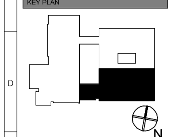
NUFSD BOND PROJECTS PH3

☐ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
■ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

High School
103 Church St.
Nanuet, NY 10954

Barr Middle School
50 Blauvelt Rd #1
Nanuet, NY 10954

KEY PLAN



REVISIONS

No.	Description	Date

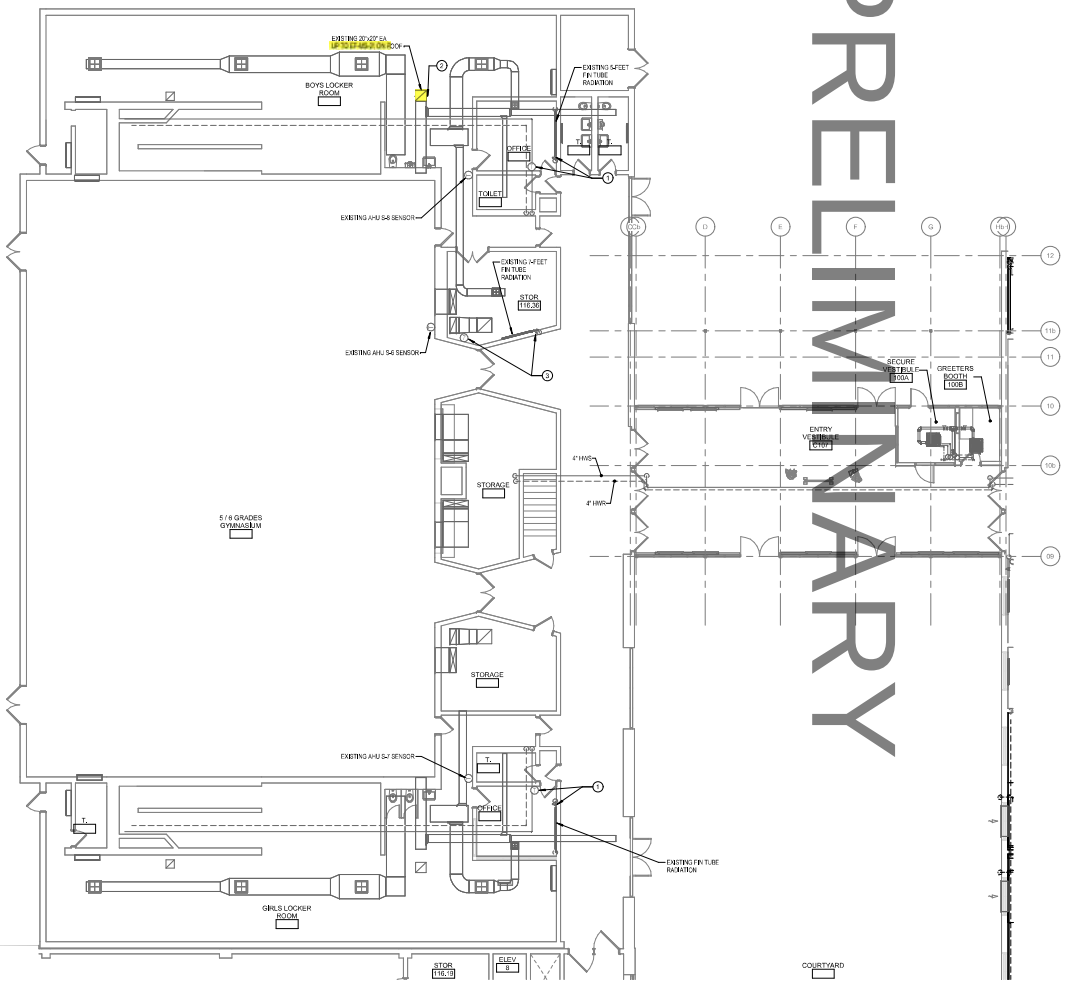
ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME: PARTIAL FIRST FLOOR PLAN - SOUTHEAST
SHEET NUMBER: BM-M112

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00

KEYED NOTES:

1. DISCONNECT AND REMOVE EXISTING 3-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENCLOSURE SYSTEM, DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN, PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 0.5 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE, MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE, DISCONNECT AND REMOVE EXISTING SPACE TEMPERATURE SENSOR (INCLUDING ASSOCIATED PNEUMATIC TUBING AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM, PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.
2. DISCONNECT AND REMOVE EXISTING GRAVITY ACTUATED DAMPER WITHIN EXISTING 20"x20" EA RISER AND PROVIDE A MOTORIZED DAMPER TO REPLACE THE GRAVITY ACTUATED DAMPER. TIED TO THE OPERATION OF REPLACEMENT ROOFTOP EXHAUST FAN EF-VS-21, DISCONNECT, REMOVE AND REINSTALL EXISTING SUSPENDED CEILING SYSTEM AS REQUIRED TO REPLACE THE DAMPER.
3. DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENCLOSURE SYSTEM, DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN, PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 0.4 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE, MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE, DISCONNECT AND REMOVE EXISTING SPACE TEMPERATURE SENSOR (INCLUDING ASSOCIATED PNEUMATIC TUBING AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM, PROVIDE CONTROL WIRING BETWEEN CONTROL VALVE AND REPLACEMENT SENSOR AS REQUIRED.



A18 PARTIAL FIRST FLOOR PLAN - NORTHWEST
1/8" = 1'-0"

PRELIMINARY

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NUFSD BOND PROJECTS PH3

☐ SED#:63-01-06-03-5-003-035 (HIGH SCHOOL)
☐ SED#:63-01-06-03-5-004-020 (BARR MIDDLE SCHOOL)

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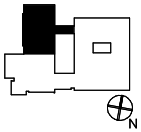


REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME: PARTIAL FIRST FLOOR PLAN - NORTHWEST
SHEET NUMBER: BM-M113

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00

KEYED NOTES:

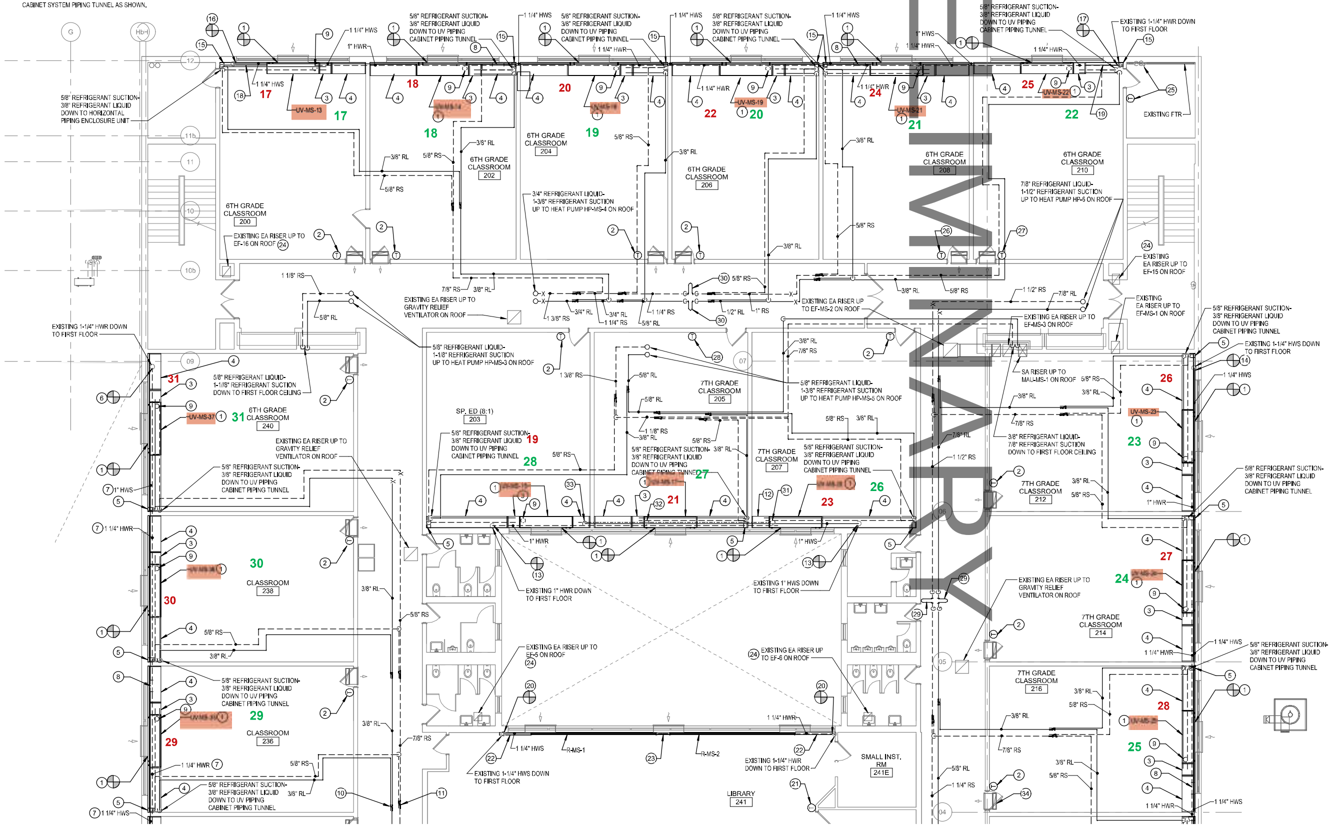
1. PROVIDE FLOOR MOUNTED UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE UNIT VENTILATOR WITH FULLY CLOSED ADAPTER-BACK WITH REAR OUTDOOR AIR OPENING TO BE CUT IN FIELD TO MATCH EXISTING WALL OUTDOOR AIR OPENING SIZE. CONNECT TO EXISTING OA DUCT SLEEVE AS REQUIRED AND EXTEND INTO REAR OUTDOOR AIR OPENING ON THE UNIT VENTILATOR. CONNECT TO HWS/HWR PIPING ROUTED WITHIN UNIT VENTILATOR SHELVING SYSTEM PIPING TUNNEL AND PROVIDE 1" HWS/HWR BRANCH CONNECTIONS TO UV HEATING COIL CONNECTIONS AS REQUIRED.
2. PROVIDE REPLACEMENT TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF UNIT VENTILATOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR DDC CONTROLLER AS REQUIRED.
3. PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT.
4. AT LOCATIONS CALLED OUT, PROVIDE 21-7/8" DEEP PERIMETER SHELVING CABINETS. THE CABINETS SHALL BE 30" HIGH THAT INCLUDE A BASE CABINET, ONE SHELF, A STEEL TOP WITH LOUVER OUTLET, A FRONT SKIRT WITH LOUVER INLET AND A BACK WALL ANGLE. THE SHELVING CABINETS SHALL INCLUDE A 5-7/8" DEEP PIPE SPACING CAVITY AT THE REAR OF THE CABINET SYSTEM. THE SHELF SHALL BE 10-1/2" DEEP AND THE SYSTEM SHALL INCLUDE A 3" HIGH OPENING AT THE BOTTOM (COVERED BY THE LOUVERED INLET FRONT SKIRT) THAT ALLOWS AIR MOVEMENT THROUGH THE BOTTOM-FRONT OF THE SYSTEM AND OUT THE TOP-REAR OF THE SYSTEM. PROVIDE PERIMETER SHELVING CABINET SYSTEM FILLER SECTIONS WHERE REQUIRED TO TERMINATE SHELVING SYSTEMS AT END POINTS SHOWN. THE FILLER SECTION SHALL BE FIELD CUT TO FIT BETWEEN THE END PANEL AND THE LAST SHELVING CABINET SYSTEM. THE FILLER SECTION SHALL INCLUDE A FLOOR ANGLE, FRONT PANEL, STEEL TOP, BACK WALL ANGLE. THE SYSTEM SHALL BE MANUFACTURED BY HVAC CUSTOM ENCLOSURE CO.; LLC DRAWING NUMBER SC164-0028 OR EQUAL.
5. PROVIDE 12" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS. ROUTE VERTICAL PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.
6. CONNECT TO EXISTING 1-1/4" HWR RISER ABOVE FLOOR PENETRATION LOCATION AND ROUTE 1-1/4" HWR PIPING MAIN WITHIN SHELVING CABINET PIPING TUNNEL AS SHOWN.
7. ROUTE HWS/HWR PIPING MAINS WITHIN PIPING TUNNELS AT REAR OF UNIT VENTILATORS AND UNIT VENTILATOR SHELVING CABINET SYSTEMS.
8. PROVIDE 1-1/4" EXPANSION COMPENSATORS ON THE HWS/HWR PIPING MAINS ROUTED WITHIN THE UNIT VENTILATOR PIPING TUNNEL AT LOCATION SHOWN. THE COMPENSATORS SHALL BE 13.812" LONG. PROVIDE ANCHORS ON EACH END OF BOTH THE HWS/R RUNS AND PROVIDE PIPE GUIDES WITHIN 14 PIPE DIAMETERS OF THE COMPENSATORS ON BOTH THE HWS AND HWR COMPENSATORS.
9. ROUTE 3/4" CONDENSATE DRAIN PIPING FROM UV DRAIN PAN OUTLET DOWN THROUGH FLOOR TO FIRST FLOOR CEILING PLENUM.
10. TYPICAL REFRIGERANT LIQUID BRANCH CONNECTOR 'Y' FITTING JOINT.
11. TYPICAL RERIGERANT SUCTION BRANCH CONNECTOR 'Y' FITTING JOINT.
12. PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT. PROVIDE UNIT VENTILATOR SYSTEM SHELVING/CABINET FILLER PIECE BETWEEN END OF UTILITY COMPARTMENT AND WALL TO FILL GAP BETWEEN UTILITY COMPARTMENT END AND WALL.
13. CONNECT TO EXISTING 1" HWS/HWR RISERS JUST ABOVE FLOOR PENETRATION AT CONNECTION POINT SHOWN AND ROUTE 1" HWS/R PIPING WITHIN UV AND SHELVING CABINET SYSTEM PIPING TUNNELS TO UV HEATING COILS AS REQUIRED.
14. CONNECT TO EXISTING 1-1/4" HWS RISER ABOVE FLOOR PENETRATION AND ROUTE 1-1/4" HWS PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL. PROVIDE 1" HWS BRANCHES TO UV HEATING COILS AT EACH UV LOCATION. PROVIDE 1" HWR CONNECTION TO UV-MS-23 HEATING COIL AND ROUTE HWR PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL AS SHOWN.
15. PROVIDE 8" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS. ROUTE VERTICAL PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.
16. CONNECT TO EXISTING 1-1/4" HWS RISER ABOVE FLOOR PENETRATION AND ROUTE 1-1/4" HWS PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL. PROVIDE 1" HWS BRANCHES TO UV HEATING COILS AT EACH UV LOCATION. PROVIDE 1" HWR CONNECTION TO UV-MS-13 HEATING COIL AND ROUTE HWR PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL AS SHOWN.
17. CONNECT TO EXISTING 1-1/4" HWR RISER ABOVE FLOOR PENETRATION AND ROUTE 1-1/4" HWR PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNELS. PROVIDE 1" HWR BRANCHES TO UV HEATING COILS AT EACH UV LOCATION. PROVIDE 1" HWS CONNECTION TO EACH UV HEATING COIL AND ROUTE HWS PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL AS SHOWN.

KEYED NOTES (CONTINUED):

18. PROVIDE 18" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE UNIT BETWEEN WALL AND END OF UNIT VENTILATOR AT LOCATION SHOWN. ROUTE HWS PIPING AND SUCTION/LIQUID REFRIGERANT PIPING WITHIN HORIZONTAL ENCLOSURE TO UV PIPING TUNNEL.
19. PROVIDE 18" HIGH x 5" DEEP HORIZONTAL PIPING ENCLOSURE UNIT BETWEEN WALL AND END OF UV UTILITY COMPARTMENT AT LOCATION SHOWN. ROUTE HWR PIPING AND SUCTION/LIQUID REFRIGERANT PIPING WITHIN HORIZONTAL ENCLOSURE TO UV PIPING TUNNEL.
20. CONNECT TO EXISTING 1-1/4" HWS/R RISERS ABOVE FLOOR PENETRATIONS AT CONNECTION POINTS SHOWN AND ROUTE HWS/R TO RADIATOR UNITS AS REQUIRED.
21. PROVIDE SPACE TEMPERATURE SENSOR AT LOCATION SHOWN. PROVIDE CONTROL WIRING FROM SENSOR TO CONTROL VALVE SERVING RADIATOR UNITS R-MS-1/R-MS-2 AS REQUIRED.
22. PROVIDE HORIZONTAL AND VERTICAL TRIM COVERS AT LOCATIONS SHOWN TO CONCEAL THE HWS/HWR PIPNG SERVING R-MS-1/R-MS-2 FURNISHED BY THE RADIATOR MANUFACTURER, WITH HEIGHT AND DEPTH OF TRIM COVER TO MATCH THE RADIATOR HEIGHT AND DEPTH.
23. PROVIDE 3/4" EXPANSION COMPENSATOR FLEXIBLE CONNECTOR AT LOCATION SHOWN BETWEEN TWO RADIATOR UNITS R-MS-1 AND R-MS-2. INSTALL THE FLEXIBLE CONNECTOR IN A U-BEND FORMAT WITH THE U FACING DOWN. CONNECT THE OUTLET PIPING FROM R-MS-1 TO THE INLET OF R-MS-2. PROVIDE A HORIZONTAL WALL TRIM COVER OVER THE PIPING AND FLEXIBLE CONNECTOR BETWEEN THE TWO RADIATOR UNITS FURNISHED BY THE RADIATOR MANUFACTURER, WITH HEIGHT AND DEPTH OF TRIM COVER TO MATCH THE RADIATOR HEIGHT AND DEPTH.
24. PROVIDE MOTORIZED DAMPER WITHIN EXISTING EA DUCT RISER. MODIFY EA RISER AS REQUIRED FOR DAMPER INSTALLATION. TIE CONTROL OF DAMPER TO OPERATION OF ROOFTOP EXHAUST FAN CONNECTED TO EA RISER. PROVIDE CONTROL RELAY TO EXISTING EXHAUST FAN AND TIE OPERATION OF EXHAUST FAN TO DDC SYSTEM.
25. DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 1.5 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. PROVIDE SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM.
26. DISCONNECT AND REMOVE DAMAGED SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR TIED TO UV-MS-21 DDC CONTROLLER. PROVIDE CONTROL WIRING FROM REPLACEMENT SENSOR TO UV CONTROLLER AS REQUIRED.
27. PROVIDE REPLACEMENT SPACE TEMPERATURE SENSOR TIED TO UV-MS-22 DDC CONTROLLER. PROVIDE CONTROL WIRING FROM REPLACEMENT SENSOR TO UV CONTROLLER AS REQUIRED.
28. PROVIDE REPLACEMENT TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF UNIT VENTILATOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR UV-MS-17 DDC CONTROLLER AS REQUIRED.
29. PROVIDE UL-207 LISTED EXPANSION LOOP FOR THE 7/8" REFRIGERANT LIQUID AND 1-1/2" REFRIGERANT SUCTION LINES AT LOCATION SHOWN. THE 7/8" LOOP SHALL BE 28-3/4" LONG x 21" HIGH. THE 1-1/2" LOOP SHALL BE 31" LONG x 25" WIDE. PROVIDE PIPE GUIDES ON EITHER SIDE OF LOOP AND PIPE ANCHORS AT END OF PIPING RUNS PER MANUFACTURER'S RECOMMENDATIONS.
30. PROVIDE UL-207 LISTED EXPANSION LOOP FOR THE 5/8" REFRIGERANT LIQUID AND 1-1/4" REFRIGERANT SUCTION LINES AT LOCATION SHOWN. THE 5/8" LOOP SHALL BE 28-1/2" LONG x 193/4" HIGH. THE 1-1/4" LOOP SHALL BE 30" LONG x 23" WIDE. PROVIDE PIPE GUIDES ON EITHER SIDE OF LOOP AND PIPE ANCHORS AT END OF PIPING RUNS PER MANUFACTURER'S RECOMMENDATIONS.
31. ROUTE 3/4" CONDENSATE DRAIN PIPING FROM DRAIN PAN OUTLET OF UV-MS-20 WITHIN UV PIPING TUNNEL SYSTEM AND CONNECT TO HORIZONTAL DRAIN PIPING WITHIN PIPING TUNNEL SYSTEM OF UV-MS-17.
32. ROUTE 3/4" CONDENSATE DRAIN PIPING FROM DRAIN PAN OUTLET OF UV-MS-17 WITHIN UV PIPING TUNNEL SYSTEM AND CONNECT TO 3/4" HORIZONTAL DRAIN PIPING ROUTED FROM UV-MS-17. AT POINT OF COMBINING TWO UV CONDENSATE DRAINS, INCREASE HORIZONTAL CONDENSATE DRAIN PIPING TO 1", THEN ROUTE THROUGH UV PIPING TUNNEL SYSTEMS TO POINT OF DROP DOWN TO FIRST FLOOR AS OUTLINED ON KEYED NOTE 33.
33. PROVIDE 1" CONDENSATE DRAIN PIPING DROP DOWN TO FIRST FLOOR AT LOCATION SHOWN FROM WITHIN UV PIPING TUNNEL SYSTEM.
34. LOCATION OF TYPICAL CEILING MOUNTED RELIEF AIR REGISTER DUCTED THROUGH CORRIDOR WALL TO CORRIDOR CEILING PLENUM, TERMINATED OPEN-ENDED ABOVE CEILING PLENUM FOR RELIEF AIR OF CLASSROOMS.

GENERAL NOTES:

1. REFRIGERANT PIPING NOTE: 90 DEGREE ELBOWS SHALL BE KEPT A MINIMUM OF 20" FROM BRANCH CONNECTOR 'Y' JOINTS. IN ADDITION, BRANCH CONNECTOR 'Y' JOINTS SHALL BE A MINIMUM OF 40" FROM ANOTHER BRANCH 'Y' CONNECTOR JOINT.
2. REFRIGERANT PIPING NOTE: THE HEAT PUMP SYSTEM MANUFACTURER SHALL INSPECT ALL FIELD INSTALLED REFRIGERANT PIPING PRIOR TO INSULATION INSTALLATION.
3. THE EXISTING SUSPENDED CEILING SYSTEMS LOCATED WITHIN THE SCOPE OF WORK AREA OUTSIDE OF AREAS BEING RENOVATED BY THE GENERAL CONTRACTOR SHALL BE DISCONNECTED AND REMOVED TO ALLOW FOR THE INSTALLATION WORK AND REINSTALLED FOLLOWING COMPLETION OF THE WORK BY THE MECHANICAL CONTRACTOR. THE SUSPENDED CEILING GRID SYSTEMS SHALL BE REMOVED AND MODIFIED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF WORK. THE CEILING TILES SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF THE INSTALLATION WORK. ANY CEILING TILES DAMAGED DURING THE INSTALLATION WORK SHALL BE REPLACED BY THE MECHANICAL CONTRACTOR TO MATCH THE EXISTING CEILING TILES.
4. ALL CUTTING, PATCHING, AND FIREPROOFING ASSOCIATED WITH THE INSTALLATION WORK SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR. PATCHED AREAS SHALL MATCH EXISTING CONDITIONS. ALL REFRIGERANT PIPING AND CONDENSATE PIPING PENETRATIONS THROUGH CORRIDOR WALLS SHALL BE FIREPROOFED PER SPECIFICATION SECTION 078400.
5. ROUTE REFRIGERANT SUCTION AND LIQUID PIPING FROM THE UNIT VENTILATOR DX COIL CONNECTIONS TO THE HEAT PUMP UNITS. SIZE PIPING AND PROVIDE BRANCH CONNECTOR 'Y' JOINTS PER THE DRAWING. CONFIRM PIPING SIZES AND BRANCH CONNECTOR 'Y' JOINT LOCATIONS REQUIRED WITH HEAT PUMP SYSTEM MANUFACTURER.
6. ROUTE REFRIGERANT PIPING THROUGH THE ROOF TO THE ROOF MOUNTED HEAT PUMP SYSTEMS. PROVIDE A PIPE CURB AND SIDE REFRIGERANT PIPIPNG OUTLET PORTAL AT THE ROOF PENETRATION OF EACH HEAT PUMP SYSTEM.
7. THE SMALLEST VOLUME ROOM THAT THE REFRIGERANT PIPING SYSTEMS ROUTE THROUGH FOR EACH OF THE HEAT PUMP SYSTEMS IS BELOW THE ASHRAE STANDARD 15 REFRIGERANT CONCENTRATION LIMIT OF 26 POUNDS PER 1,000 CUBIC FEET OF ROOM VOLUME FOR OCCUPIED SPACES.
8. PROVIDE FIRESTOPPING PER SPECIFICATION SECTION 078400 AT ALL PIPING PENETRATIONS THROUGH CORRIDOR WALLS AND STORAGE ROOM WALLS.
9. THE UV UTILITY COMPARTMENT SHALL INCLUDE A REMOVABLE FRONT PANEL, STANDARD #1/4-20 HEX FASTENER, STEEL TOP AND BACK WALL F-CHANNEL.
10. ROUTE REFRIGERANT SUCTION-LIQUID PIPING WITHIN UNIT VENTILATOR PIPING TUNNELS AND UNIT VENTILATOR SHELVING SYSTEM TUNNELS TO DX COOLING COIL CONNECTIONS AND UV EXPANSION VALVE KITS PER THE MANUFACTURER'S RECOMMENDATIONS.



A18 PARTIAL SECOND FLOOR PLAN - NORTHEAST
1/8" = 1'-0"

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NANUET

NUFSD BOND PROJECTS PH3

☐ SED#50-01-08-03-0-003-035 (HIGH SCHOOL)
■ SED#50-01-08-03-0-004-020 (BARR MIDDLE SCHOOL)

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Barr Middle School
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Nanuet, NY 10954

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME: PARTIAL SECOND FLOOR PLAN - NORTHEAST
SHEET NUMBER: BM-M114

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00

KEYED NOTES:

(1) PROVIDE FLOOR MOUNTED UNIT VENTILATOR AT LOCATION SHOWN. PROVIDE UNIT VENTILATOR WITH FULLY CLOSED ADAPTER-BACK WITH REAR OUTDOOR AIR OPENING TO BE CUT IN FIELD TO MATCH EXISTING WALL OUTDOOR AIR OPENING SIZE. CONNECT TO EXISTING OA DUCT SLEEVE AS REQUIRED AND EXTEND INTO REAR OUTDOOR AIR OPENING ON THE UNIT VENTILATOR. CONNECT TO HWS/HWR PIPING ROUTED WITHIN UNIT VENTILATOR SHELVING SYSTEM PIPING TUNNEL AND PROVIDE 1" HWS/HWR BRANCH CONNECTIONS TO UV HEATING COIL CONNECTIONS AS REQUIRED.

(2) PROVIDE REPLACEMENT TEMPERATURE SENSOR AT LOCATION SHOWN AND UTILIZE FOR SPACE TEMPERATURE CONTROL OF UNIT VENTILATOR AS REQUIRED. PROVIDE CONTROL WIRING BETWEEN SENSOR AND UNIT VENTILATOR DDC CONTROLLER AS REQUIRED.

(3) PROVIDE 24" WIDE x 21-7/8" DEEP UTILITY COMPARTMENT AT LOCATION SHOWN FOR HOUSING DDC SYSTEM CONTROLLER AND VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS. THE UTILITY COMPARTMENT SHALL HOUSE THE FOLLOWING VARIABLE REFRIGERANT VOLUME CONTROL COMPONENTS: 1. WIRED NAVIGATION REMOTE CONTROLLER 2. VARIABLE REFRIGERANT VOLUME CONTROL BOX AND 3. VARIABLE REFRIGERANT VOLUME EXPANSION VALVE KIT.

(4) AT LOCATIONS CALLED OUT, PROVIDE 21-7/8" DEEP PERIMETER SHELVING CABINETS. THE CABINETS SHALL BE 30" HIGH THAT INCLUDE A BASE CABINET, ONE SHELF, A STEEL TOP WITH LOUVER OUTLET, A FRONT SKIRT WITH LOUVER INLET AND A BACK WALL ANGLE. THE SHELVING CABINETS SHALL INCLUDE A 5-7/8" DEEP PIPE SPACING CAVITY AT THE REAR OF THE CABINET SYSTEM. THE SHELF SHALL BE 10-1/2" DEEP AND THE SYSTEM SHALL INCLUDE A 3" HIGH OPENING AT THE BOTTOM (COVERED BY THE LOUVERED INLET FRONT SKIRT) THAT ALLOWS AIR MOVEMENT THROUGH THE BOTTOM-FRONT OF THE SYSTEM AND OUT THE TOP-REAR OF THE SYSTEM. PROVIDE PERIMETER SHELVING CABINET SYSTEM FILLER SECTIONS WHERE REQUIRED TO TERMINATE SHELVING SYSTEMS AT END POINTS SHOWN. THE FILLER SECTION SHALL BE FIELD CUT TO FIT BETWEEN THE END PANEL AND THE LAST SHELVING CABINET SYSTEM. THE FILLER SECTION SHALL INCLUDE A FLOOR ANGLE, FRONT PANEL, STEEL TOP, BACK WALL ANGLE. THE SYSTEM SHALL BE MANUFACTURED BY HVAC CUSTOM ENCLOSURE CO.; LLC DRAWING NUMBER SC164-0028 OR EQUAL. PROVIDE END CAPS ON SHELVING CABINETS WHERE SYSTEMS TERMINATE SHORT OF A WALL SYSTEM AND CONNECT TO A HORIZONTAL PIPING ENCLOSURE SYSTEM.

(5) PROVIDE 12" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS. ROUTE VERTICAL PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.

(6) CONNECT TO EXISTING 1-1/4" HWS RISER ABOVE FLOOR PENETRATION LOCATION AND ROUTE 1-1/4" HWS PIPING MAIN WITHIN SHELVING CABINET PIPING TUNNEL AS SHOWN.

(7) ROUTE 1" HWR FROM UV-MS-33 HEATING COIL WITHIN SHELVING CABINET PIPING TUNNEL TO CLASSROOM 234 PIPING TUNNEL.

(8) CONNECT TO EXISTING 1-1/4" HWR RISER ABOVE FLOOR PENETRATION AND ROUTE 1-1/4" HWR PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNELS. PROVIDE 1" HWR BRANCHES TO UV HEATING COILS AT EACH UV LOCATION. PROVIDE 1" HWS CONNECTION TO EACH UV HEATING COIL AND ROUTE HWS PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL AS SHOWN.

(9) ROUTE 3/4" CONDENSATE DRAIN PIPING FROM UV DRAIN PAN OUTLET DOWN THROUGH FLOOR TO FIRST FLOOR CEILING PLENUM.

(10) TYPICAL REFRIGERANT LIQUID BRANCH CONNECTOR 'Y' FITTING JOINT.

(11) TYPICAL RERIGERANT SUCTION BRANCH CONNECTOR 'Y' FITTING JOINT.

(12) CONNECT TO EXISTING 1" HWS RISER ABOVE FLOOR PENETRATION LOCATION AND ROUTE 1" HWS PIPING MAIN WITHIN SHELVING CABINET PIPING TUNNEL AS SHOWN.

(13) PROVIDE 8" WIDE x 8" DEEP VERTICAL PIPE ENCLOSURE UNIT AT CORNER OF CLASSROOM TO CONCEAL REFRIGERANT LIQUID-SUCTION PIPING DROPS. ROUTE VERTICAL PIPING DOWN THROUGH TOP OF UNIT VENTILATOR SHELVING CABINET TOP AND CONNECT TO UV DX COIL CONNECTION AND UV EXPANSION VALVE KIT AS REQUIRED. HEIGHT OF VERTICAL PIPING ENCLOSURE SHALL EXTEND FROM TOP OF SHELVING CABINET SYSTEM TO UNDERSIDE OF SUSPENDED CEILING SYSTEM.

(14) CONNECT TO EXISTING 1" HWR RISER ABOVE FLOOR PENETRATION AND ROUTE 1" HWR PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNELS. PROVIDE 1" HWR BRANCHES TO UV HEATING COILS AT EACH UV LOCATION. PROVIDE 1" HWS CONNECTION TO EACH UV HEATING COIL AND ROUTE HWS PIPING WITHIN UV AND UV SHELVING CABINET SYSTEM PIPING TUNNEL AS SHOWN.

(15) PROVIDE 1" EXPANSION COMPENSATORS ON THE HWS/HWR PIPING MAINS ROUTED WITHIN THE UNIT VENTILATOR PIPING TUNNEL AT LOCATION SHOWN. THE COMPENSATORS SHALL BE 12.5" LONG. PROVIDE ANCHORS ON EACH END OF BOTH THE HWS/R RUNS AND PROVIDE PIPE GUIDES WITHIN 14 PIPE DIAMETERS OF THE COMPENSATORS ON BOTH THE HWS AND HWR COMPENSATORS.

(16) PROVIDE 5" DEEP x 24" HIGH HORIZONTAL PIPING ENCLOSURE UNITS AT LOCATIONS SHOWN TO CONCEAL PIPING ROUTED TO UNIT VENTILATORS. ALIGN TOP OF ENCLOSURE UNITS WITH TOP OF UNIT VENTILATOR CABINETS.

(17) PROVIDE MOTORIZED DAMPER WITHIN EXISTING EA DUCT RISER. MODIFY EA RISER AS REQUIRED FOR DAMPER INSTALLATION. TIE CONTROL OF DAMPER TO OPERATION OF REPLACEMENT ROOFTOP EXHAUST FAN CONNECTED TO EA RISER.

(18) PROVIDE MOTORIZED DAMPER WITHIN EXISTING EA DUCT RISER. MODIFY EA RISER AS REQUIRED FOR DAMPER INSTALLATION. TIE CONTROL OF DAMPER TO OPERATION OF ROOFTOP EXHAUST FAN CONNECTED TO EA RISER. PROVIDE CONTROL RELAY TO EXISTING EXHAUST FAN AND TIE OPERATION OF EXHAUST FAN TO DDC SYSTEM.

(19) DISCONNECT AND REMOVE EXISTING 2-WAY PNEUMATIC CONTROL VALVE WITHIN EXISTING FIN TUBE ENLCOSURE SYSTEM. DISCONNECT AND REMOVE ALL PNEUMATIC TUBING BACK TO PNEUMATIC MAIN. PROVIDE ELECTRONIC 2-WAY CONTROL VALVE RATED AT 1.5 GPM AT LOCATION OF REMOVED PNEUMATIC CONTROL VALVE. MODIFY HWS BRANCH PIPING AS REQUIRED FOR INSTALLATION OF ELECTRONIC CONTROL VALVE. PROVIDE SPACE TEMPERATURE SENSOR AT LOCATION SHOWN AND TIE OPERATION OF CONTROL VALVE/SENSOR INTO EXISTING SIEMENS DDC SYSTEM.

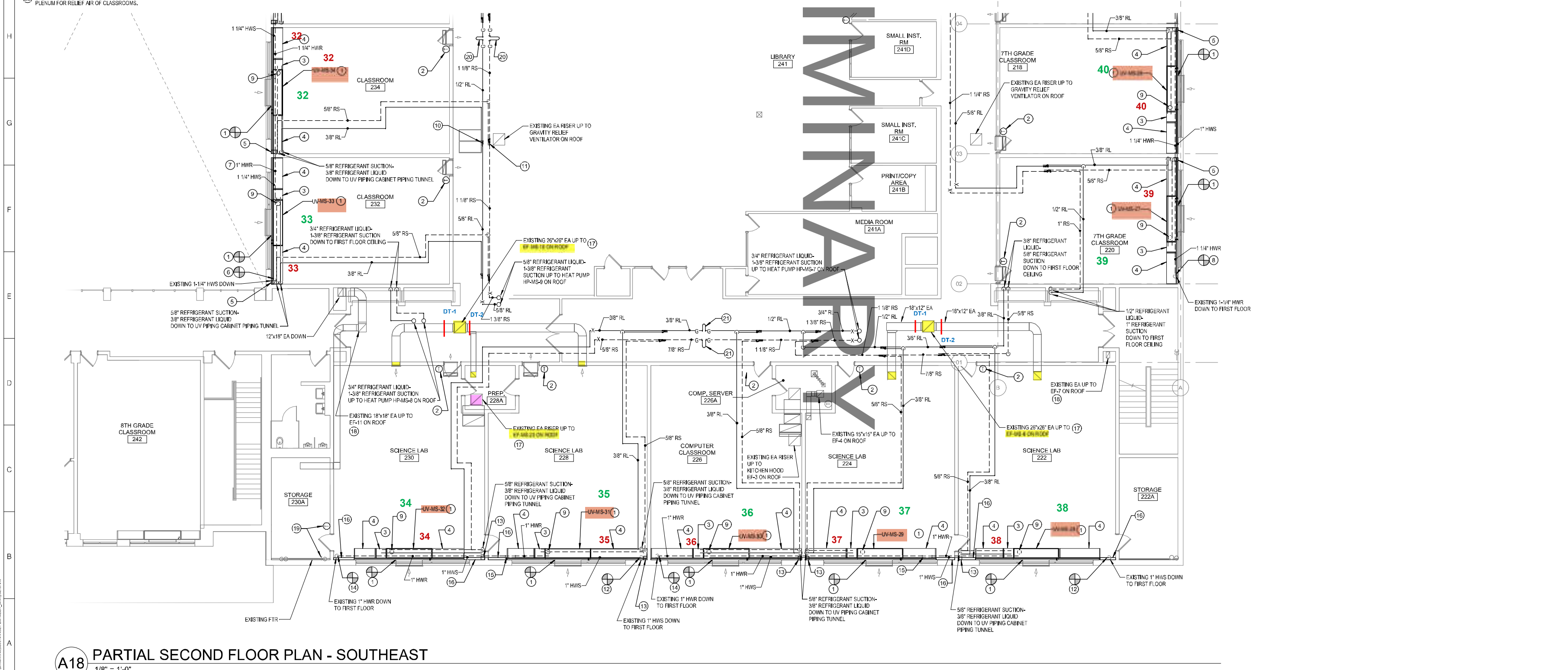
(20) PROVIDE UL-207 LISTED EXPANSION LOOP FOR THE 1/2" REFRIGERANT LIQUID AND 1-1/8" REFRIGERANT SUCTION LINES AT LOCATION SHOWN. THE 1/2" LOOP SHALL BE 28-1/2" LONG x 17-1/2" HIGH. THE 1-1/8" LOOP SHALL BE 30" LONG x 23" WIDE. PROVIDE PIPE GUIDES ON EITHER SIDE OF LOOP AND PIPE ANCHORS AT END OF PIPING RUNS PER MANUFACTURER'S RECOMMENDATIONS.

(21) PROVIDE UL-207 LISTED EXPANSION LOOP FOR THE 3/8" REFRIGERANT LIQUID AND 7/8" REFRIGERANT SUCTION LINES AT LOCATION SHOWN. THE 3/8" LOOP SHALL BE 28-1/2" LONG x 17-1/2" HIGH. THE 7/8" LOOP SHALL BE 28-1/2" LONG x 19-3/4" WIDE. PROVIDE PIPE GUIDES ON EITHER SIDE OF LOOP AND PIPE ANCHORS AT END OF PIPING RUNS PER MANUFACTURER'S RECOMMENDATIONS.

(22) LOCATION OF TYPICAL CEILING MOUNTED RELIEF AIR REGISTER DUCTED THROUGH CORRIDOR WALL TO CORRIDOR CEILING PLENUM, TERMINATED OPEN-ENDED ABOVE CEILING PLENUM FOR RELIEF AIR OF CLASSROOMS.

GENERAL NOTES:

1. REFRIGERANT PIPING NOTE: 90 DEGREE ELBOWS SHALL BE KEPT A MINIMUM OF 20" FROM BRANCH CONNECTOR 'Y' JOINTS. IN ADDITION, BRANCH CONNECTOR 'Y' JOINTS SHALL BE A MINIMUM OF 40" FROM ANOTHER BRANCH 'Y' CONNECTOR JOINT.
2. REFRIGERANT PIPING NOTE: THE HEAT PUMP SYSTEM MANUFACTURER SHALL INSPECT ALL FIELD INSTALLED REFRIGERANT PIPING PRIOR TO INSULATION INSTALLATION.
3. THE EXISTING SUSPENDED CEILING SYSTEMS LOCATED WITHIN THE SCOPE OF WORK AREA OUTSIDE OF AREAS BEING RENOVATED BY THE GENERAL CONTRACTOR SHALL BE DISCONNECTED AND REMOVED TO ALLOW FOR THE INSTALLATION WORK AND REINSTALLED FOLLOWING COMPLETION OF THE WORK BY THE MECHANICAL CONTRACTOR. THE SUSPENDED CEILING GRID SYSTEMS SHALL BE REMOVED AND MODIFIED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF WORK. THE CEILING TILES SHALL BE REMOVED AS REQUIRED TO COMPLETE THE WORK AND REINSTALLED FOLLOWING THE COMPLETION OF THE INSTALLATION WORK. ANY CEILING TILES DAMAGED DURING THE INSTALLATION WORK SHALL BE REPLACED BY THE MECHANICAL CONTRACTOR TO MATCH THE EXISTING CEILING TILES.
4. ALL CUTTING, PATCHING, AND FIREPROOFING ASSOCIATED WITH THE INSTALLATION WORK SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR. PATCHED AREAS SHALL MATCH EXISTING CONDITIONS. ALL REFRIGERANT PIPING AND CONDENSATE PIPING PENETRATIONS THROUGH CORRIDOR WALLS SHALL BE FIREPROOFED PER SPECIFICATION SECTION 078400.
5. ROUTE REFRIGERANT SUCTION AND LIQUID PIPING FROM THE UNIT VENTILATOR DX COIL CONNECTIONS TO THE HEAT PUMP UNITS. SIZE PIPING AND PROVIDE BRANCH CONNECTOR 'Y' JOINTS PER THE DRAWING. CONFIRM PIPING SIZES AND BRANCH CONNECTOR 'Y' JOINT LOCATIONS REQUIRED WITH HEAT PUMP SYSTEM MANUFACTURER.
6. ROUTE REFRIGERANT PIPING THROUGH THE ROOF TO THE ROOF MOUNTED HEAT PUMP SYSTEMS. PROVIDE A PIPE CURB AND SIDE REFRIGERANT PIPIPNG OUTLET PORTAL AT THE ROOF PENETRATION OF EACH HEAT PUMP SYSTEM.
7. THE SMALLEST VOLUME ROOM THAT THE REFRIGERANT PIPING SYSTEMS ROUTE THROUGH FOR EACH OF THE HEAT PUMP SYSTEMS IS BELOW THE ASHRAE STANDARD 15 REFRIGERANT CONCENTRATION LIMIT OF 26 POUNDS PER 1,000 CUBIC FEET OF ROOM VOLUME FOR OCCUPIED SPACES.
8. PROVIDE FIRESTOPPING PER SPECIFICATION SECTION 078400 AT ALL PIPING PENETRATIONS THROUGH CORRIDOR WALLS AND STORAGE ROOM WALLS.
9. THE UV UTILITY COMPARTMENT SHALL INCLUDE A REMOVABLE FRONT PANEL, STANDARD #1/4-20 HEX FASTENER, STEEL TOP AND BACK WALL F-CHANNEL.
10. ROUTE REFRIGERANT SUCTION-LIQUID PIPING WITHIN UNIT VENTILATOR PIPING TUNNELS AND UNIT VENTILATOR SHELVING SYSTEM TUNNELS TO DX COOLING COIL CONNECTIONS AND UV EXPANSION VALVE KITS PER THE MANUFACTURER'S RECOMMENDATIONS.



A18 PARTIAL SECOND FLOOR PLAN - SOUTHEAST
1/8" = 1'-0"

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KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: BID SET ISSUANCE
DATE: 06/06/2023
SCALE: 1/8" = 1'-0"
SHEET NAME: PARTIAL SECOND FLOOR PLAN - SOUTHEAST
SHEET NUMBER: BM-M115

ISSUE FOR BID SET

PROJECT NUMBER: 2111002.00