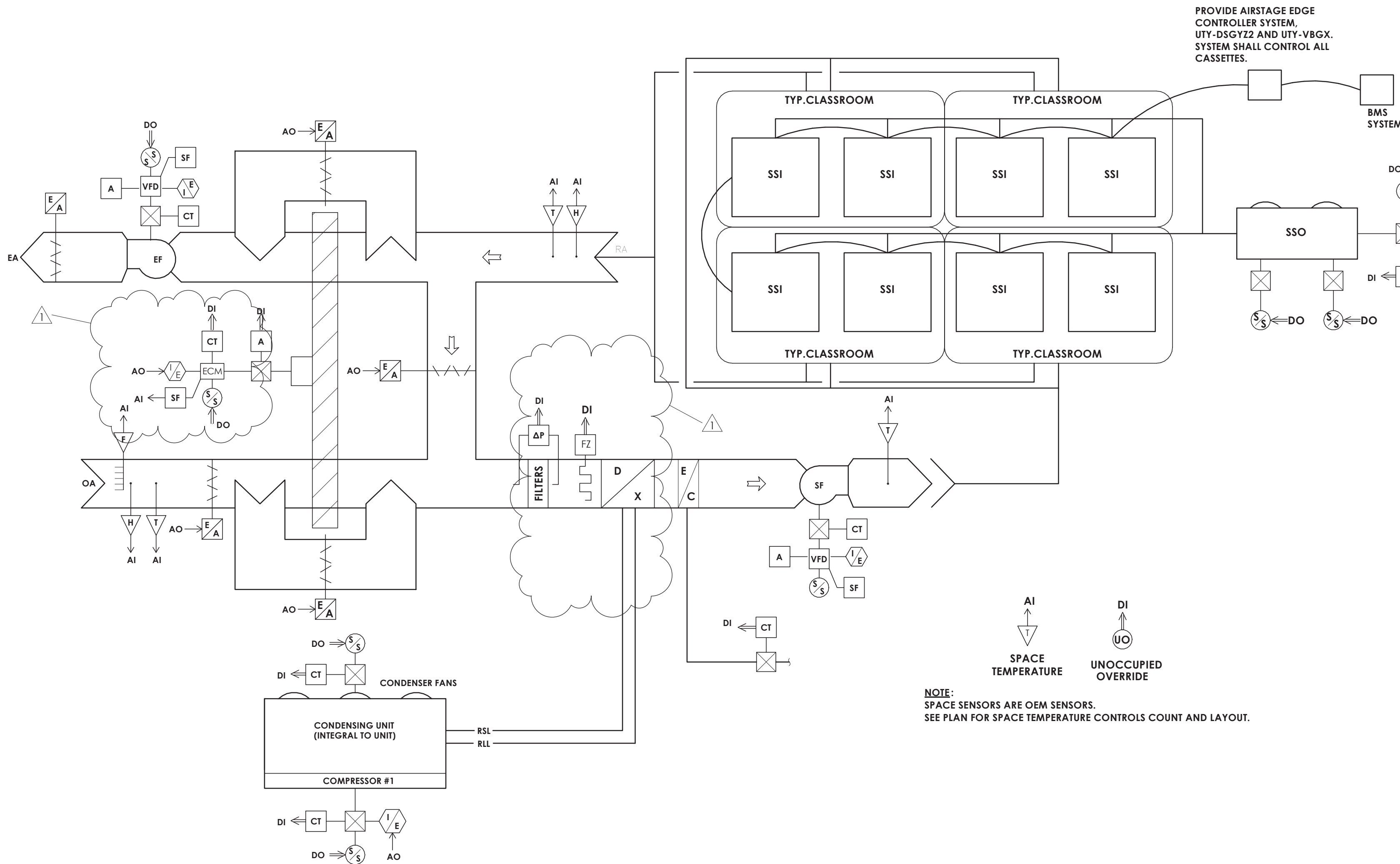


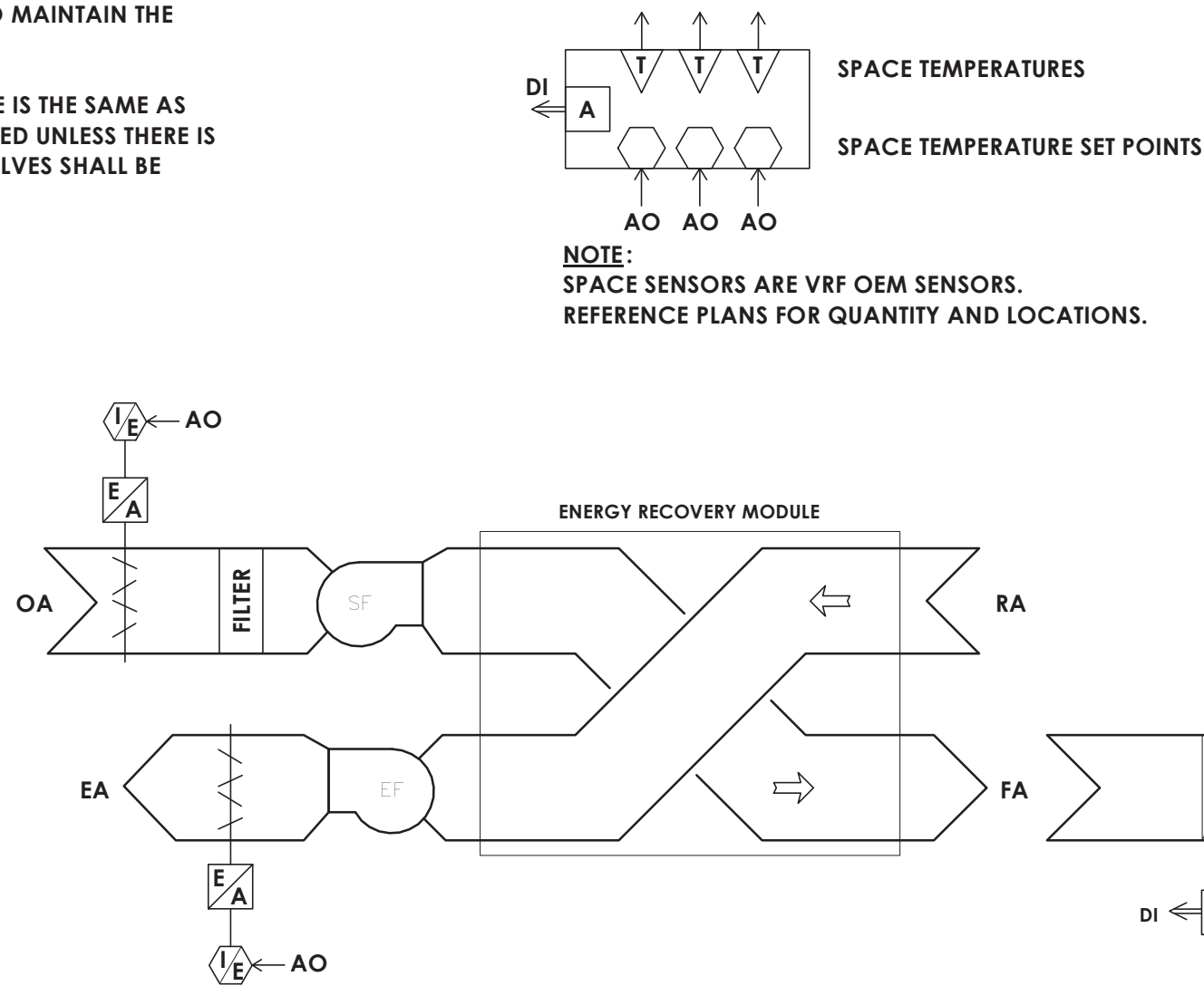
11/17/2023 9:06:15 AM c:\project\location> REVIT PROJECT FILES ON BIM360



1 TYPICAL CLASSROOM DOAS CONTROLS DIAGRAM
SCALE: NOT TO SCALE

A. ENERGY RECOVERY UNITS:

1. OCCUPIED MODE
 - a. ENABLE SUPPLY AND EXHAUST EC FAN MOTORS AT ALL TIMES.
 - 1) ENERGIZE THE DUCT MOUNTED HEATING COIL TO MAINTAIN THE DUCT TEMPERATURE SET POINT.
2. UNOCCUPIED MODES
 - a. SEQUENCE OF OPERATIONS IN UNOCCUPIED MODE IS THE SAME AS OCCUPIED MODE EXCEPT THE ERU SHALL BE DISABLED UNLESS THERE IS A CALL FOR HEATING OR COOLING. CONTROL VALVES SHALL BE CLOSED UNLESS THE ERU IS ENABLED.
3. ALARMS
 - a. FAN START FAILURE.
 - b. FAN STOP FAILURE.
 - c. HIGH/LOW DISCHARGE AIR TEMPS.
 - d. HIGH/LOW COIL ENTERING AIR TEMPS
 - e. HIGH WATER LEVEL IN DRAIN PAN
 - f. DIRTY FILTER



2 OFFICE VRF SYSTEM CONTROLS SCHEMATIC
SCALE: NOT TO SCALE

ROOFTOP DEDICATED OUTSIDE AIR SYSTEMS (DOAS) - ENERGY RECOVERY UNITS:

1. OCCUPIED
 - A. THE BMS WILL START THE UNIT SUPPLY AND RELIEF/EXHAUST FANS BASED ON A TIME-OF-DAY SCHEDULE. THE FANS WILL BE ENERGIZED CONTINUOUSLY WHENEVER THE ZONE IS SCHEDULED TO BE OCCUPIED. THE OUTSIDE AIR DAMPERS SHALL OPEN FULLY TO PROVIDE THE MINIMUM REQUIRED OUTSIDE AIR TO MEET THE VOLUMETRIC FLOW RATES INDICATED ON THE VENTILATION SCHEDULE. THE RELIEF AIR VENTILATOR DAMPER SHALL INDEX OPEN TO MATCH THE POSITION OF THE OUTSIDE AIR DAMPER TO EQUALIZE THE VOLUME OF RELIEF AIR WITH THE VOLUME OF OUTSIDE AIR. THE BMS WILL MONITOR THE DISCHARGE AIR TEMPERATURE.
 - B. THE INTEGRAL AIR-COOLED HEAT PUMP WILL OPERATE HEATING AND COOLING OPERATION TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT.
 - C. THE SUPPLEMENTAL HEATING COIL WILL REMAIN OFF DURING NORMAL UNIT OPERATION.
 - D. WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 10 DEG. F. THE HEAT PUMP WILL BE DISABLED, AND THE ELECTRIC COIL SHALL MAINTAIN THE DOWNSTREAM SUPPLY AIR TEMPERATURE SETPOINT.
 - E. IF THE CONNECTED SPACES ARE CALLING FOR COOLING, AND THE BMS INDICATES THAT ECONOMIZER OPERATION IS APPROPRIATE, THE BYPASS DAMPERS WILL MODULATE OPEN TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT. THE ELECTRIC COIL WILL BE OFF. THE OUTSIDE AIR DAMPER WILL BE RESTRICTED TO LIMIT THE MINIMUM DISCHARGE AIR TEMPERATURE TO A SETPOINT OF 55 DEGREES F (ADJUSTABLE) WHILE THE SPACE TEMPERATURE IS ABOVE THE COOLING SETPOINT.
 - F. IF THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT OF 74 DEGREES F (ADJUSTABLE), AND THE BMS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE, THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND COOLING WILL BE ENABLED.
 - G. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. DX COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM CONFIRMS ASSISTED COOLING IS VIABLE.
 - H. ENERGY RECOVERY WHEEL CONTROL
 - 1) THE ENERGY RECOVERY WHEEL MOTOR WILL BE ENABLED WHENEVER THE SUPPLY AND RETURN/EXHAUST FANS ARE ENABLED EXCEPT AS NOTED HERE:
- (A) THE ENERGY RECOVERY WHEEL MOTOR SHALL BE DISABLED WHEN THE BMS DETERMINES THAT IT IS BENEFICIAL TO USE ADDITIONAL OUTSIDE AIR FOR COOLING (ECONOMIZER MODE)
- (B) THE ENERGY RECOVERY WHEEL MOTOR SHALL BE DISABLED FOR TWO MINUTES OUT OF EACH 30 MINUTE PERIOD WHEN THE OUTDOOR AIR TEMPERATURE IS AT OR BELOW ZERO DEGREES F (DEFOST CYCLE).
- I. THE BMS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW DISCHARGE AIR TEMPERATURE IS DETECTED.
2. UNOCCUPIED
 - A. WHEN THE ZONE IS SCHEDULED TO BE UNOCCUPIED, THE FANS WILL BE DISABLED, AND THE OUTSIDE AIR DAMPER WILL BE CLOSED.
3. ALARMS
 - A. FAN FAILURE
 - 1) IF STATUS OF A FAN, WHICH HAS BEEN CALLED BY THE BMS SYSTEM TO START, HAS NOT BEEN VERIFIED AS RUNNING WITHIN A PERIOD OF 10 SECONDS (ADJ.), AN ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION. THE FAN SHALL BE IDENTIFIED BY A DESCRIPTION OF WHAT IT SERVES, AND SHALL BE TAGGED AS A "FAN FAILURE".
 - B. LOW LIMIT THERMOSTAT
 - 1) IF THE AIR LEAVING THE HOT WATER COIL DROPS BELOW 38 DEGREES F (ADJ.) THE SUPPLY FAN SHALL BE STOPPED VIA HARD WIRE INTERLOCK AND THE BMS SYSTEM SHALL BE ALERTED BY A SET OF DRY CONTACTS PROVIDED BY THE LOW LIMIT THERMOSTAT. AN ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION. THE UNIT SHALL BE IDENTIFIED BY ITS CALL NUMBER AND SHALL BE TAGGED AS A "LOW LIMIT THERMOSTAT ALARM". THE UNIT MUST BE MANUALLY RESET BEFORE IT CAN BE RESTARTED.

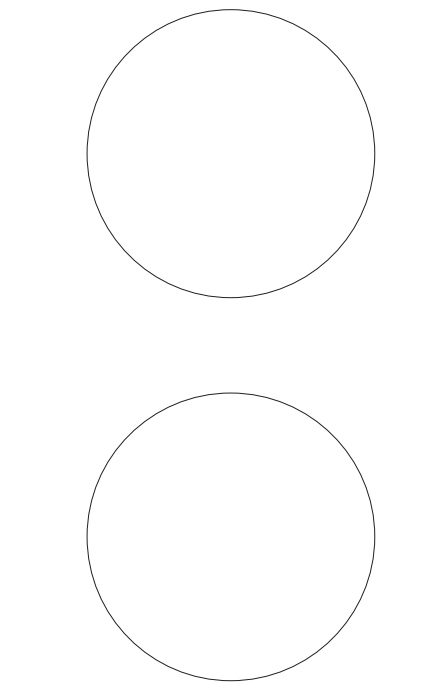
ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.
BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPMENT.
SEE PLANS FOR QUANTITY AND LOCATION, FOR BOTH SCHOOLS.
VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

GENERAL NOTES:

1. SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.
- 1.1 HVAC CONTROL SEQUENCES :
 - A. GENERAL
 - 1) ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL BE USER ADJUSTABLE.
 - 2) CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OPTIMALLY.
 - 3) COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.
 - 4) ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATION(S) AND DEVICE(S). CRITICAL ALARMS SHALL INCORPORATE COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND REQUIRE THE ALARM TO BE CLEARED PRIOR TO RESTARTING THE EQUIPMENT.
 - 5) ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.
 - 6) ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.
 - 7) ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
 - 8) UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).
 - 9) COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.
 - B. UNIVERSAL SET POINTS, UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.

	COOLING	HEATING	COOLING	HEATING
OCCUPIED SPACES	74°F	69°F	85°F	55°F
UNOCCUPIED SPACES	80°F	40°F	85°F	55°F

PROFESSIONAL STAMPS



NEW YORK STATE EDUCATION DEPARTMENT
IF A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S
REGULATIONS FOR ANY PERSON, UNDER ACTUAL OR CONSTRUCTIVE SUPERVISION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER ANYTHING IN ANY WAY, IF ANYTHING
BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING
PARTY SHALL BE CONSIDERED TO HAVE VIOLATED THE PROVISIONS OF THE EDUCATION LAW,
THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE
ALTERATION.

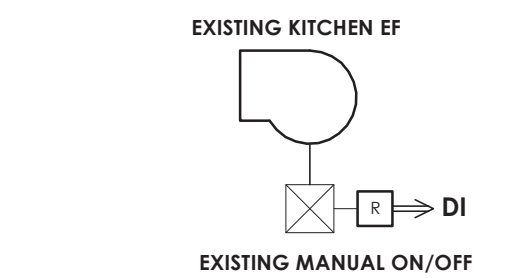
SHEET INFORMATION	
Issued	Scale
10/18/2023	12" = 1'-0"
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
KCM	JJM
Drawing Title	
MECHANICAL CONTROLS	

EXISTING CONTROL SEQUENCE: FOR BOTH UNITS

- 3.1 HVAC CONTROL SEQUENCES
- A. ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.
- B. AHU'S/RTU'S AND ASSOCIATED SPACE EQUIPMENT AND DUCTWORK SYSTEM:
1. ASSIGN EACH RTU A STAGGER START NUMBER TO KEEP TOO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
2. OUTSIDE AIR AND RETURN AIR DAMPERS SHALL NEVER BE SIMULTANEOUSLY CLOSED. IN UNOCCUPIED MODES, THE RETURN AIR DAMPER SHALL BE FULL OPEN AND SHALL ONLY MODULATE CLOSED AS THE OUTDOOR AIR DAMPER MODULATES OPEN TO PROVIDE MAKEUP FOR SPACES THAT ARE EXHAUSTED.
3. ALL OCCUPIED MODES:
- A. RTU SUPPLY FAN:
- 1) RUN CONTINUOUSLY.
- B. RTU EXHAUST FAN:
- 1) RUN CONTINUOUSLY.
- C. OUTSIDE AIR DAMPER:
- 1) OPEN TO MAINTAIN OUTSIDE AIR QUANTITY AS SCHEDULED. OUTSIDE AIR DAMPER SHALL NEVER BE POSITIONED BELOW THIS MINIMUM EXCEPT IN CASE OF EMERGENCY.
- 2) MODULATE OUTSIDE AIR DAMPER BEYOND SCHEDULED MINIMUM POSITION AS FOLLOWS:
- A) AS REQUIRED FOR ECONOMIZER COOLING (SEE COOLING MODE BELOW).
- D. EXHAUST AIR DAMPER:
- 1) MODULATE WITH OUTSIDE AIR DAMPER TO MAINTAIN FOLLOWING AIR BALANCE: EXH CFM = SA CFM - OA CFM.
4. OCCUPIED HEATING MODE - SPACE TEMPERATURE BELOW SET POINT.
- A. UNIT MOUNTED HEATING COIL: MODULATE COIL CONTROL VALVE (CV) TO MAINTAIN SPACE TEMPERATURE SET POINT.
- B. UNIT MOUNTED INDIRECT FIRED GAS HEATING: MODULATE GAS BURNER TO MAINTAIN SPACE TEMPERATURE SET POINT.
- C. SPACE TEMPERATURE SET POINTS:
- 1) HEATING = 69 DEGREES (ADJUSTABLE).
- D. LAT TEMPERATURE SET POINTS:
- 1) MINIMUM TEMPERATURE RESET SCHEDULE:
- A. 45 DEGREE LAT AT 0 DEGREE OAT.
- B. 55 DEGREE LAT AT 55 DEGREE OAT.
5. OCCUPIED ECONOMIZER COOLING MODE - WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.
- 1) ECONOMIZER COOLING SET POINT: 74°F.
- 2) MODULATE EXHAUST AND OUTDOOR AIR DAMPERS INVERSELY TO MAINTAIN SPACE TEMPERATURE SET POINT.
6. ALL UNOCCUPIED MODES:
- I. SPACE TEMPERATURE SET POINTS:
- 1) HEATING = 60 DEGREES.
- 2) COOLING = 85 DEGREES, FOR UNITS WITH DX.
- B. RTU AND DUCT MOUNTED HEATING COIL:
- 1) ALL SAME AS OCCUPIED MODE WITH FOLLOWING EXCEPTIONS:
- a) ENABLE AND DISABLE UNIT ONLY TO MEET TEMPERATURE SET POINT.
- b) RETURN AIR DAMPER SHALL BE IN THE FULL OPEN POSITION.
- c) EXHAUST AIR DAMPER SHALL BE IN THE FULL CLOSED POSITION.
- d) THE EXHAUST FAN SHALL REMAIN DISABLED.
7. WARM-UP MODE:
- a. ALL UNITS SHALL START PER OPTIMUM START PROGRAM.
- 1) OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.

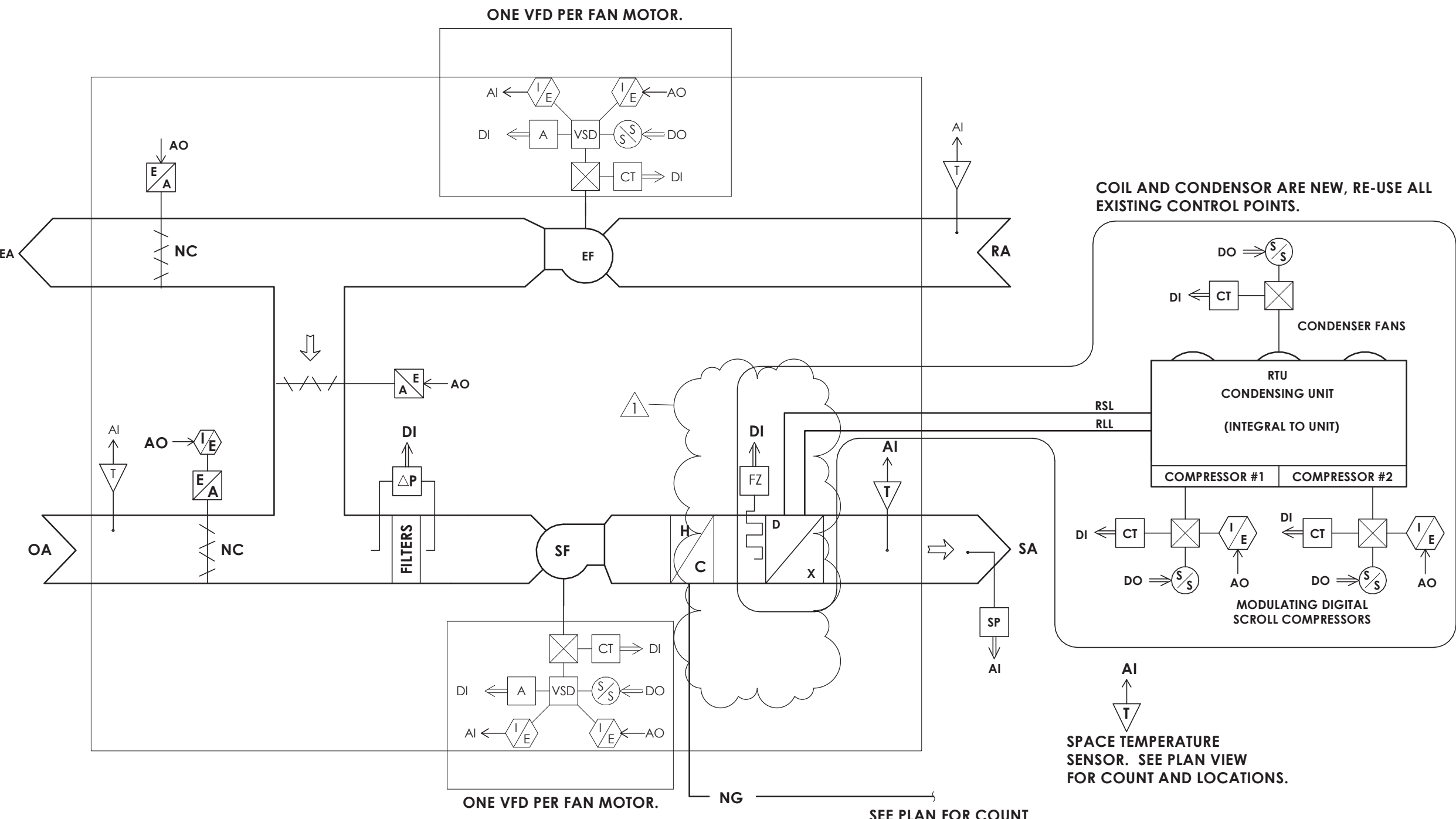
- C. CARBON MONOXIDE DETECTION:
1. UPON RISE IN CARBON MONOXIDE AT OR ABOVE 20PPM AS DETECTED BY A SPACE SENSOR, DISPLAY ALARM AT OPERATOR WORK STATION.
2. UPON RISE IN CARBON MONOXIDE LEVEL AT OR ABOVE 30PPM AS DETECTED BY A SPACE SENSOR, SOUND AUDIBLE ALARM AT SENSOR AND AT THE ASSOCIATED HALLWAY SENSOR IF APPLICABLE.

1. OCCUPIED COOLING MODE - SPACE TEMPERATURE BELOW SET POINT. - WHERE APPLICABLE
- a. UNIT MOUNTED DX COOLING COIL: MODULATE DX COMPRESSOR TO MAINTAIN SPACE TEMPERATURE SET POINT.
- b. SPACE TEMPERATURE SET POINTS:
- 1) COOLING = 75 DEGREES (ADJUSTABLE).
- c. LAT TEMPERATURE SET POINTS:
- 2) COOLING = 55 DEGREE LAT AT 88 DEGREE OAT.

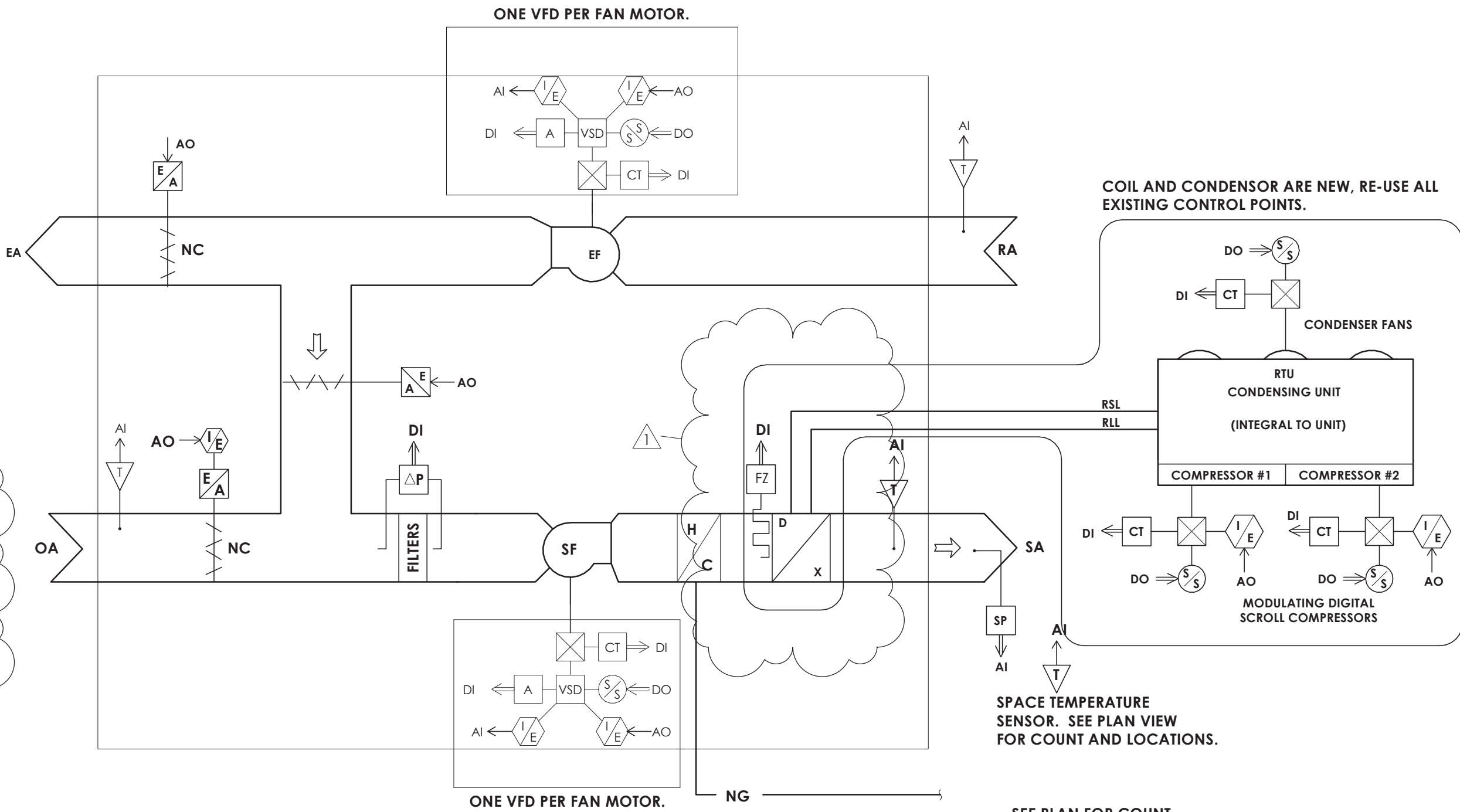


- KITCHEN FAN ENABLED:
1. WHEN THE KITCHEN EXHAUST FAN IS ON AND RTU-1 IS IN FULL OCCUPIED MODE THE RETURN AIR FAN SHALL MODULATE TO 3750 CFM AND THE EXHAUST AIR DAMPER SHALL MODULATE TO 650 CFM.
2. WHEN THE KITCHEN EXHAUST FAN IS ON AND RTU-1 IS AT ITS STANDARD OCCUPIED MODE THE RETURN AIR FAN SHALL MODULATE TO 3750 CFM, THE EXHAUST AIR DAMPER SHALL CLOSE AND THE OUTDOOR AIR DAMPER SHALL MODULATE TO 750 CFM.

- KITCHEN FAN DISABLED:
1. WHEN THE EXISTING KITCHEN FAN IS OFF THE RETURN FAN AND EXHAUST AIR DAMPER IN RTU-1 SHALL MODULATE TO THE SCHEDULED VALUES ON SHEET WOS-H800



1
H504
NOT TO SCALE
AIR-HANDLING UNIT RTU-WOS-1



2
H504
NOT TO SCALE
AIR-HANDLING UNIT RTU-WOS-2

ALTERNATE MC-01 - PROVIDE NEW FULL BUILDING CONTROLS AND ALL ASSOCIATED COMPONENTS TO HAVE A NEW HEAD END AND FULLY OPERATIONAL SYSTEM. PROVIDE CONTROLS TO ALL EXISTING TO REMAIN EQUIPMENT.

BASE BID - PROVIDE CONTROLS AND NEW HEAD END FOR THE NEW EQUIPMENT.

SEE PLANS FOR QUANTITY AND LOCATION. FOR BOTH SCHOOLS.

VERIFY ALL EXISTING CONTROL SEQUENCES BEFORE THE COMMENCEMENT OF ANY DEMOLITION WORK.

GENERAL NOTES:

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5. ALL HVAC EQUIPMENT SHALL OPERATE IN OCCUPIED/UNOCCUPIED MODES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. OBTAIN THE BUILDING OCCUPANCY SCHEDULE FROM THE OWNER.
6. ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.
7. ASSIGN ALL EQUIPMENT A STAGGER START NUMBER TO KEEP TO MANY UNITS FROM STARTING AT THE SAME TIME. IN EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
8. UNOCCUPIED OVERRIDE BUTTONS SHALL PLACE THE SPACE EQUIPMENT IN OCCUPIED MODE FOR A PERIOD OF ONE-HOUR (ADJUSTABLE).
9. COORDINATE CHILLED WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.
- B. UNIVERSAL SET POINTS. UNLESS OTHERWISE NOTED, USE THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SPACE THROUGH THE BMS.
- | | COOLING | HEATING | COOLING | HEATING |
|-------------------|---------|---------|---------|---------|
| OCCUPIED SPACES | 74°F | 69°F | 85°F | 55°F |
| UNOCCUPIED SPACES | 80°F | 60°F | 85°F | 55°F |

- SOUTH ORANGETOWN CSD
- ☐ WILLIAM O. SCHAFER SED# 30-03-01-06-010-010
- ☐ COTTAGE LANE ELEMENTARY SED# 30-03-01-06-010-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED# 30-03-01-06-010-010-022
- ☐ WILLIAM O. SCHAFER SAL SED# 30-03-01-06-010-010-022
- ☐ COTTAGE LANE SAL SED# 30-03-01-06-010-010-022
- ☐ COTTAGE LANE LIBRARY SAL SED# 30-03-01-06-010-010-022
- ☐ WOS OUTDOOR CLASSROOM SED# 30-03-01-06-010-010-022
- ☐ WOS OUTDOOR CLASSROOM SED# 30-03-01-06-010-010-022
- ☐ CLE OUTDOOR CLASSROOM SED# 30-03-01-06-010-010-022
- ☐ 12HS OUTDOOR CLASSROOM SED# 30-03-01-06-010-010-022

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATION FOR ANY PERSON, UNDER ACTUAL OR CONSTRUCTIVE ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS AN ARCHITECT, ENGINEER OR LAND SURVEYOR, WITHOUT BEING A MEMBER OF AN ARCHITECTURAL, ENGINEERING OR SURVEYING BOARD, IS A VIOLATION OF THE PROFESSIONAL ETHICS ACT, AND THE PERSON IS SUBJECT TO PENALTIES, INCLUDING FINE, SUSPENSION AND THE DATE OF SUCH ACTION, AND A SPECIFIC DESCRIPTION OF THE VIOLATION.

SHEET INFORMATION

Issued 10/18/2023 Scale 12" = 1'-0"

Project Status BID DOCUMENTS

Drawn By KCM Checked By JJM

Drawing Title MECHANICAL CONTROLS

Drawing Number

GEN
H504

PROJECT INFORMATION

Project Number
14457.20

Client Name

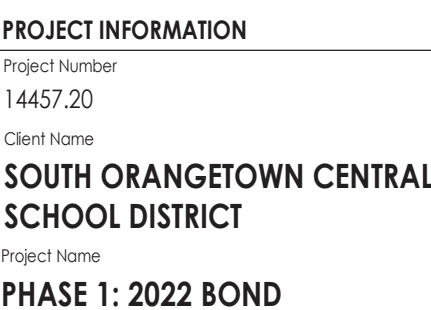
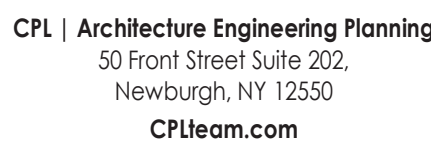
SOUTH ORANGETOWN CENTRAL
SCHOOL DISTRICT

Project Name

PHASE 1: 2022 BOND

District Office Address

160 VAN WYCK RD. BLAUVELT, NY 10913

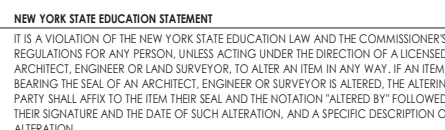


SOUTH ORANGETOWN CSD

☐	WILLIAM O. SCHAEFER SED#:	50-03-01-06-0-012-019
☐	COTTAGE LANE ELEMENTARY SED#:	50-03-01-06-0-010-022
☐	TAPPAN ZEE HIGH SCHOOL SED#:	50-03-01-06-0-06-032
☐	WILLIAM O. SCHAEFER S&L SED#:	50-03-01-06-0-012-020
☐	COTTAGE LANE S&L SED#:	50-03-01-06-0-010-023
☐	COTTAGE LANE LIBRARY S&L SED#:	50-03-01-06-0-028-032
☐	WOS OUTDOOR CLASSROOM SED#:	50-03-01-06-7-053-000
☐	SOMS OUTDOOR CLASSROOM SED#:	50-03-01-06-7-054-000
☐	CLS OUTDOOR CLASSROOM SED#:	50-03-01-06-7-054-001
☐	THE OUTDOOR CLASSROOM SED#:	50-03-01-06-7-055-000

PROJECT ISSUE & REVISION SCHEDULE		
No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



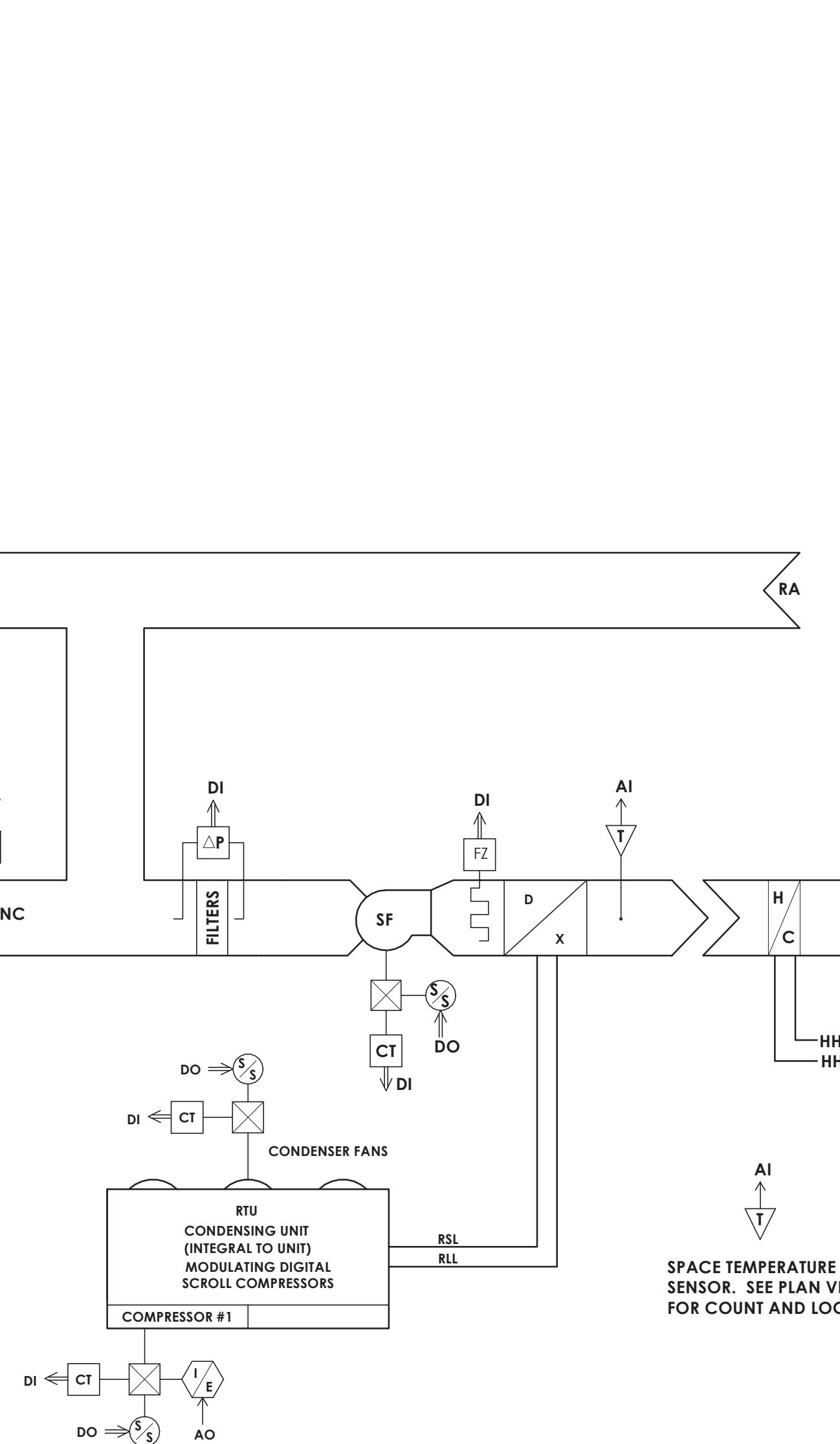
SHEET INFORMATION

SHEET INFORMATION	
Issued	Scale
10/18/2023	12" = 1'-0"
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Drawn By	Checked By
KCM	JJM
Drawing Title	

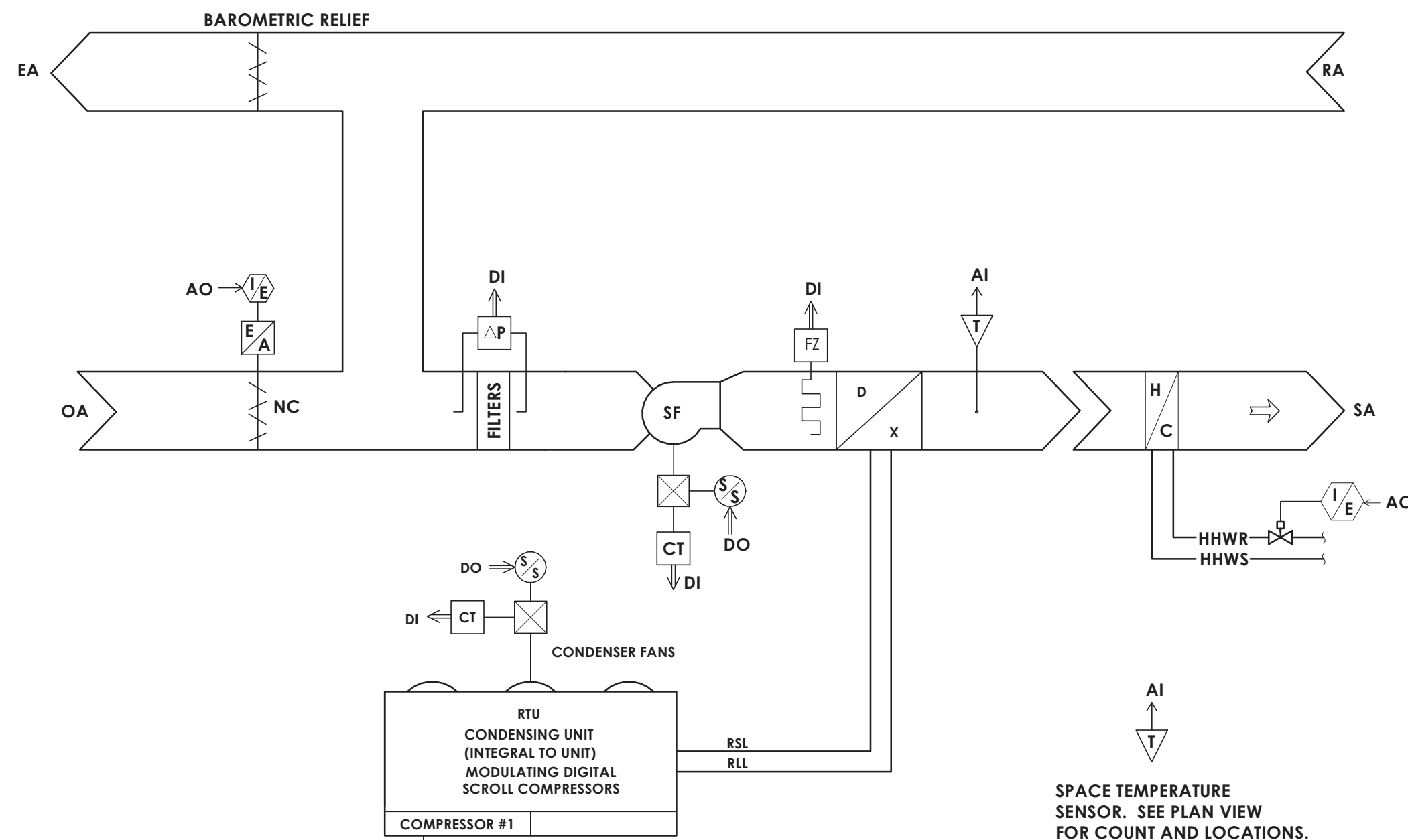
MECHANICAL CONTROLS

Drawing Number

GEN
H505



ROOFTOP UNIT RTU-3 CLE CONTROL SCHEMATIC



1 ROOFTOP UNIT RTU-3 CLE CONTROL SCHEMATIC

- 1. **ROOF TOP UNITS:**
 - a. ALL OCCUPIED MODES:
 - o. UNIT SUPPLY FAN:
 - 1) RUN CONTINUOUSLY.
 - o. UNIT EXHAUST FAN:
 - 1) RUN CONTINUOUSLY.
- 2. **OCCUPIED HEATING MODE - SPACE TEMPERATURE BELOW SET POINT.**
 - a. HEATING COIL: MODULATE HEATING COIL CONTROL VALVE (CV) TO MAINTAIN SPACE TEMPERATURE SET POINT.
 - b. SPACE TEMPERATURE SET POINTS:
 - 1) HEATING = 49 DEGREES (ADJUSTABLE).
 - c. LAT TEMPERATURE SET POINTS:
 - o. MINIMUM TEMPERATURE RESET SCHEDULE:
 - 45 DEGREE LAT AT 0 DEGREE OAT
 - 55 DEGREE LAT AT 55 DEGREE OAT
 - d. HEAT EXCHANGER FAN AND BYPASS DAMPER. MODULATE DAMPER AS RECOMMENDED BY THE UNIT MANUFACTURER FOR THE HEAT EXCHANGER DEFROST CYCLE
- 3. **OCCUPIED COOLING MODE - SPACE TEMPERATURE BELOW SET POINT . WHERE APPLICABLE**
 - a. UNIT MOUNTED DC COOLING COIL: MODULATE DC COMPRESSOR TO MAINTAIN SPACE TEMPERATURE SET POINT.
 - b. SPACE TEMPERATURE SET POINTS:
 - 1) COOLING = 75 DEGREES (ADJUSTABLE).
 - c. LAT TEMPERATURE SET POINTS:
 - 1) COOLING = 55 DEGREE LAT AT 88 DEGREE OAT
- 4. **OCCUPIED ECONOMIZER COOLING MODE - WHEN THERE IS CALL FOR COOLING AND THE OUTDOOR AIR TEMPERATURE IS BELOW THE SPACE TEMPERATURE.**
 - a. ECONOMIZER COOLING SET POINT: 74°F.
 - b. FULLY OPEN RECIRCULATION DAMPER.
 - c. IF THE SPACE TEMPERATURE RISES ABOVE THE HEATING SETPOINT OF 75 DEGREES (F) (ADJUSTABLE), THE CONTROLS INDICATES THAT ECONOMIZER OPERATION IS NOT APPROPRIATE. THE OUTSIDE AIR DAMPERS WILL MODULATE CLOSE TO MINIMUM POSITION AND THE DC COOLING STAGES WILL BE ENERGIZED.
 - d. ECONOMIZER OPERATION SHALL USE AN ALGORITHM COMPARING INDOOR AIR AND OUTDOOR AIR ENTHALPY TO DETERMINE IF COOLING OR ASSISTED COOLING IS VIABLE. DC COOLING AND ECONOMIZER COOLING WILL BE ALLOWED TO OPERATE SIMULTANEOUSLY IF THE ALGORITHM DETERMINES ASSISTED COOLING IS VIABLE.
 - e. THE CONTROLS WILL MONITOR FAN STATUS AND GENERATE AN ALARM WHENEVER THE FAN IS COMMANDED ON BUT THE STATUS INDICATES OFF. ALARMS WILL ALSO BE GENERATED IF A FREEZE CONDITION EXISTS OR IF A LOW SPACE TEMPERATURE IS DETECTED.
- 5. **ALL UNOCCUPIED MODES:**
 - a. SPACE TEMPERATURE SET POINTS:
 - 1) HEATING = 40 DEGREES.
 - 2) COOLING = 85 DEGREES.
 - 3) THERE SHALL BE A 5 DEGREE DEADBAND FOR HEATING AND COOLING SET POINTS.
 - b. HEATING COIL:
 - 1) ALL SAME AS OCCUPIED MODE WITH FOLLOWING EXCEPTIONS:
 - o. ENABLE AND DISAUIE UNIT ONLY TO MEET TEMPERATURE SET POINT.
 - o. DISABLE EXHAUST FAN.
 - o. OPEN RECIRCULATION DAMPER.
- 6. **WARM-UP MODE:**
 - a. ALL UNITS SHALL START PER OPTIMUM START PROGRAM.
 - 1) OPTIMUM START DURATION SHALL BE DETERMINED BASED ON OUTSIDE AIR TEMPERATURE.
 - 2) DURING THE OPTIMUM START PERIOD, THE HEATING SET-POINT SHALL BE LINEARLY RAMPED UP FROM UNOCCUPIED HEATING SET-POINT TO OCCUPIED HEATING SET POINT.
 - b. SYSTEMS SHALL OPERATE AS DESCRIBED IN UNOCCUPIED HEATING MODE WITH TEMPERATURE SET POINT EQUAL TO OCCUPIED HEATING SET POINT.
- 7. **ALARMS - PROVIDE AN ALARM FOR EACH OF THE FOLLOWING:**
 - a. FAN MOTOR FAILURES.
 - b. DISCHARGE AIR TEMPERATURE LOW/HIGH LIMITS.
 - c. FREEZE CONDITION.
 - d. DRAIN PAN.
 - e. SPACE TEMPERATURE LOW/HIGH LIMITS +/-5°F.
 - f. VFD FAULT.

GENERAL NOTES:

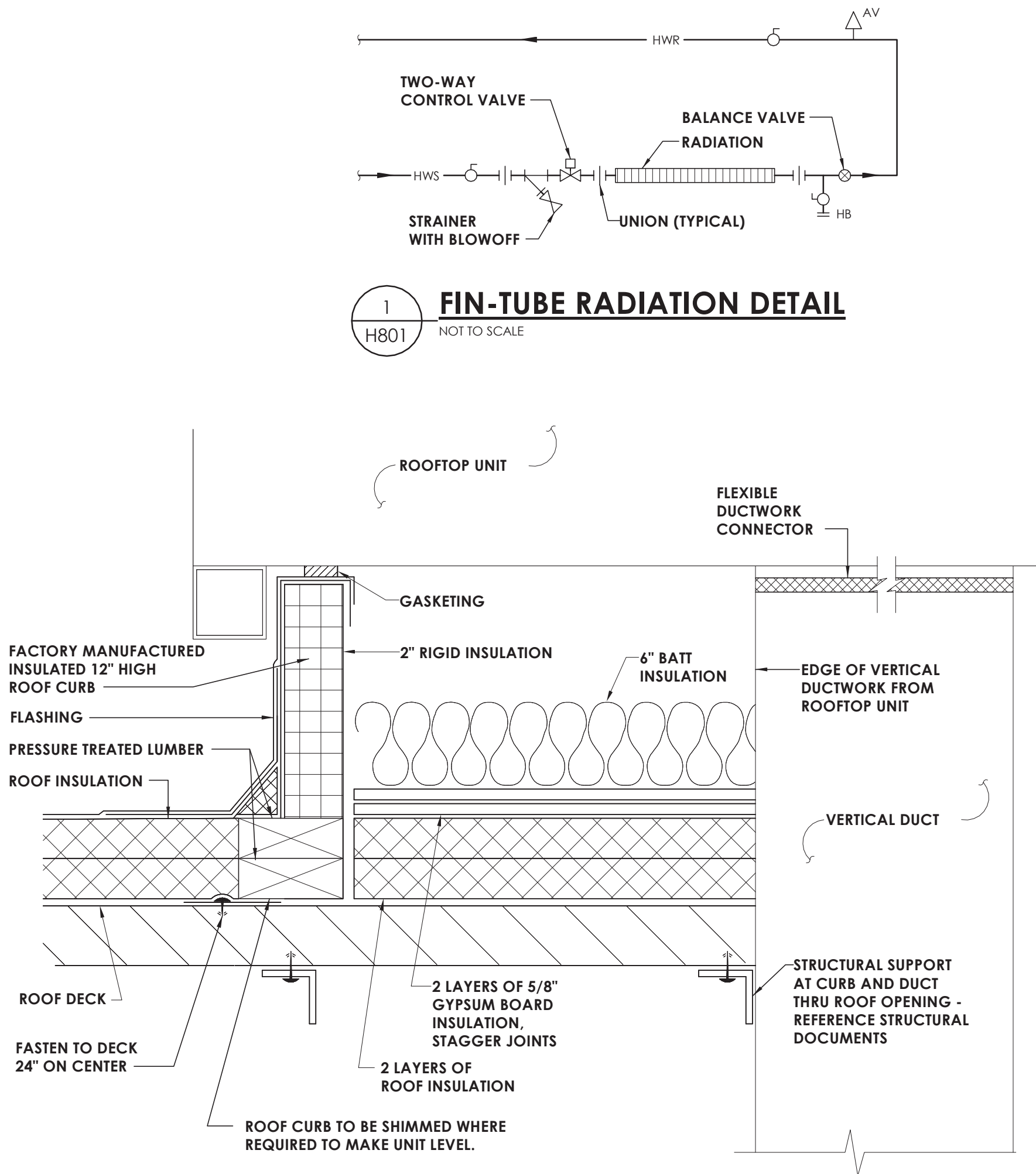
1. SEQUENCES OF OPERATION SPECIFIED HEREIN, WHICH INDICATE THE FUNCTIONAL INTENT OF HVAC SYSTEMS, SUBSYSTEMS, AND/OR COMPONENTS OPERATION, ARE GENERAL IN NATURE AND MAY NOT FULLY DEFINE EVERY ASPECT OF PROGRAMMING THAT MAY BE REQUIRED TO FULFILL THE DESIGN INTENT. CONTRACTOR SHALL PROVIDE ALL PROGRAMMING AND HARDWARE NECESSARY TO OBTAIN THE SEQUENCES/SYSTEM OPERATION INDICATED, RESULTING IN STABLE HVAC SYSTEM OPERATION IN ACCORDANCE WITH THE DESIGN INTENT. THE SYSTEM SHALL COMMUNICATE WITH THE EXISTING BMS.

1.1 HVAC CONTROL SEQUENCES :

1. ALL SET POINTS, CHANGEOVER POINTS AND RESET SCHEDULES SHALL USE A 15 MINUTE TIME STEP.
2. CONTROL ALGORITHMS SHALL UTILIZE TUNED PID LOOPS TO MAINTAIN SET POINTS AND MINIMUM/MAXIMUM LEAVING AIR TEMPERATURES OF COILS.
3. COORDINATE INDIVIDUAL ALARM NOTIFICATIONS WITH OWNER.
4. ALARMS SHALL BE CONFIGURED AS STATUS ONLY OR CRITICAL. STATUS ONLY ALARMS SHALL DISPLAY ALARM ON THE OWNER COORDINATED WORKSTATIONS) AND BE RESET BY CRITICAL ALARMS OR BY AN INCORPORATED COORDINATED UNIT SHUTDOWN ALONG WITH DISPLAYING ALARMS ON THE OWNER COORDINATED DEVICES AND TRIGGERING AN ALARM TO A CALL CENTER TO RESTARTING THE EQUIPMENT.
5. ALL HVAC EQUIPMENT SHALL OPERATE IN ACCORDANCE WITH EQUIPMENT SCHEDULES AS DETERMINED BY THE DDC BUILDING TIME CLOCK SYSTEM. ONLY THE BUILDING EQUIPMENT SCHEDULE FROM THE OWNER.
6. ALL EQUIPMENT SHALL UTILIZE OPTIMUM START/STOP PROGRAMS.
7. ASSIGN ALL EQUIPMENT A STAGGER START TIME TO KEEP ALL UNIT STARTS FROM OCCURRING AT THE SAME TIME. THE EFFECT, THIS FLATTENS LOAD PEAKS. THIS INCLUDES START-UP ON EMERGENCY POWER.
8. UNOCCUPIED CHILLER WATER VALVES SHALL PLACE THE SPACE EQUIPMENT IN ADJUSTABLE MODE FOR A PERIOD OF ONE-HOUR (OCCUPIED).
9. UNOCCUPIED CHILLER WATER VALVE AND CHILLED WATER PUMP RESPONSE TIME WITH THE CHILLER MANUFACTURER'S MAXIMUM RATE OF CHANGE IN CHILLED WATER FLOW.
10. UNOCCUPIED SET POINTS SHALL BE ADJUSTABLE TO THE FOLLOWING SPACE TEMPERATURE SET POINTS. SET POINTS SHALL BE INDEPENDENTLY ADJUSTABLE BY SP/ST THROUGH THE BMS.
11. UNOCCUPIED MODES

	COOLING	HEATING	COOLING	HEATING
UNOCCUPIED SPACE	55°F	65°F	55°F	55°F
UNOCCUPIED SPACES	50°F	40°F	55°F	55°F

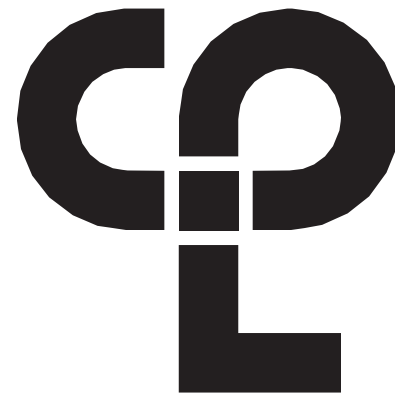
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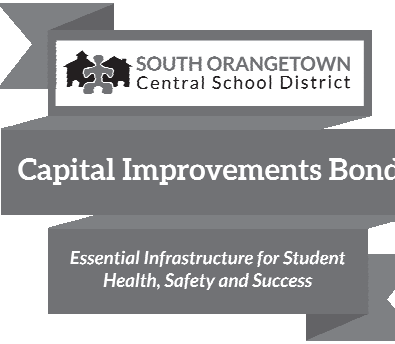
1
H801
NOT TO SCALE
FIN-TUBE RADIATION DETAIL

2
H801
NOT TO SCALE
ROOFTOP UNIT - ROOF CURB DETAIL

NOTE:
ALL ROOFTOP HVAC UNITS REQUIRED TO HAVE CURB AND CURB INTERIOR AS SHOWN.



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50 Front Street Suite 202,
Newburgh, NY 12550
CPLearn.com



PROJECT INFORMATION

Project Number

14457.20

Client Name

SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT

Project Name

PHASE 1: 2022 BOND

District Office Address

160 VAN WYCK RD,
BLAUVELT, NY 10913

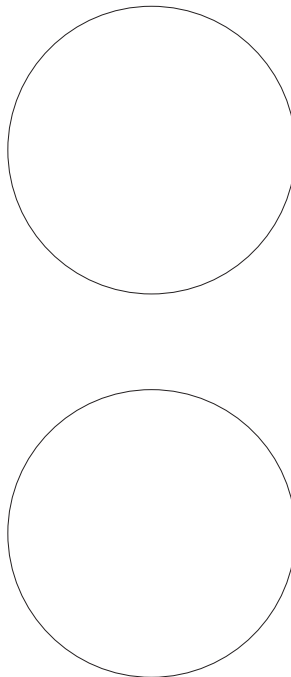
SOUTH ORANGETOWN CSD

- ☐ WILLIAM O. SCHAEFER SED#30-03-01-06-0-012-019
- ☐ COTTAGE LANE ELEMENTARY SED# 30-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED# 30-03-01-06-0-004-032
- ☐ WILLIAM O. SCHAEFER SAL SED# 30-03-01-06-0-012-020
- ☐ COTTAGE LANE SAL SED# 30-03-01-06-0-010-033
- ☐ COTTAGE LANE LIBRARY SAL SED# 30-03-01-06-6-023-002
- ☐ WOS OUTDOOR CLASSROOM SED# 30-03-01-06-7-033-001
- ☐ TOWNS OUTDOOR CLASSROOM SED# 30-03-01-06-7-036-001
- ☐ CLE OUTDOOR CLASSROOM SED# 30-03-01-06-7-034-001
- ☐ THS OUTDOOR CLASSROOM SED# 30-03-01-06-7-035-001

PROJECT ISSUE & REVISION SCHEDULE

Rev	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



NEW YORK STATE EDUCATION STATUTES:
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SHEET INFORMATION

Issued
10/18/23
Scale
1/2" = 1'-0"

Project Status

BID DOCUMENTS

Drawn By

-

Checked By

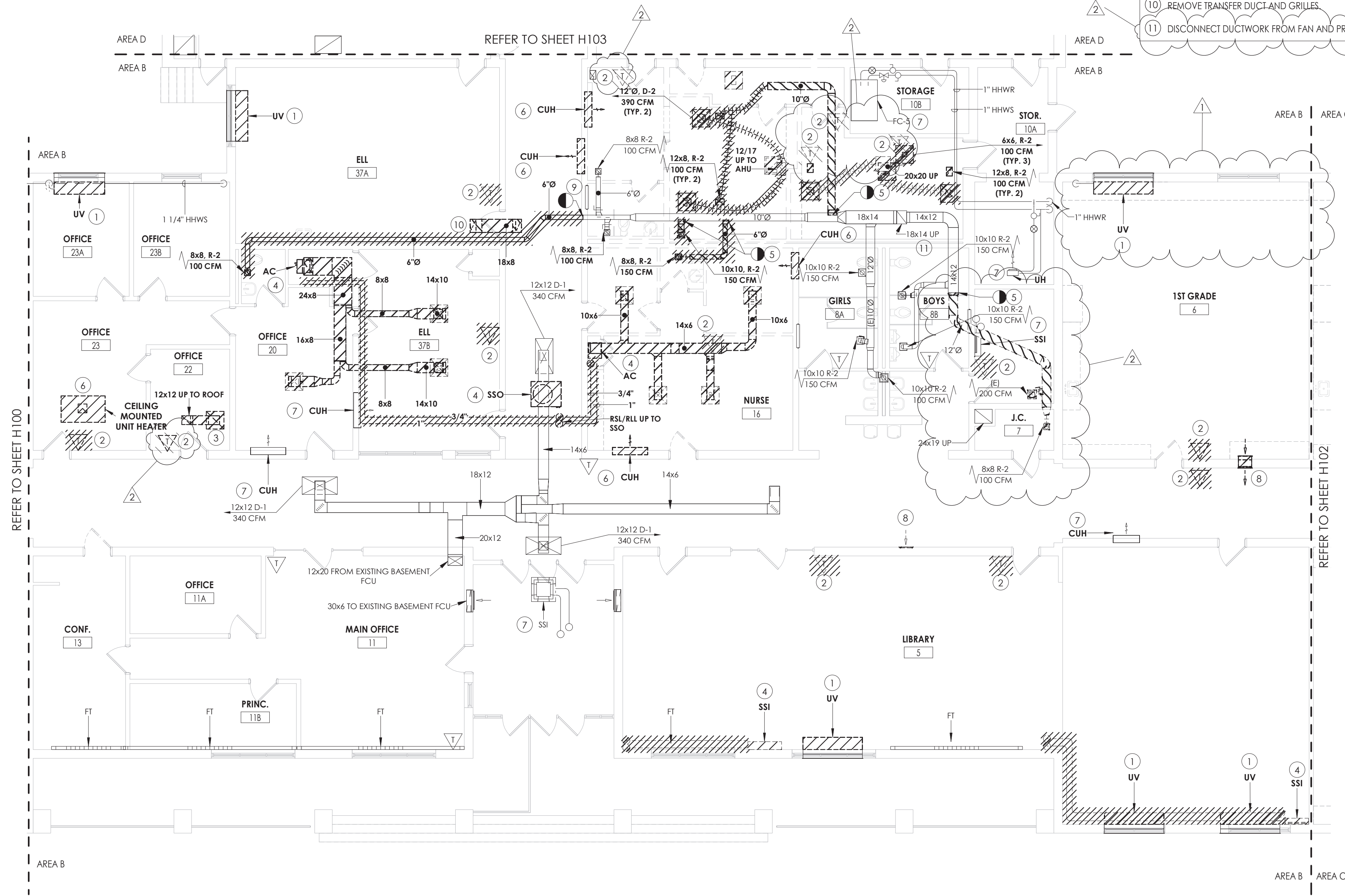
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Drawing Title

HVAC DETAILS

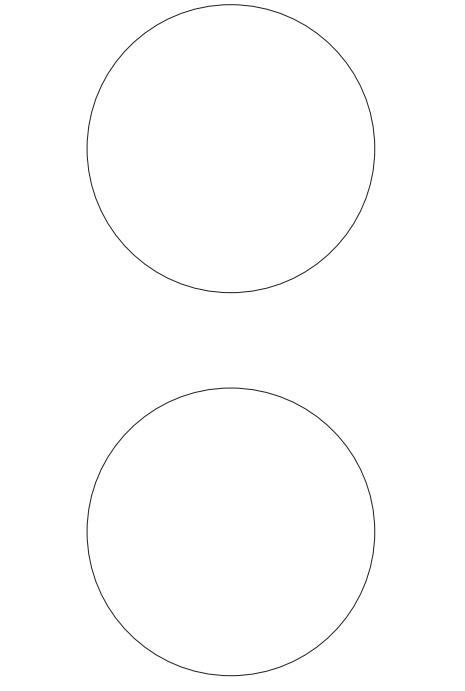
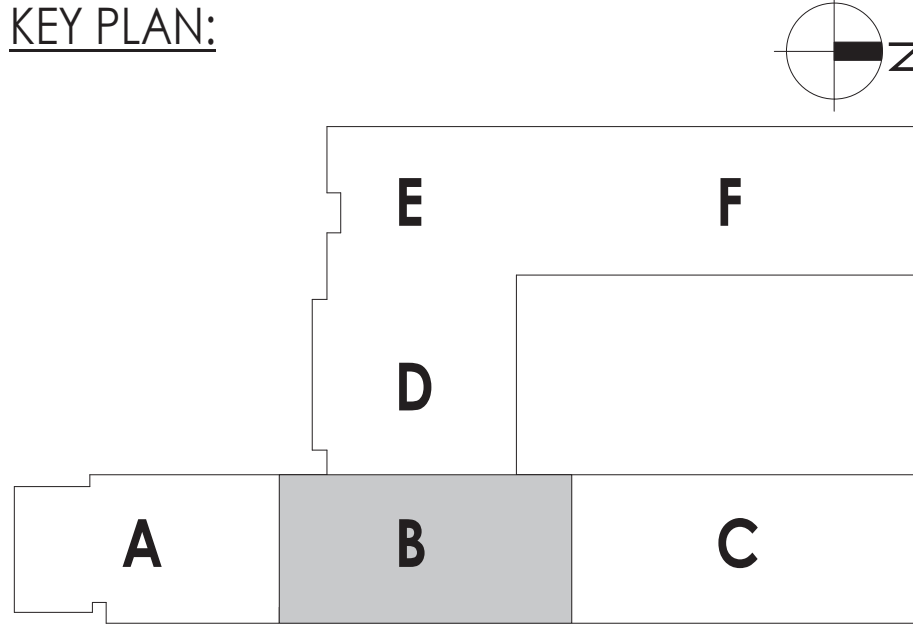
Drawing Number

**GEN
H801**



1
H101
FIRST FLOOR DEMOLITION PLAN- AREA B
1/8" = 1'-0"

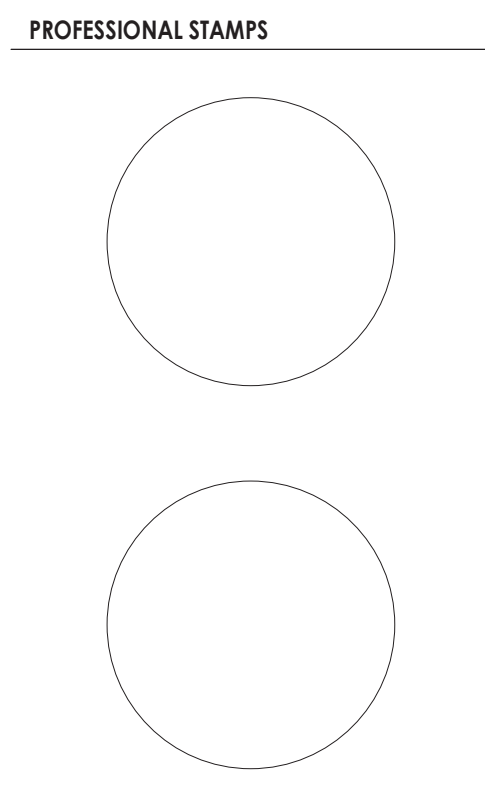
- KEY NOTES:**
- 1 REMOVE EXISTING UNIT VENTILATOR, LOUVER AND SLEEVE TO REMAIN. CUT AND CAP PIPING AT FINTUBE. REFER TO ARCHITECTURAL PLAN. MAINTAIN THE PIPING LOOP. PREPARE FOR NEW WORK.
 - 2 REMOVE EXISTING ROOM TEMPERATURE SENSOR AND WIRING BACK TO CONTROL HEAD END.
 - 3 REMOVE EXISTING GRILLE AND DUCTWORK UP TO ROOF.
 - 4 REMOVE EXISTING HEATING/COOLING UNIT. REMOVE ALL RLL/RSL PIPING FROM UNIT TO CONDENSING UNIT ON ROOF. PRIOR REMOVAL, DRAIN ALL PIPING AND DISPOSE OF ALL REFRIGERANT PER THE LATEST ADAPTED RULES AND REGULATIONS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). CONTRACTOR OR TECHNICIAN PERFORMING THE WORK SHALL BE AN EPA APPROVED AGENT OR ORGANIZATION.
 - 5 REMOVE EXISTING EXHAUST BRANCH DUCTWORK TO POINT INDICATED AND CAP.
 - 6 REMOVE EXISTING CABINET UNIT HEATER, INCLUDING CONTROLS AND WIRING. CUT AND CAP ASSOCIATED PIPING.
 - 7 PREPARE EXISTING EQUIPMENT FOR NEW CONTROLS. **BID ALTERNATE MC-01.**
 - 8 REMOVE EXISTING LOW RELIEF AIR GRILLE IN ROOM AND HIGH RELIEF AIR GRILLE IN COORIDOR. ABANDON DUCTWORK WITHIN WALL. G.C TO PATCH WALL OPENINGS.
 - 9 CAP DUCT AT THIS POINT.
 - 10 REMOVE TRANSFER DUCT AND GRILLES.
 - 11 DISCONNECT DUCTWORK FROM FAN AND PREPARE FOR NEW CONNECTION.





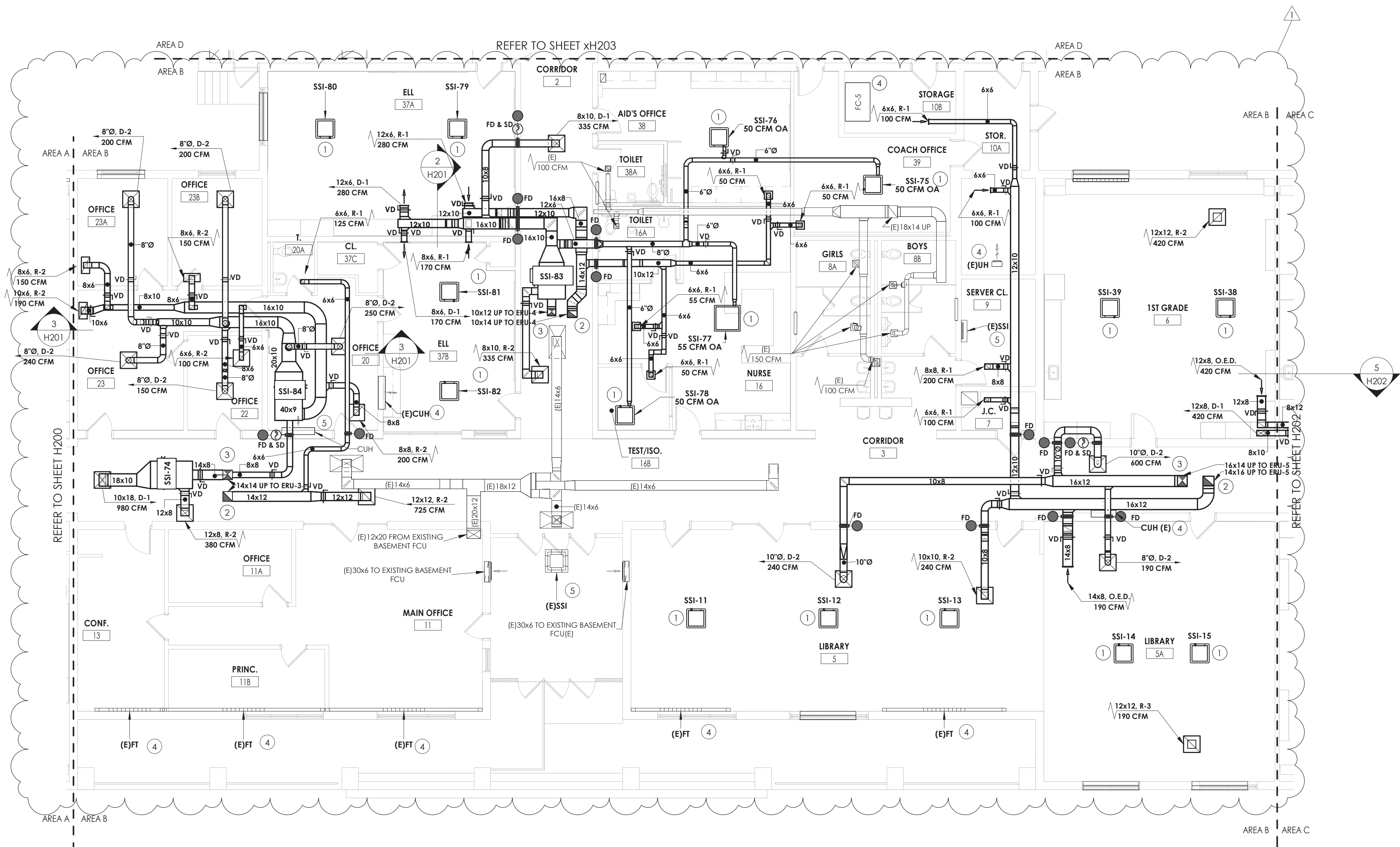
KEY PLAN:

The key plan shows a site layout with six areas labeled A, B, C, D, E, and F. Area B is shaded grey. A north arrow is located in the top right corner, pointing towards the top right of the page, with the letter 'Z' next to it.

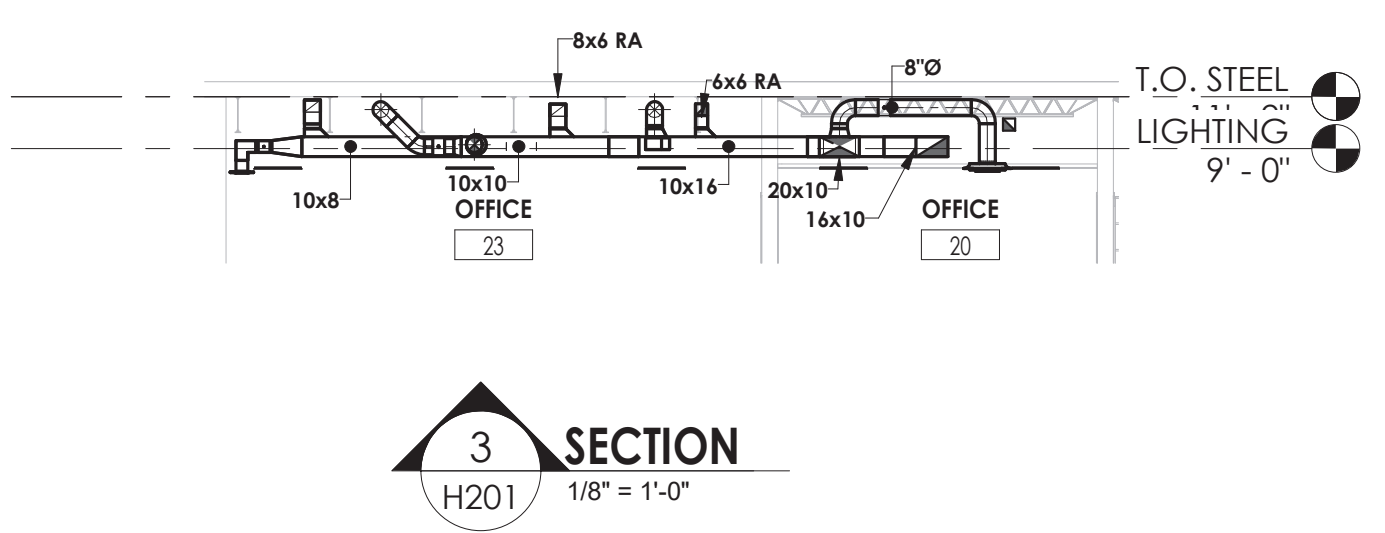
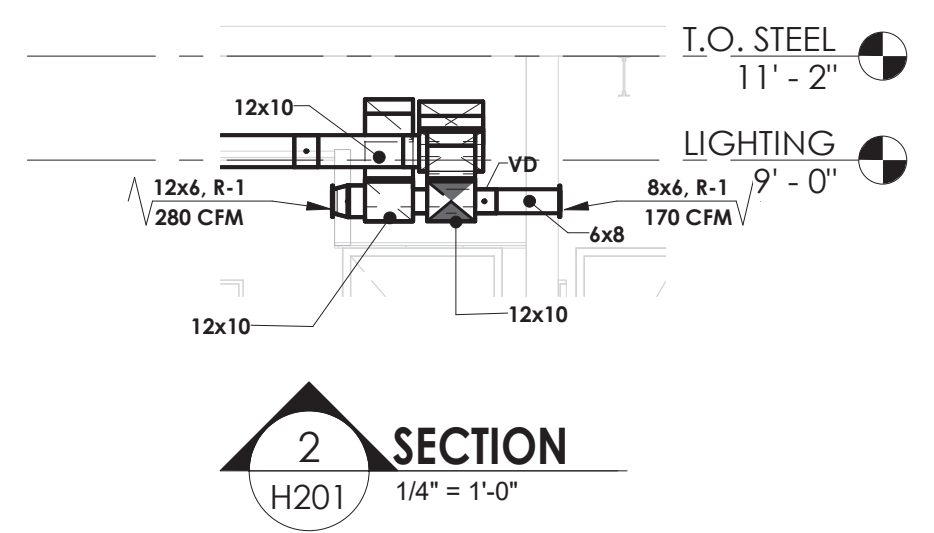


NEW YORK STATE EDUCATION EXAMINER	
IT IS A RESOLUTION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS OF EDUCATION, TO HAVE A PUBLIC HEARING AND A PUBLIC DISCUSSION OF A LICENSED ARCHITECT'S REQUEST FOR A CHARTER, TO HAVE A DESIGN FOR A PART OF A BUILDING BEARING THE NAME OF AN ARCHITECT, EDUCATION OF SUPPORTIVE MATERIAL, THE AUTHORITY OF THE BOARD AND THE DESIGN TEAM, AND THE INFORMATION, REVIEWED BY FOLLOWING BY THE ALEXANDER.	
SHEET INFORMATION	
Issued	Scale
10/18/2023	1/8" = 1'-0"
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
KCM	JJM
Drawing Title	
ROOF HVAC DEMOLITION PLANS - AREA A	
Drawing Number	
WOS H1	

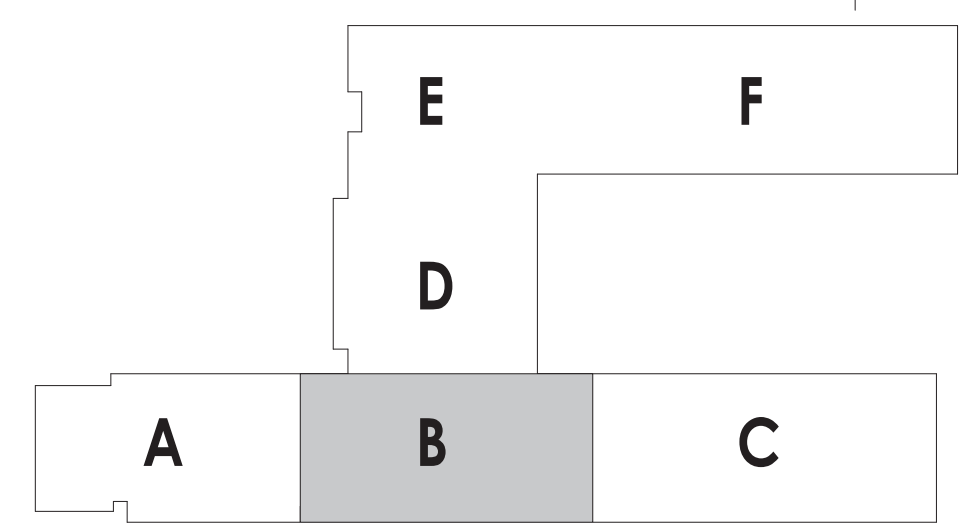
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1 FIRST FLOOR HVAC NEW WORK PLAN-AREA B
H201 1/8" = 1'-0"



KEY PLAN:



GENERAL NOTES

1. MAINTAIN ALL EXISTING ROOF WARRANTIES.

KEY NOTES:

1 SSI TO BE INSTALLED IN JOIST SPACE. REMOVE BRACING AS NEEDED FOR INSTALLATION. PROVIDE NEW PROVIDE NEW BRACING IN NEW LOCATION IF EXISTING BRACING IS REMOVED.

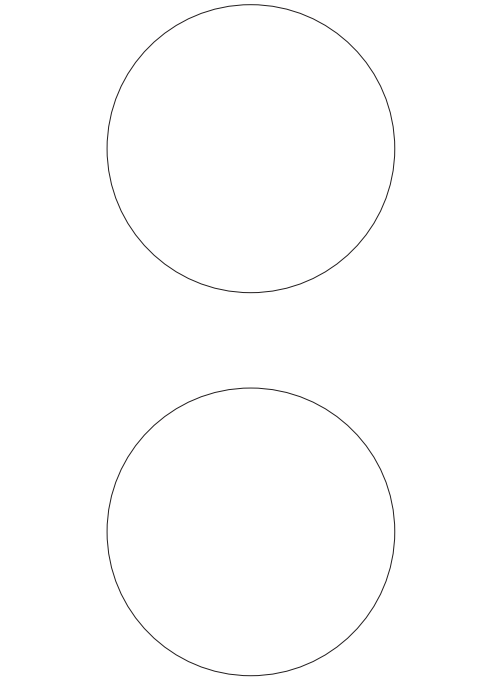
2 RETURN DUCTWORK TO BE ROUTED IN HALLWAY CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.

3 SUPPLY DUCTWORK TO BE ROUTED IN CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.

4 CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BRACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**

5 EQUIPMENT NOT CONNECTED TO NEW BMS SYSTEM.

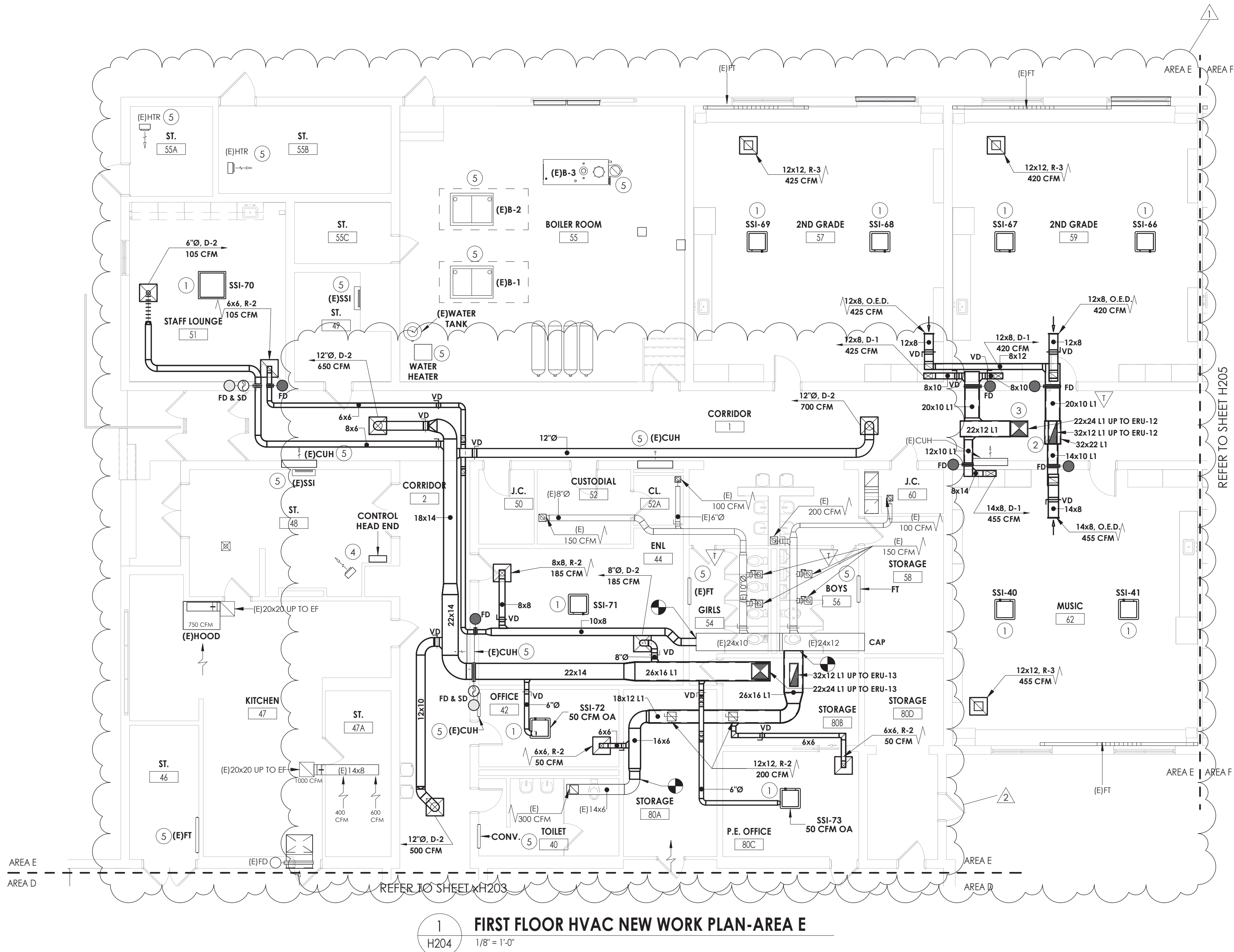
PROFESSIONAL STAMPS



NEW YORK STATE EDUCATION STATEMENT
I, the undersigned, being a duly licensed Architect under the laws of the State of New York, do hereby certify that I am the Architect of the above described project and that I am a duly licensed Architect under the laws of the State of New York.

SHEET INFORMATION
Issued
10/18/2023 Scale
As indicated
Project Status
BID DOCUMENTS
Drawn By
KCM Checked By
JMM
Drawing Title
FIRST FLOOR HVAC NEW WORK
PLAN- AREA B

Drawing Number
**WOS
H201**

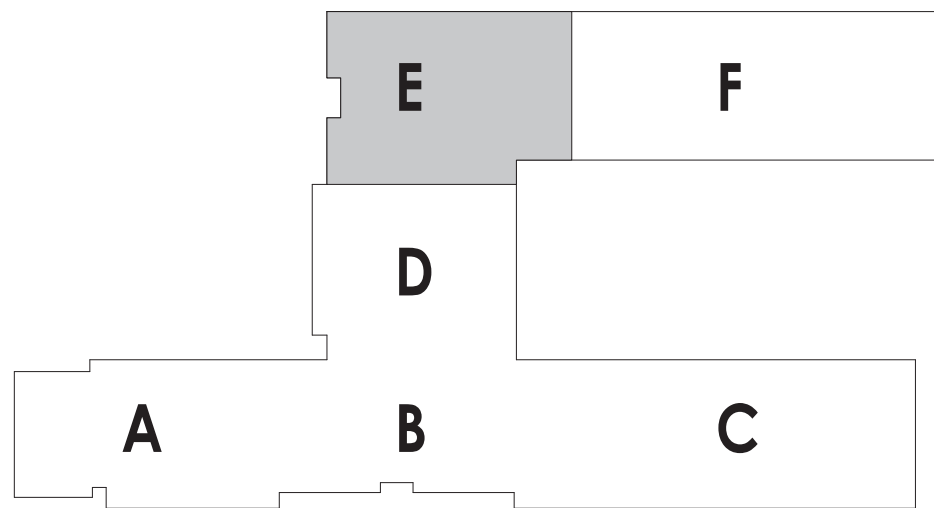


1
H204
1/8" = 1'-0"

KEY NOTES:

- 1 SSI TO BE INSTALLED IN JOIST SPACE. REMOVE BRACING AS NEEDED FOR INSTALLATION. PROVIDE NEW BRACING IN NEW LOCATION IF EXISTING BRACING IS REMOVED.
- 2 RETURN DUCTWORK TO BE ROUTED IN HALLWAY CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
- 3 SUPPLY DUCTWORK TO BE ROUTED IN CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
- 4 PROVIDE NEW CONTROLS HEAD END. **BID ALTERNATE MC-01.**
- 5 CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**

KEY PLAN:



PROJECT INFORMATION

Project Number
14457.20
Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT
Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD. BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD

- WILLIAM O. SCHAFER SED# 35-03-01-06-0-010-001
- COTTAGE LANE ELEMENTARY SED# 35-03-01-06-0-010-002
- TAPPAN ZEE HIGH SCHOOL SED# 35-03-01-06-0-004-002
- WILLIAM O. SCHAFER SAL SED# 35-03-01-06-0-010-002
- COTTAGE LANE SAL SED# 35-03-01-06-0-010-003
- COTTAGE LANE LIBRARY SAL SED# 35-03-01-06-0-003-002
- WOS OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001
- SCONE OUTDOOR CLASSROOM SED# 35-03-01-06-7-036-001
- CLE OUTDOOR CLASSROOM SED# 35-03-01-06-7-034-001
- THS OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS

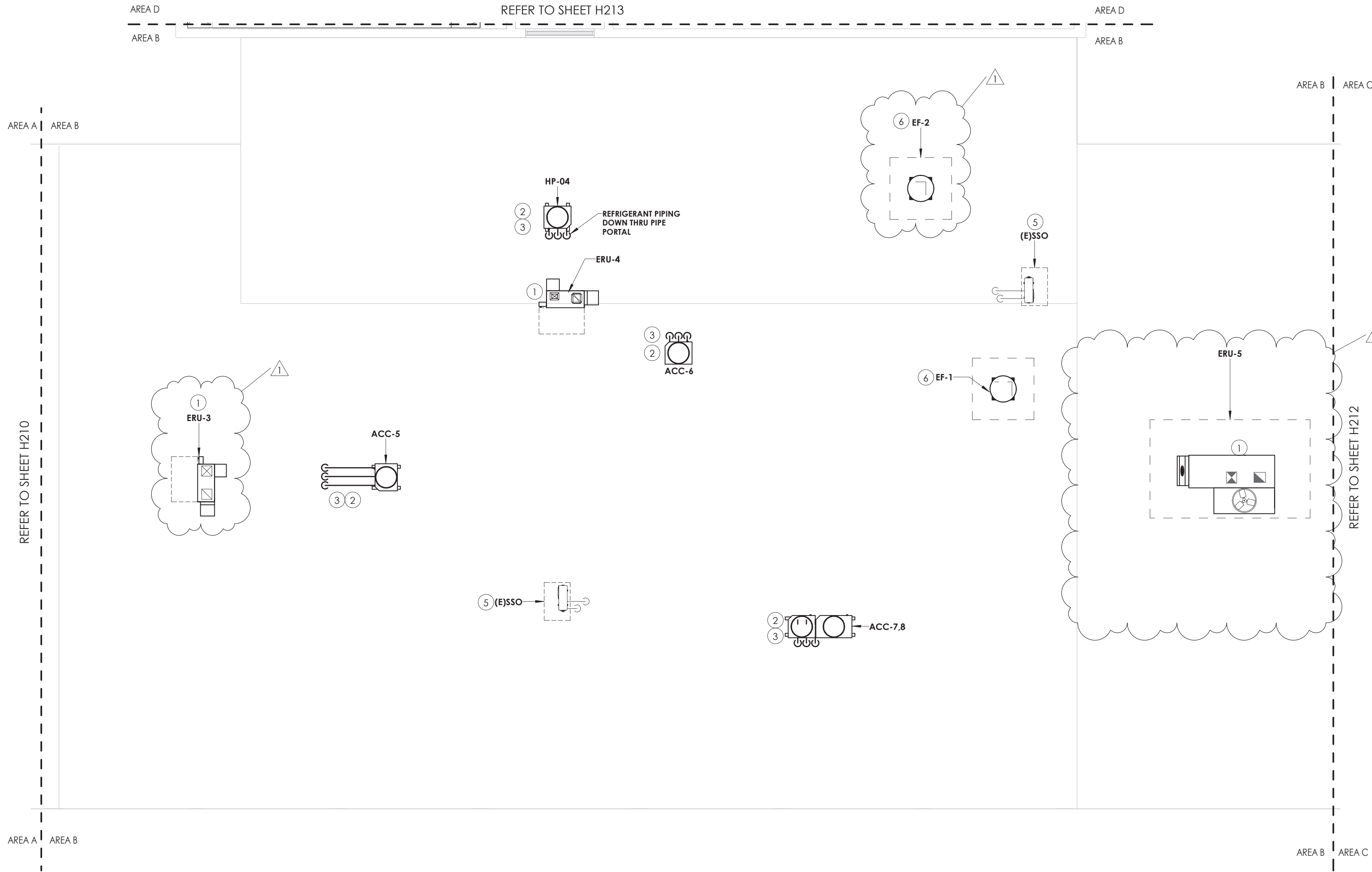
NEW YORK STATE EDUCATION STATUTE
IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS' REGULATIONS FOR ANY PERSON, UNDER ACTUAL OR CONSTRUCTIVE SUPERVISION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS AN ARCHITECT, ENGINEER OR LAND SURVEYOR, WITHOUT BEING THE SIGNATURE, SEAL OR EMPLOYER OF SUCH PERSON. THE SIGNATURE, SEAL AND TITLE OF THE SIGNER SHALL BE THE SIGNATURE, SEAL AND TITLE OF THE ARCHITECT, ENGINEER OR LAND SURVEYOR, AND A SPECIFIC DESCRIPTION OF THE ALTERNATE.

SHEET INFORMATION

Issued
10/18/2023
Scale
1/8" = 1'-0"
Project Status
BID DOCUMENTS
Drawn By
KCM
Checked By
JJM
Drawing Title
FIRST FLOOR HVAC NEW WORK
PLAN- AREA E

Drawing Number

WOS
H204



1
H211
ROOF NEW WORK PLAN- AREA B
1/8" = 1'-0"

- GENERAL NOTES
1. MAINTAIN ALL EXISTING ROOF WARRANTIES.
- KEY NOTES
- 1

PROVIDE ERU ON INSULATED CURB WITH VIBRATION INSULATION.
- 2

PROVIDE WITH 12" EQUIPMENT RAILS, VIBRATION INSULATION AND PIPE PORTAL.
- 3

ROUTE NEW RS/RL LINES DOWN THROUGH ROOF. COORDINATE WITH EXISTING ROOFING AND STRUCTURE. INSTALL PER MANUFACTURERS INSTRUCTIONS.
- 4

CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**
- 5

EXISTING EQUIPMENT NOT CONNECTED TO BMS.
- 6

PROVIDE NEW INSULATED ROOF CURB.



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50 Front Street Suite 202,
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SOUTH ORANGETOWN
Central School District

Capital Improvements Bond

Essential Infrastructure for Student
Health, Safety and Success

PROJECT INFORMATION

Project Number
14457.20

Client Name
SOUTH ORANGETOWN CENTRAL
SCHOOL DISTRICT

Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD. BLAUVELT, NY 10913

SOUTH ORANGETOWN CSD

☒ WILLIAM O. SCHAFER SEDF: 50-03-01-06-0-010-2-019

☐ COTTAGE LANE ELEMENTARY SEDF: 50-03-01-06-0-010-022

☐ TAPPAN ZEE HIGH SCHOOL SEDF: 50-03-01-06-0-006-002

☐ WILLIAM O. SCHAFER SAL SEDF: 50-03-01-06-0-010-020

☐ COTTAGE LANE SAL SEDF: 50-03-01-06-0-010-023

☐ COTTAGE LANE LIBRARY SAL SEDF: 50-03-01-06-8-023-002

☐ WOS OUTDOOR CLASSROOM SEDF: 50-03-01-06-7-035-001

☐ SCONE OUTDOOR CLASSROOM SEDF: 50-03-01-06-7-036-001

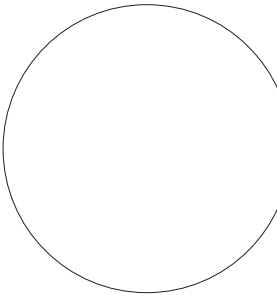
☐ CLE OUTDOOR CLASSROOM SEDF: 50-03-01-06-7-034-001

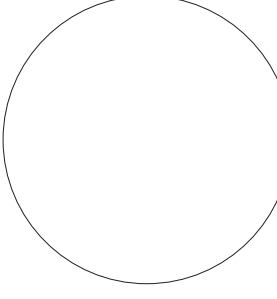
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PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS





NEW YORK STATE EDUCATION STATMENT

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SHEET INFORMATION

Issued	Scale
10/18/2023	1/8" = 1'-0"

Project Status
BID DOCUMENTS

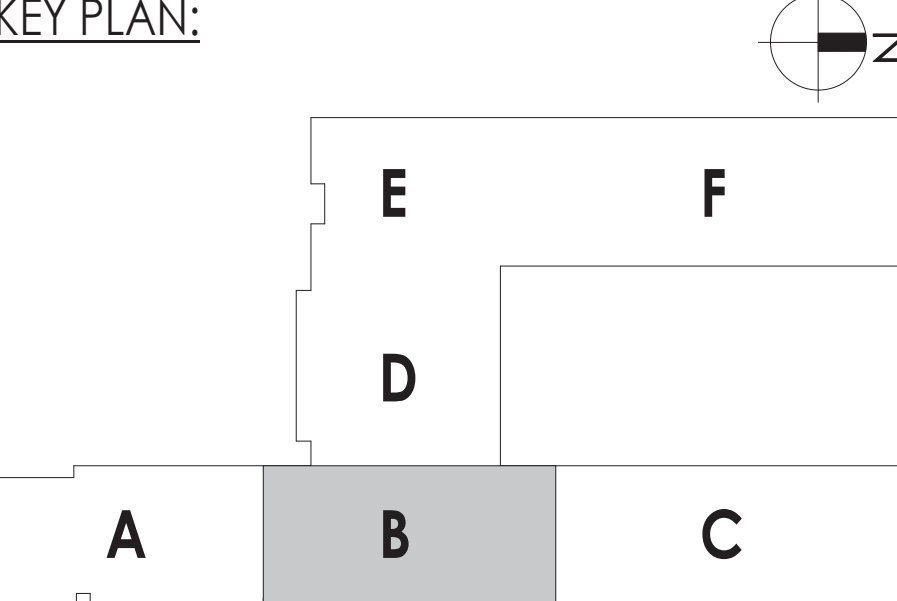
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KCM

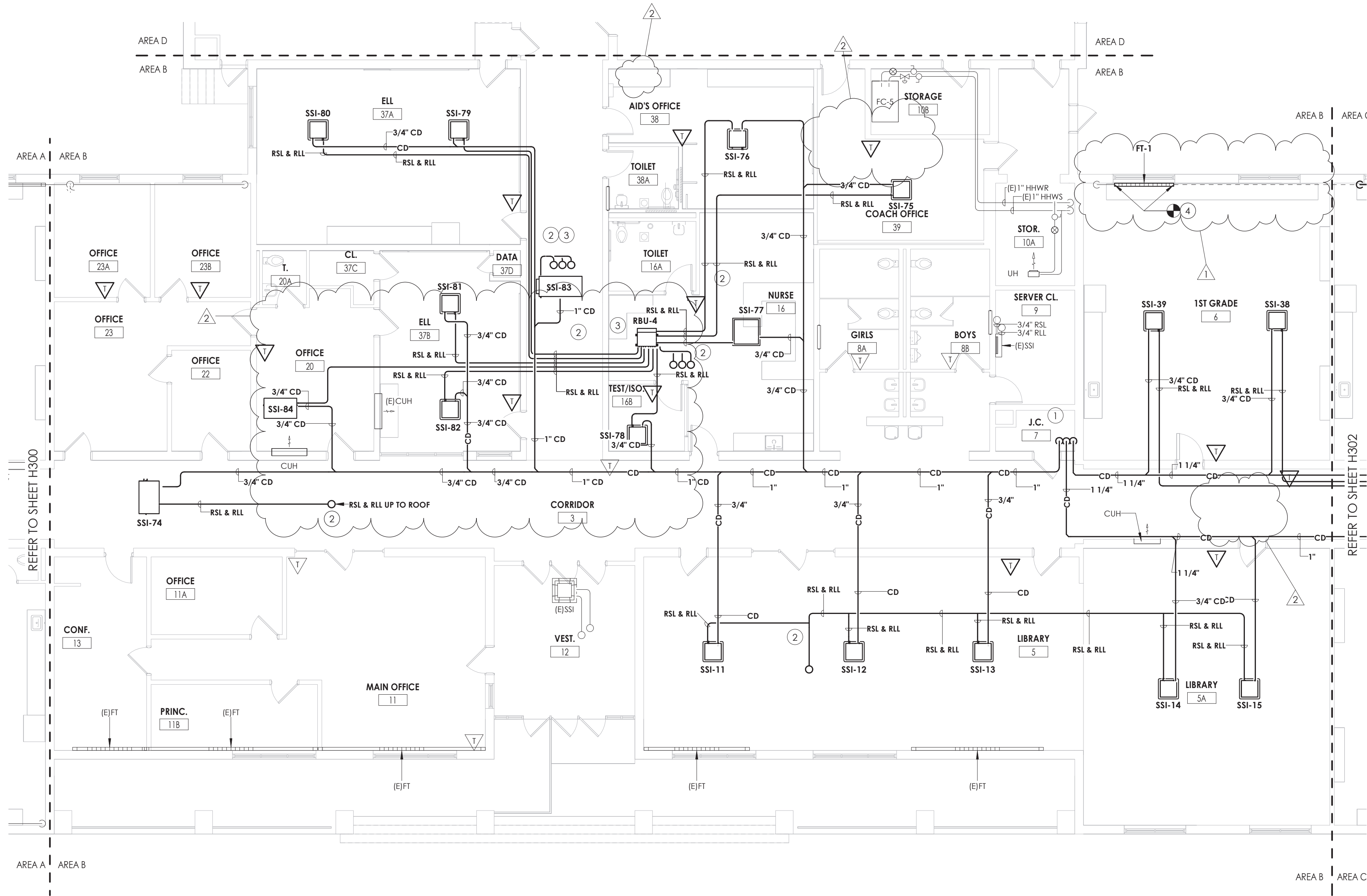
Checked By
JJM

Drawing Title
ROOF HVAC NEW WORK
PLAN-AREA B

Drawing Number
WOS
H211

KEY PLAN:





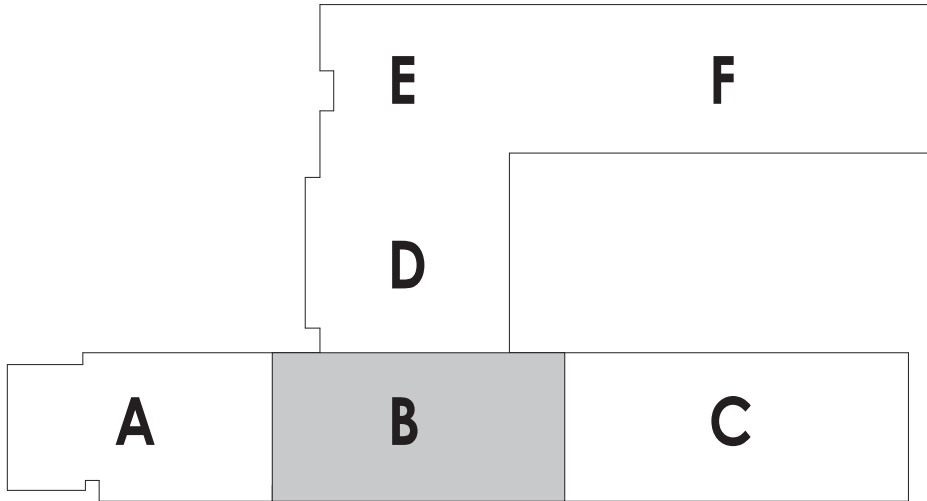
1 HVAC PIPING PLAN-AREA B
1/8" = 1'-0"

KEY NOTES:

- 1 EXTEND CONDENSATE PIPING TO SANITARY. PROVIDE WITH AN INDIRECT CONNECTION.
- 2 PROVIDE PIPING SIZING AND ROUTING, REFER TO MANUFACTURER'S RECOMMENDATIONS.
- 3 PROVIDE BRANCH BOX. MOUNT UNIT AS HIGH AS POSSIBLE. COORDINATE PIPE ROUTING WITH DUCTWORK AND EXISTING STRUCTURE.
- 4 PROVIDE 4" FIN TUBE WITH DRAFT STOP WHERE INDICATED AND CONNECT TO EXISTING PIPING.

1

KEY PLAN:



PROJECT INFORMATION

Project Number
14457.20
Client Name
SOUTH ORANGETOWN CENTRAL SCHOOL DISTRICT
Project Name
PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD. BLAUVELT, NY 10913

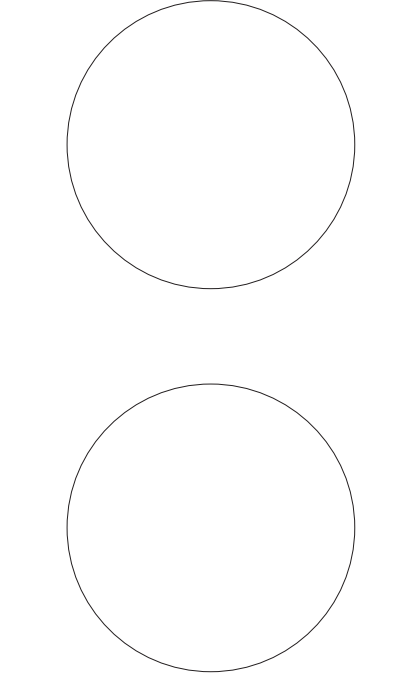
SOUTH ORANGETOWN CSD

- WILLIAM O. SCHAFER SED# 35-03-01-06-0-010-0019
- COTTAGE LAKE ELEMENTARY SED# 35-03-01-06-0-010-0022
- TAPPAN ZEE HIGH SCHOOL SED# 35-03-01-06-0-004-002
- WILLIAM O. SCHAFER SAL SED# 35-03-01-06-0-010-0020
- COTTAGE LAKE SAL SED# 35-03-01-06-0-010-0023
- COTTAGE LAKE LIBRARY SAL SED# 35-03-01-06-8-003-002
- WOS OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001
- SCONE OUTDOOR CLASSROOM SED# 35-03-01-06-7-036-001
- CLE OUTDOOR CLASSROOM SED# 35-03-01-06-7-034-001
- 1245 OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



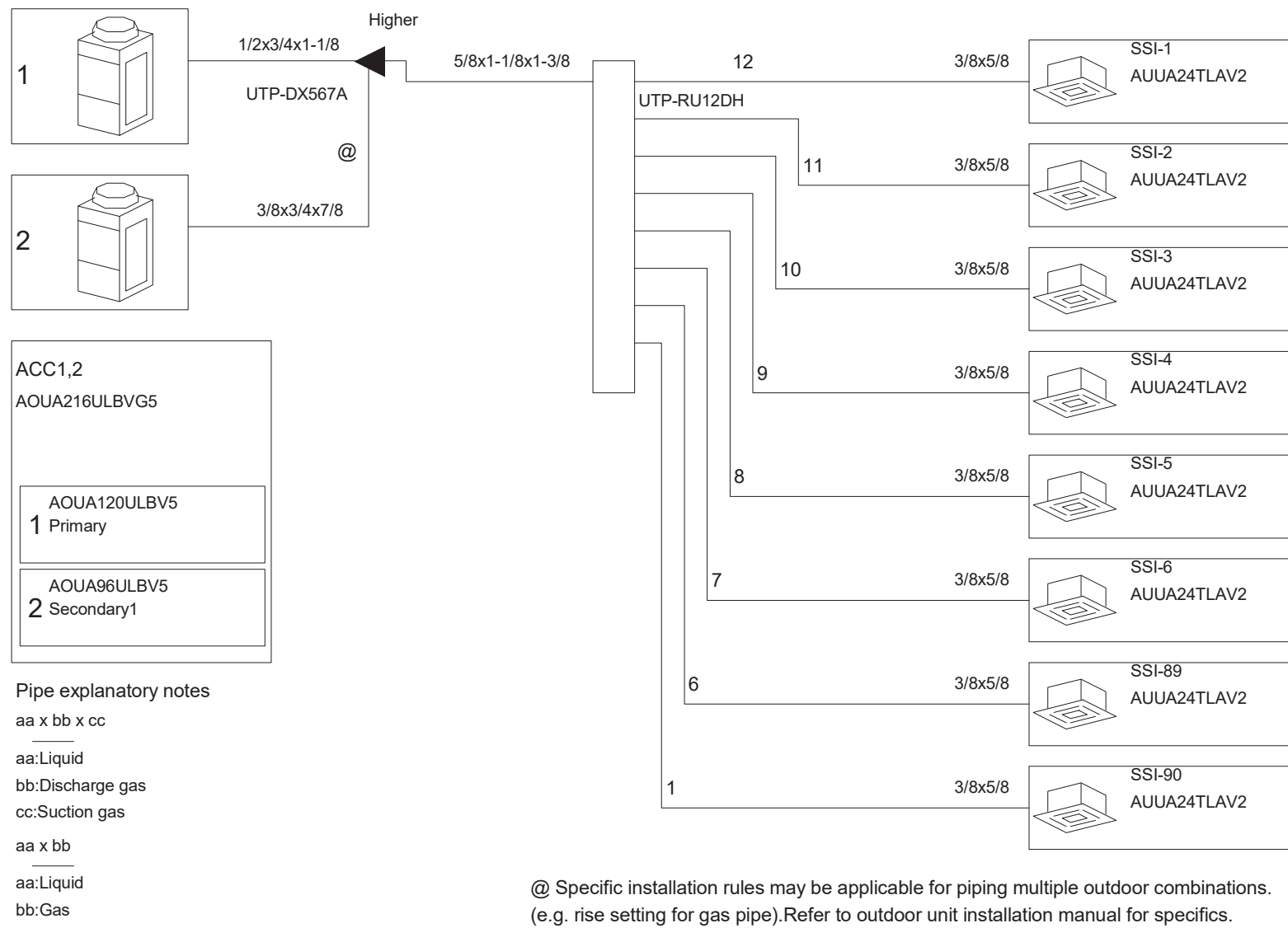
NEW YORK STATE EDUCATION STATUTE
IF IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S
REGULATIONS FOR ANY PERSON, UNDER ACTING UNDER THE SUPERVISION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS SUCH IN ANY WAY, IF ANY
BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR, THE SIGNATURE
BEARING THE SEAL OF THE NEW YORK STATE AND THE SIGNATURE BEARING THE SEAL OF THE
NEW YORK STATE AND THE DATE OF SUCH SIGNATURE, AND A SPECIFIC DESCRIPTION OF THE
VIOLATION.

SHEET INFORMATION

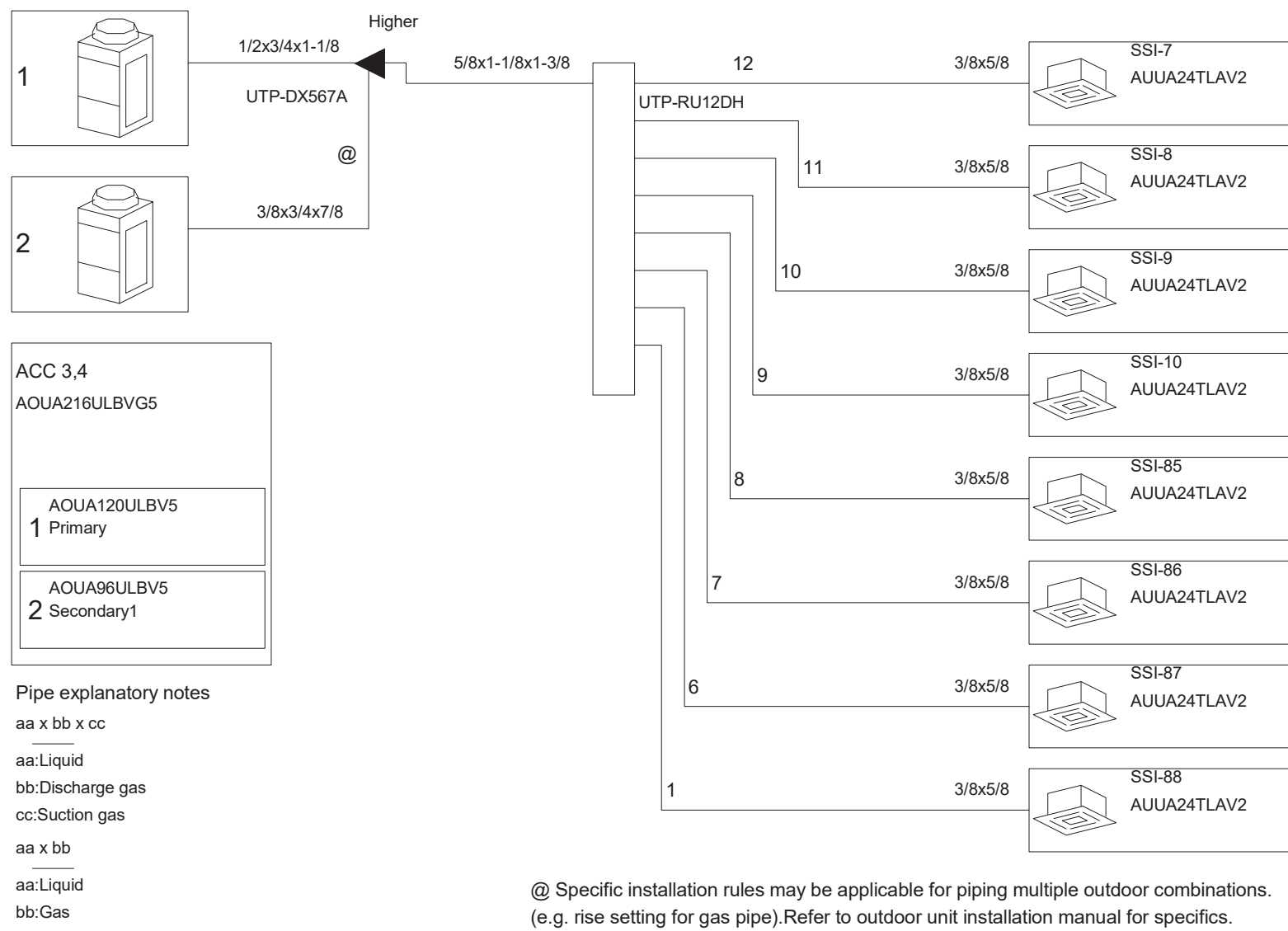
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10/18/2023
Scale
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Project Status
BID DOCUMENTS
Drawn By
KCM
Checked By
JJM
Drawing Title
FIRST FLOOR HVAC PIPING PLAN-
AREA B

Drawing Number

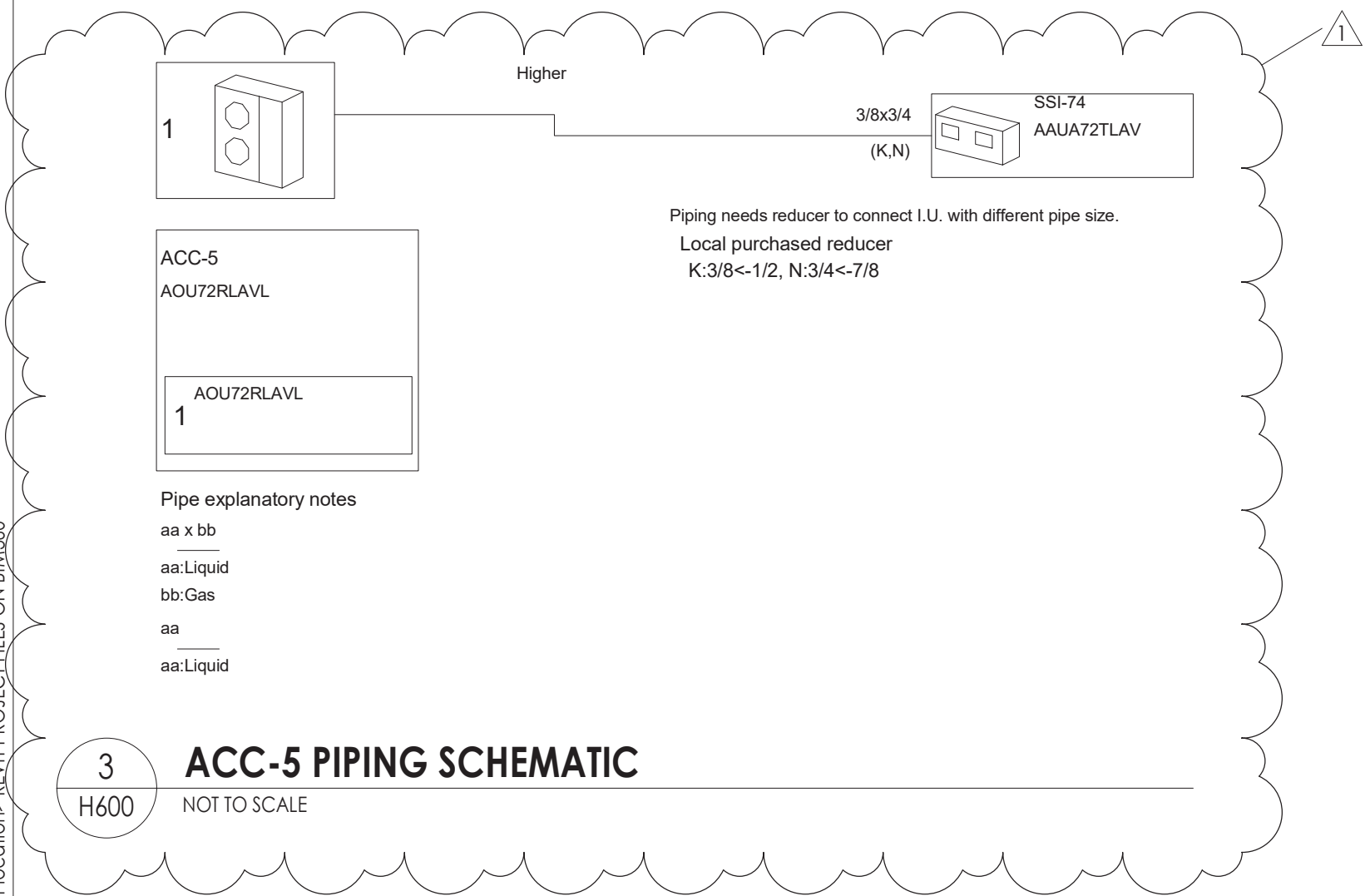
WOS
H301



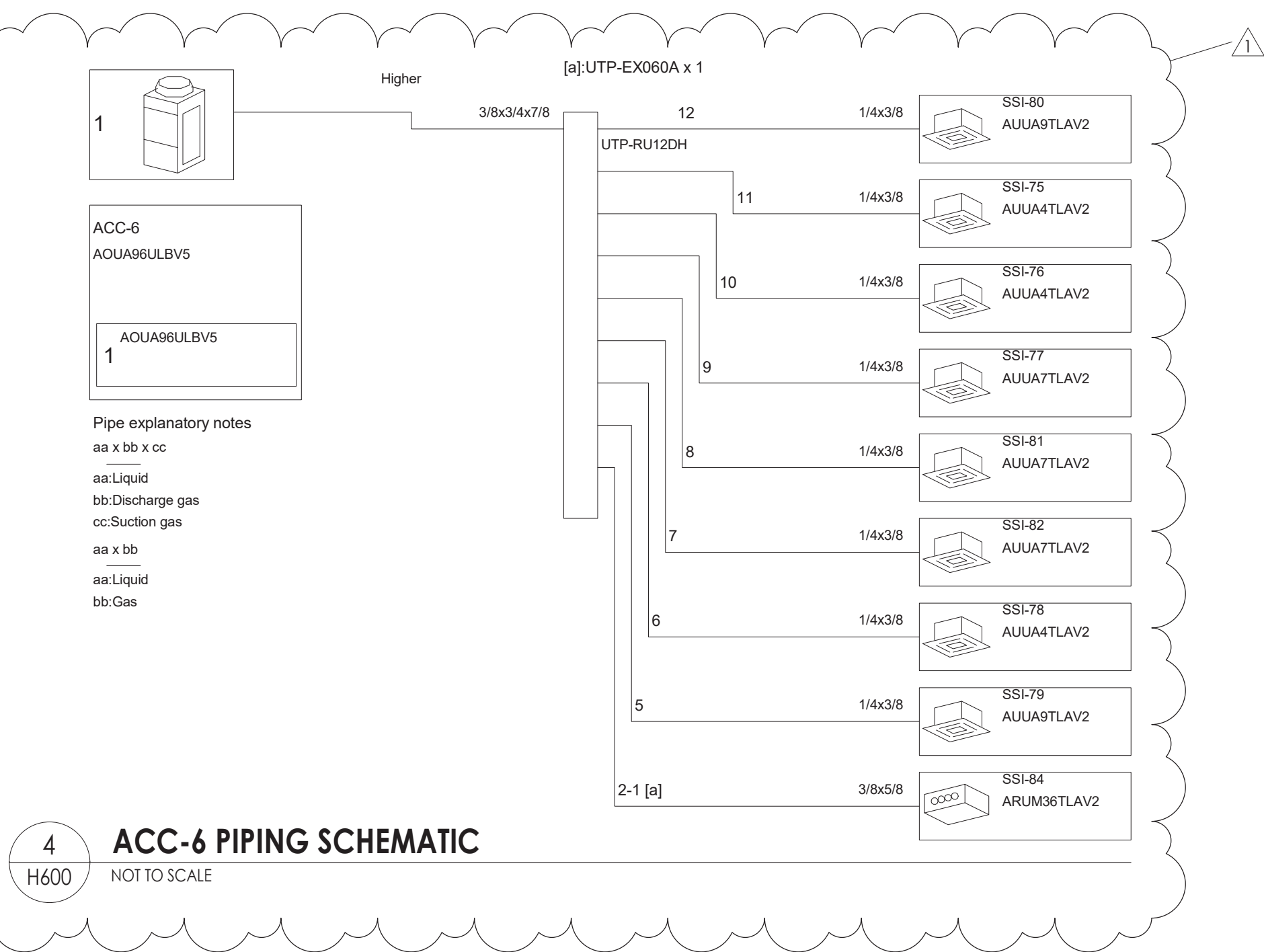
1 ACC-1,2 PIPING SCHEMATIC
H600 NOT TO SCALE



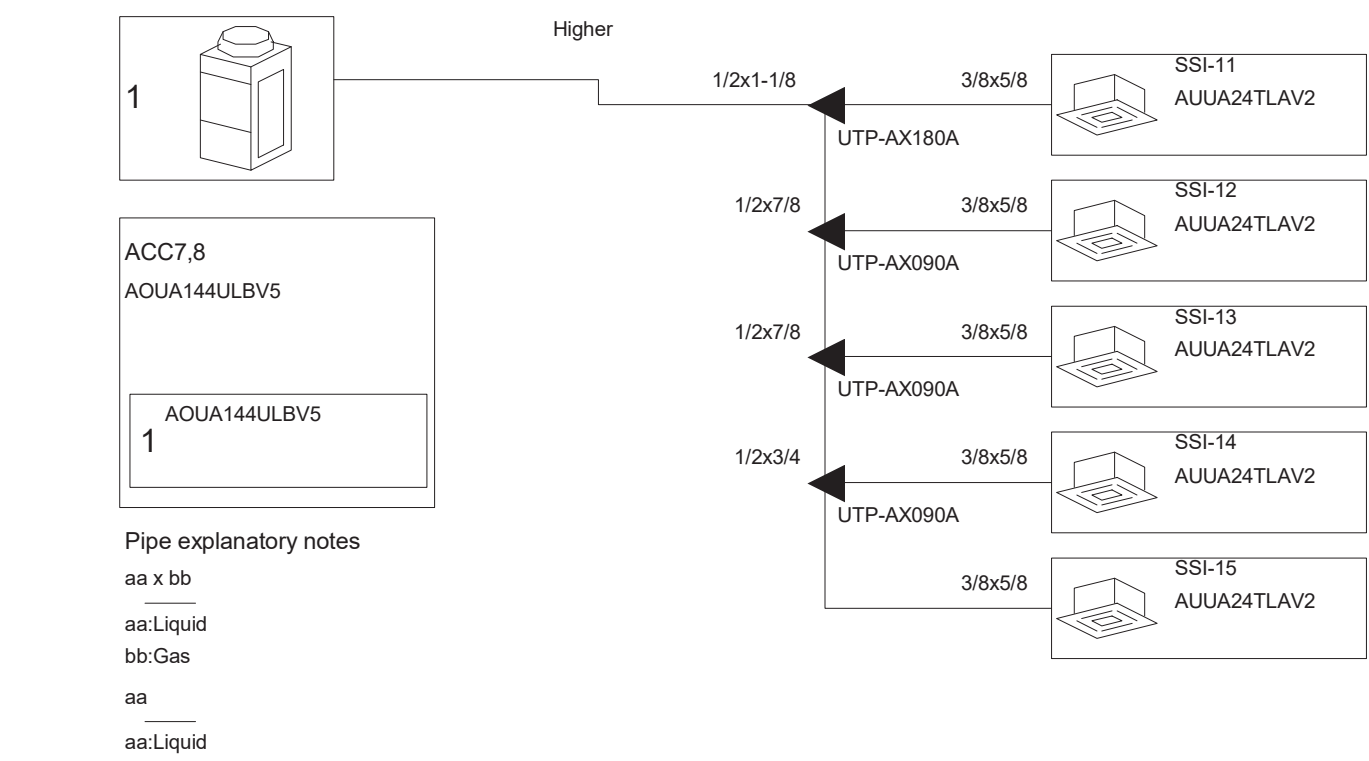
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H600 NOT TO SCALE



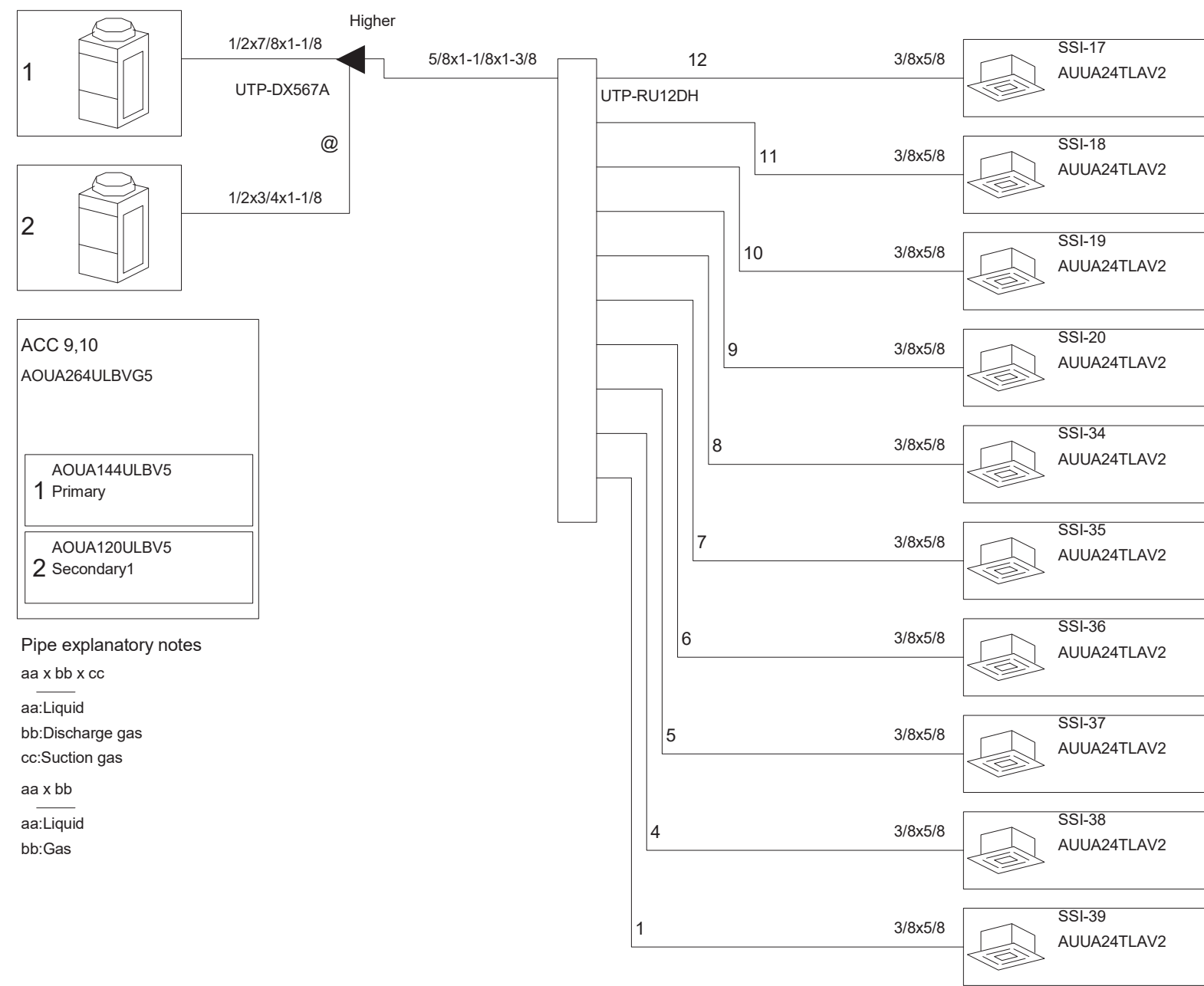
3 ACC-5 PIPING SCHEMATIC
H600 NOT TO SCALE



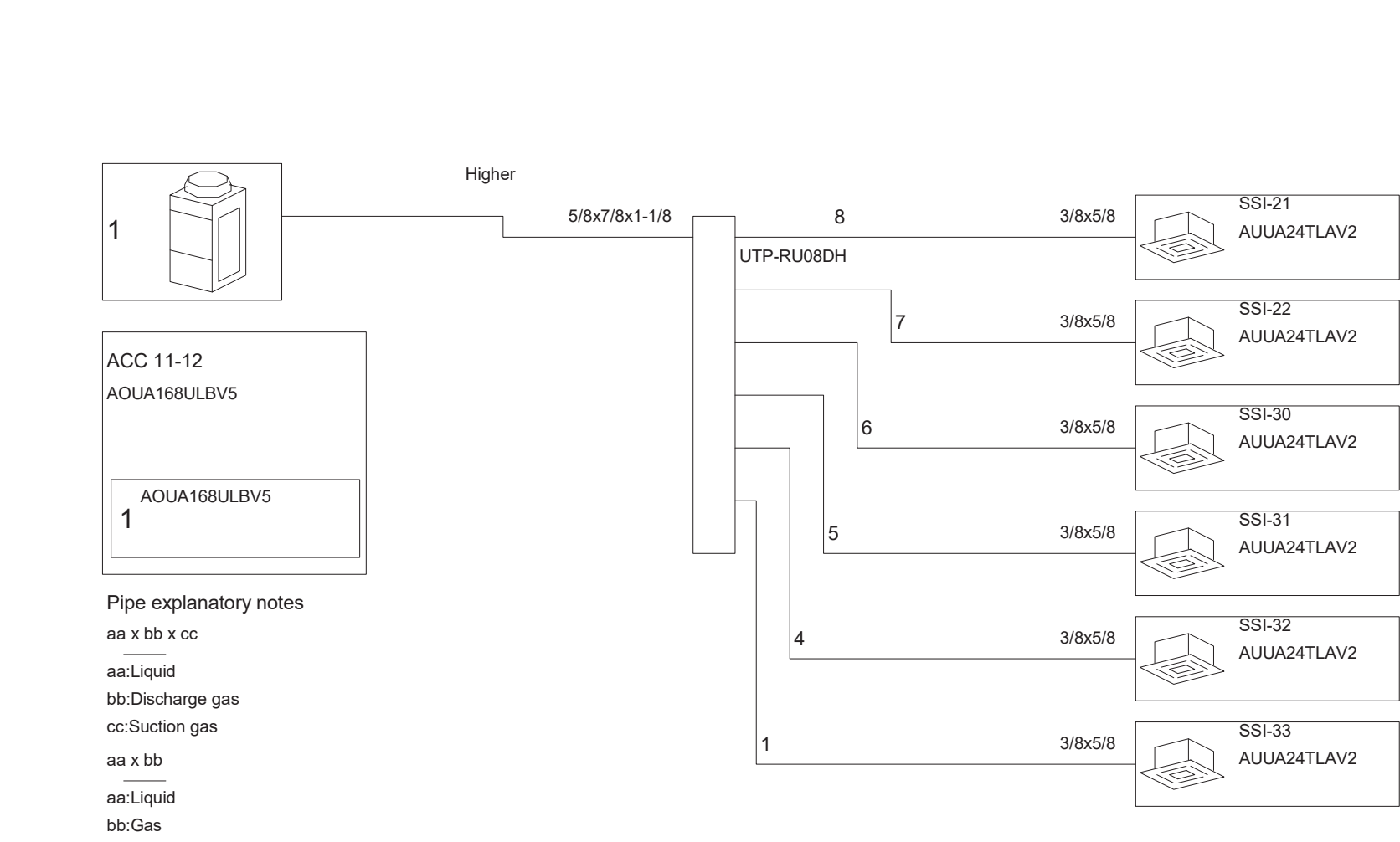
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H600 NOT TO SCALE



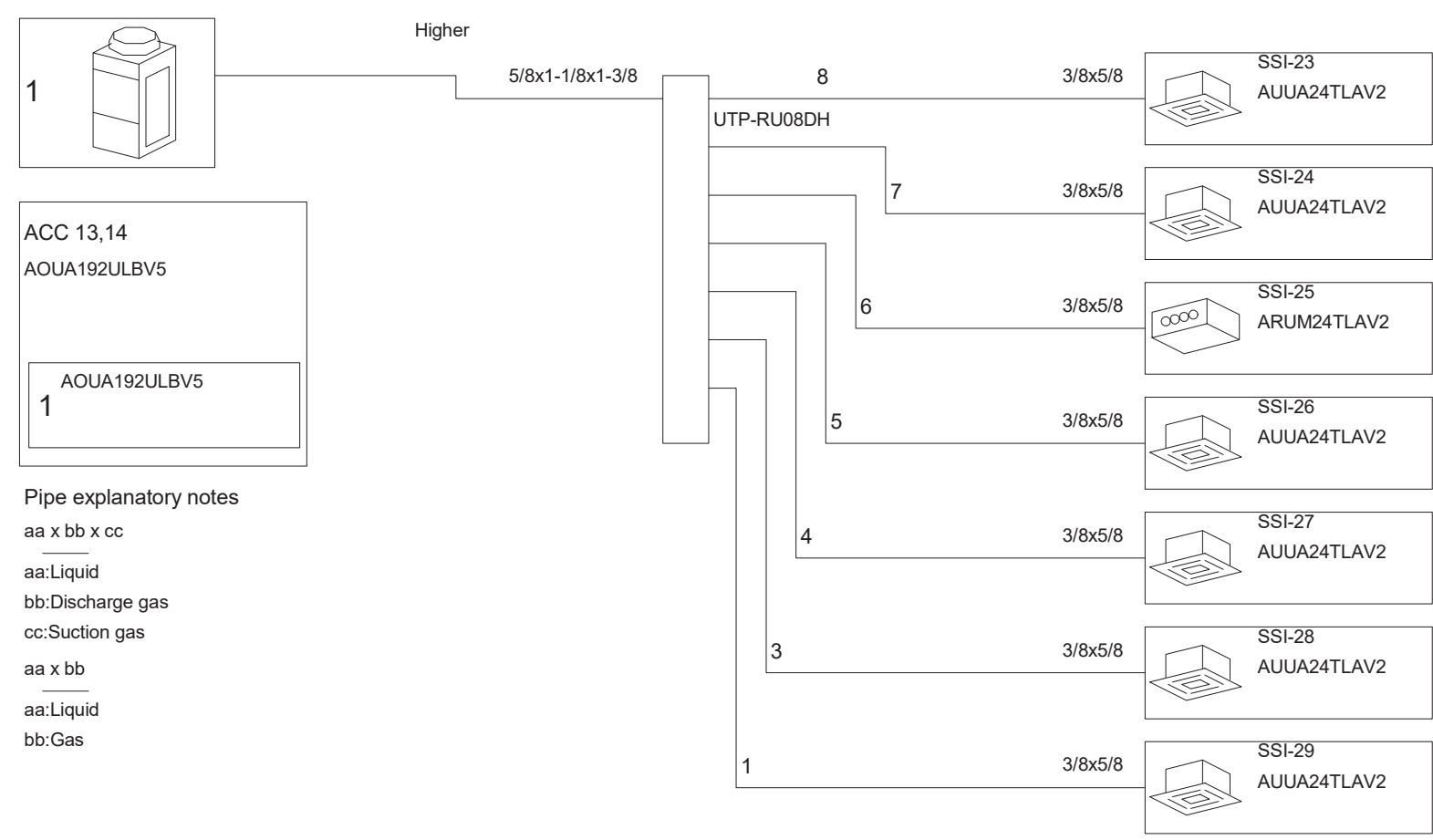
5 ACC-7,8 PIPING SCHEMATIC
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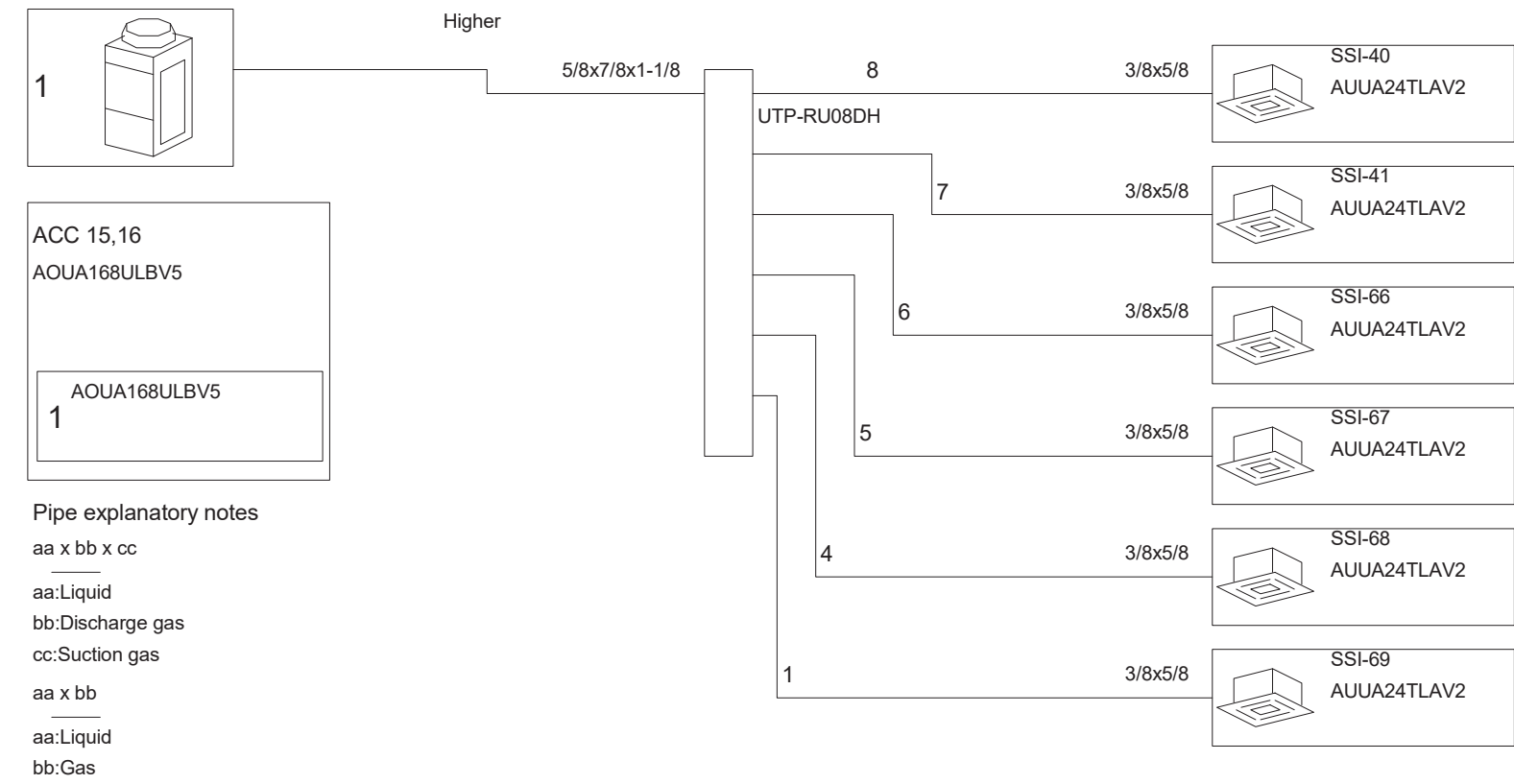
6 ACC-9,10 PIPING SCHEMATIC
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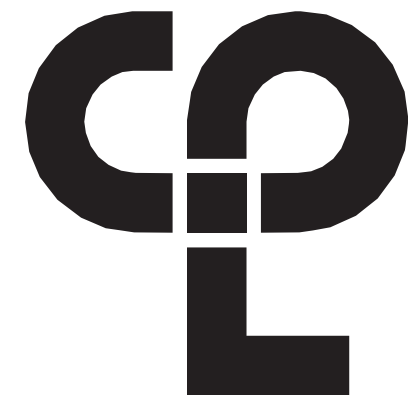
7 ACC-11,12 PIPING SCHEMATIC
H600 NOT TO SCALE



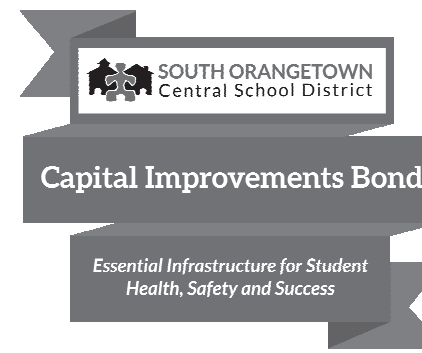
8 ACC-13,14 PIPING SCHEMATIC
H600 NOT TO SCALE



9 ACC-15,16 PIPING SCHEMATIC
H600 NOT TO SCALE



CPL | Architecture Engineering Planning
50 Front Street Suite 202,
Newburgh, NY 12550
CPLteam.com



PROJECT INFORMATION

Project Number

14457.20

Client Name

SOUTH ORANGETOWN
SCHOOL DISTRICT

Project Name

PHASE 1: 2022 BOND

District Office Address

160 VAN WYCK RD. BLAUVELT, NY 10913

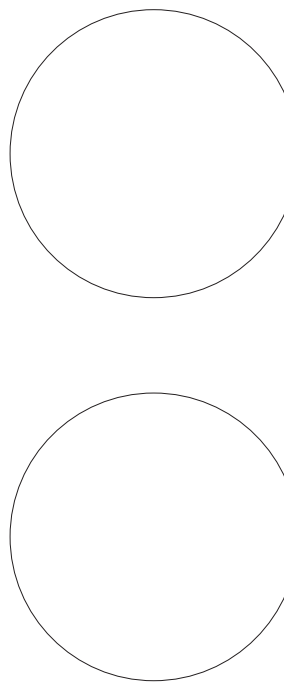
SOUTH ORANGETOWN CSD

- ☒ WILLIAM O. SCHAFER SED# 35-03-01-06-0-010-2-019
- ☐ COTTAGE LANE ELEMENTARY SED# 35-03-01-06-0-010-022
- ☐ TAPPAN ZEE HIGH SCHOOL SED# 35-03-01-06-0-004-002
- ☐ WILLIAM O. SCHAFER SAL SED# 35-03-01-06-0-010-2-020
- ☐ COTTAGE LANE SAL SED# 35-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY SAL SED# 35-03-01-06-8-023-002
- ☐ WOS OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001
- ☐ SCONE OUTDOOR CLASSROOM SED# 35-03-01-06-7-036-001
- ☐ CLE OUTDOOR CLASSROOM SED# 35-03-01-06-7-034-001
- ☐ 12HS OUTDOOR CLASSROOM SED# 35-03-01-06-7-035-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



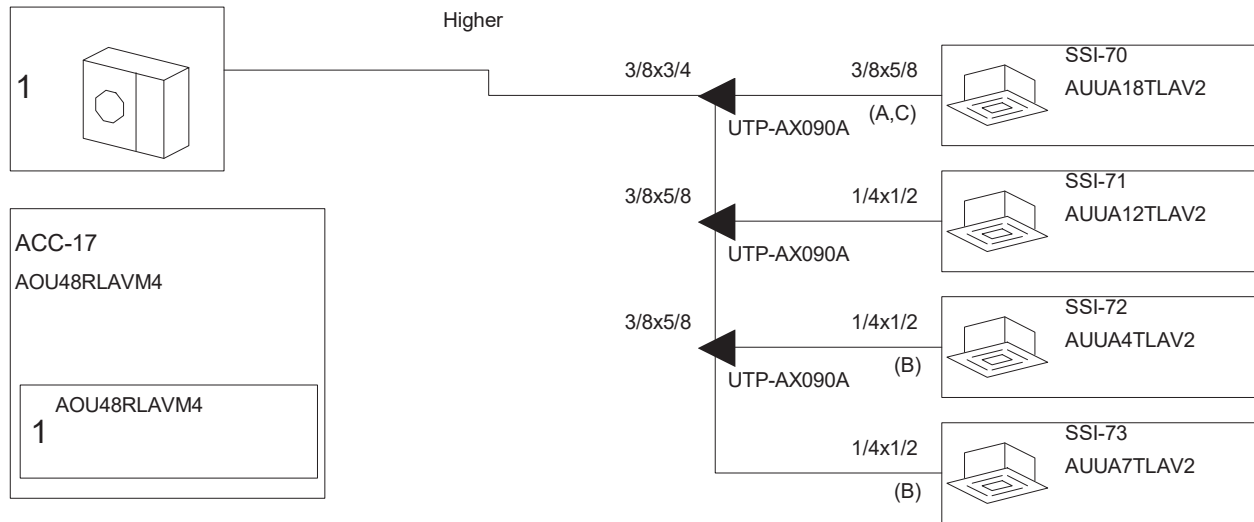
NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS' REGULATIONS FOR ANY PERSON, UNDER ACTING UNDER THE PROVISIONS OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS SUCH IN ANY WAY, IF ANY, BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR, WITHOUT THE ATTENDING PAID SEAL AND THE SEAL OF THE NEW YORK ARCHITECTS' BOARD BY FOLLOWING BY THEIR SIGNATURE AND THE DATE OF SUCH SIGNATURE, AND A SPECIFIC DESCRIPTION OF THE ALTERNATE.

SHEET INFORMATION

Issued	Scale
10/18/2023	NOT TO SCALE
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
KCM	JJM
Drawing Title	
VRF PIPING	

Drawing Number

WOS
H600

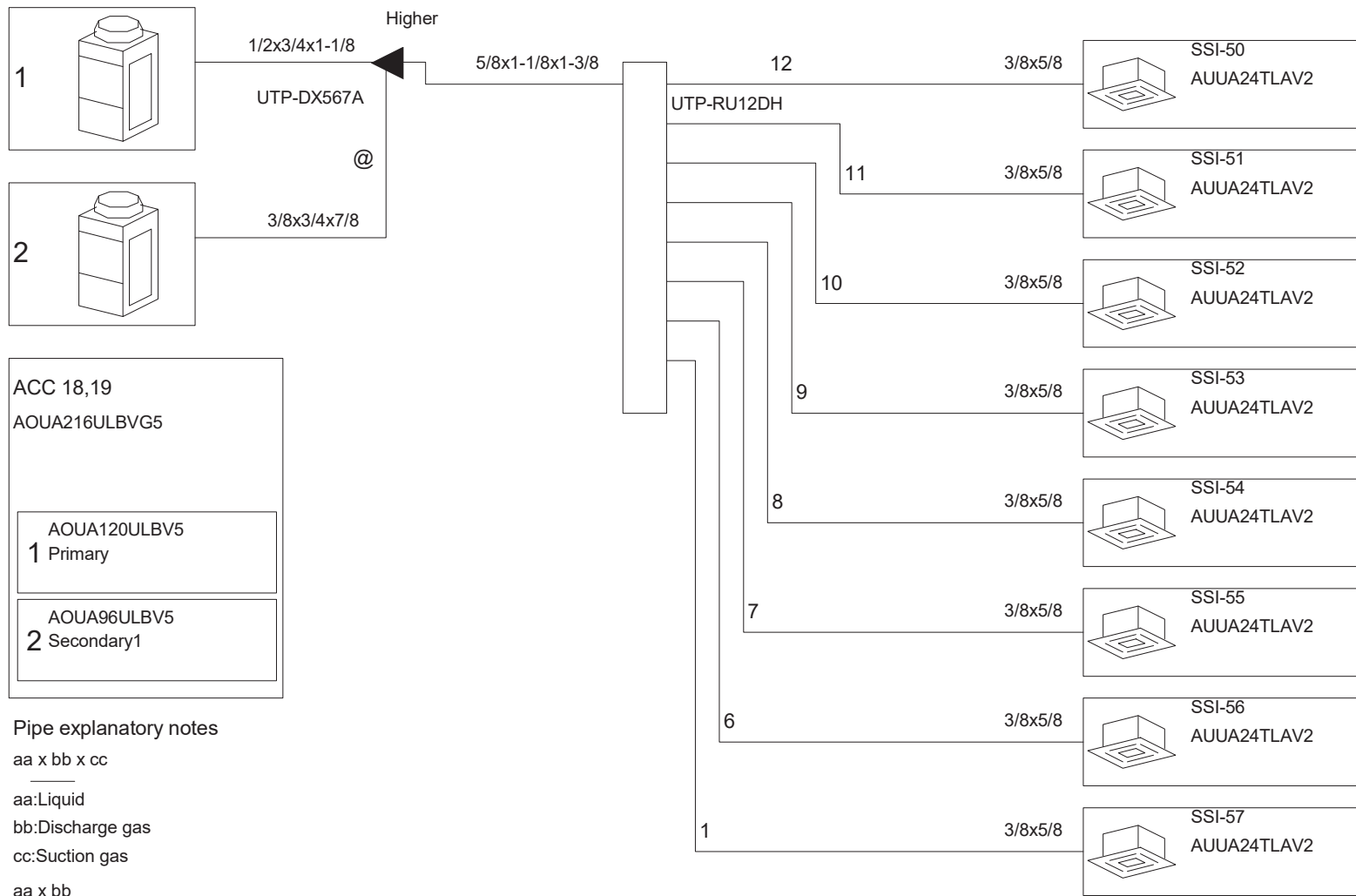


Pipe explanatory notes
aa x bb
aa:Liquid
bb:Gas
aa
aa:Liquid

Piping needs reducer to connect I.U. with different pipe size.
Local purchased expander
A:3/8<-1/4, B:1/2<-3/8, C:5/8<-1/2

1 ACC-17 PIPING SCHEMATIC

NOT TO SCALE

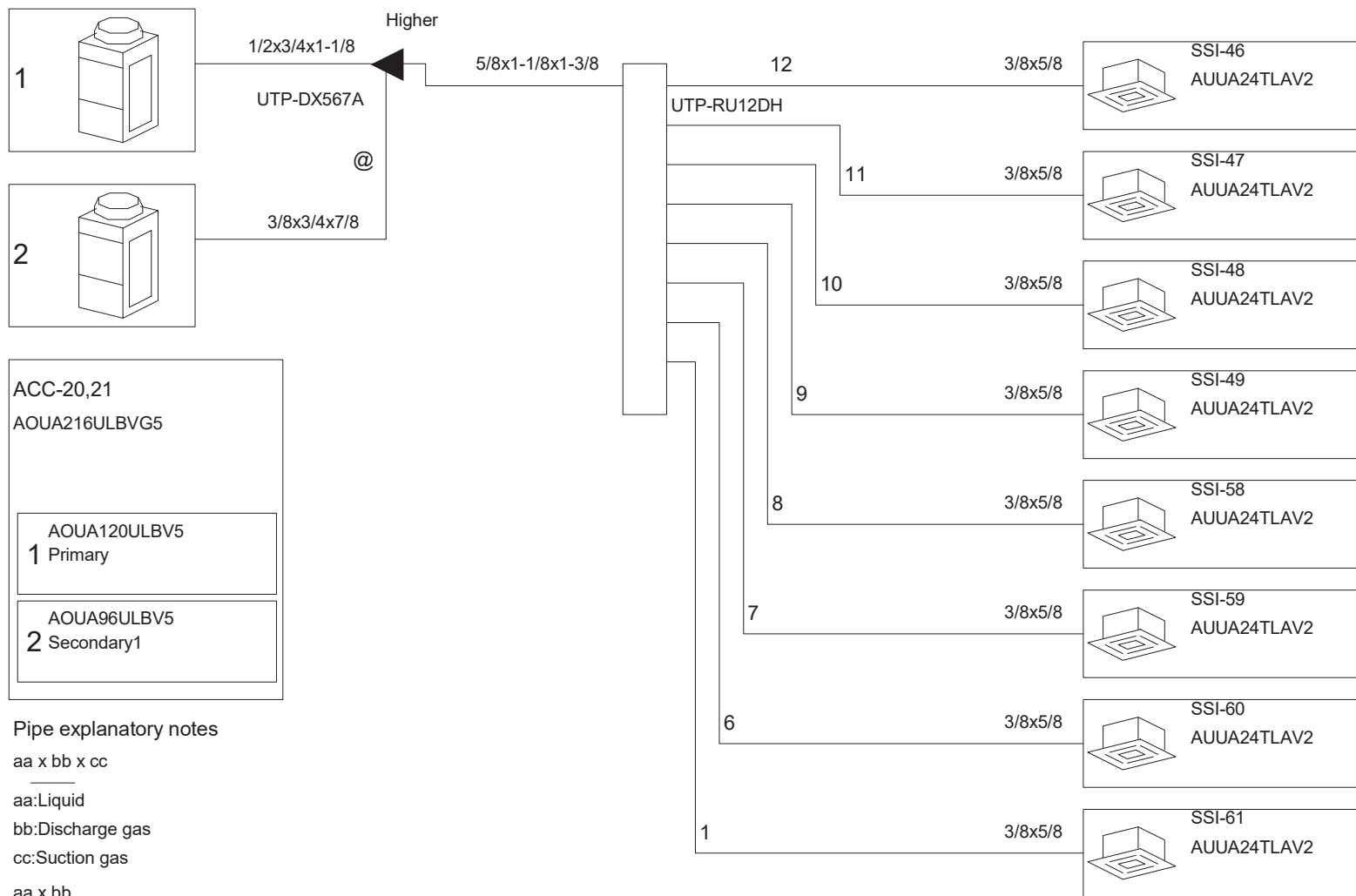


Pipe explanatory notes
aa x bb x cc
aa:Liquid
bb:Discharge gas
cc:Suction gas
aa x bb
aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations.
(e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

2 ACC-18,19 PIPING SCHEMATIC

NOT TO SCALE

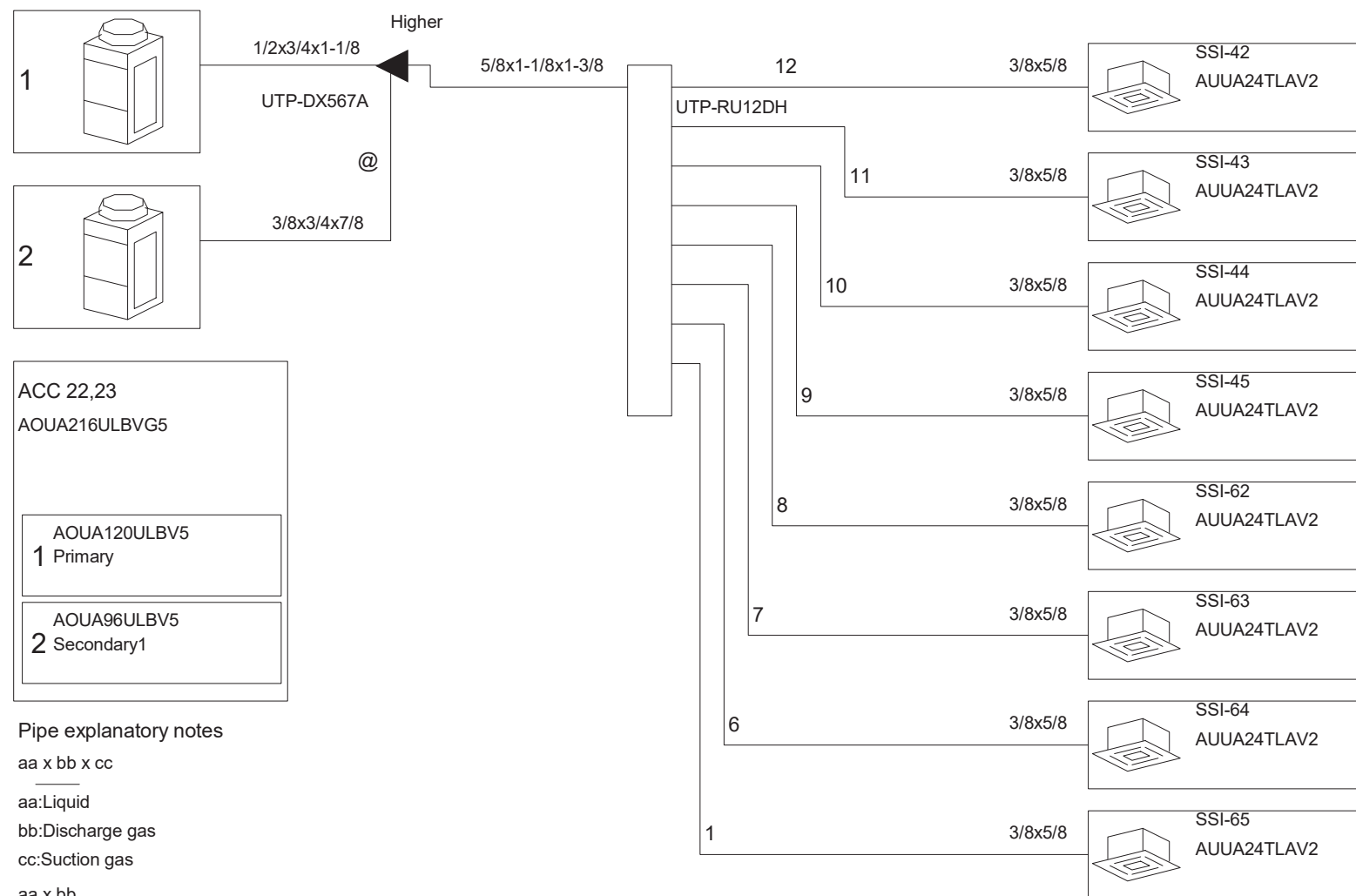


Pipe explanatory notes
aa x bb x cc
aa:Liquid
bb:Discharge gas
cc:Suction gas
aa x bb
aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations.
(e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

3 ACC-20,21 PIPING SCHEMATIC

NOT TO SCALE

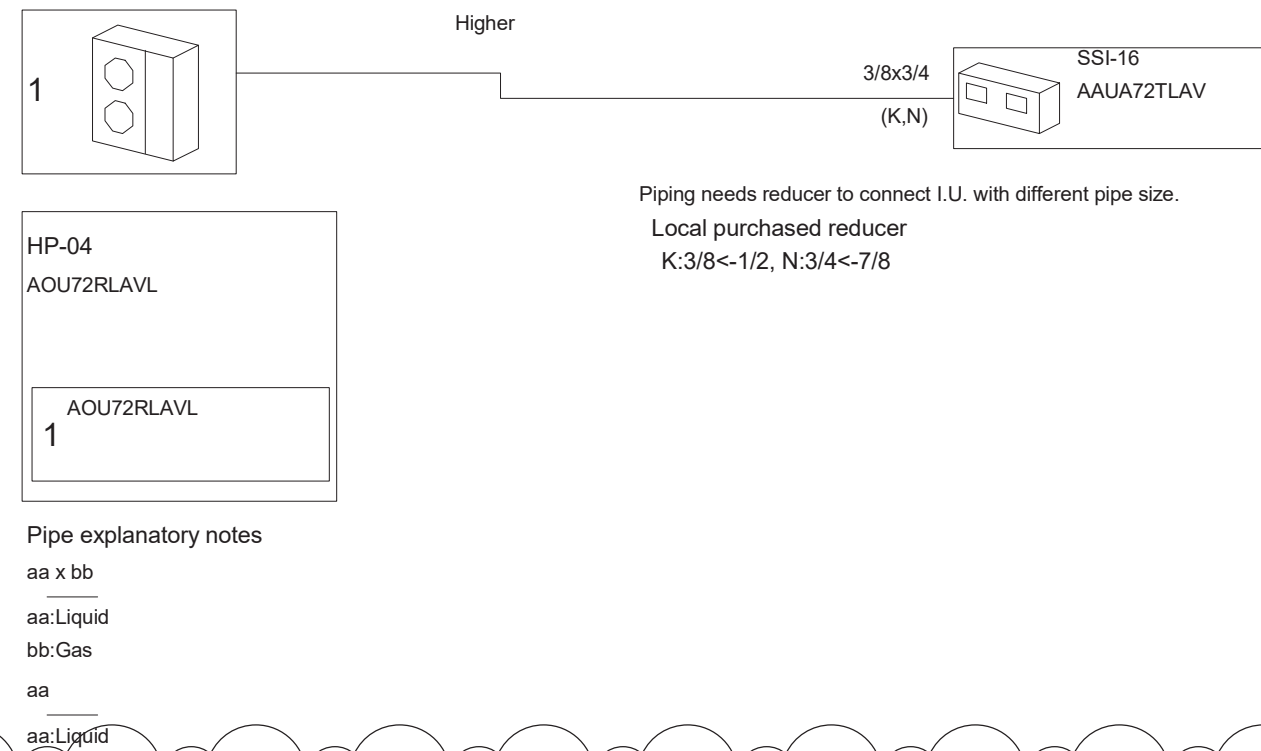


Pipe explanatory notes
aa x bb x cc
aa:Liquid
bb:Discharge gas
cc:Suction gas
aa x bb
aa:Liquid
bb:Gas

@ Specific installation rules may be applicable for piping multiple outdoor combinations.
(e.g. rise setting for gas pipe).Refer to outdoor unit installation manual for specifics.

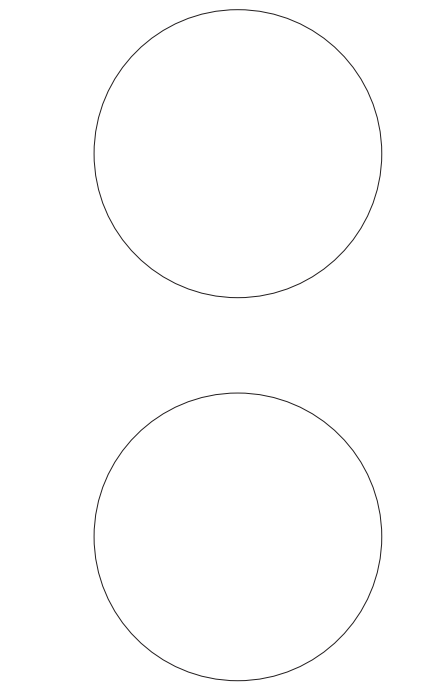
4 ACC-22,23 PIPING SCHEMATIC

NOT TO SCALE



5 HP-4 PIPING SCHEMATIC

NOT TO SCALE



1/1/16/2023 3:45:21 PM <project location> REVIT PROJECT FILES ON BIM360

DX COIL SCHEDULE																	
TAG	LOCATION / SERVICES	SUPPLY AIR (CFM)	DCV OA (CFM)	NOMINAL CAPACITY (TON)	COOLING CAPACITY								MFG SIZE	MFG SIZE HXL (IN.)	ROWS	TYPICAL UNIT MFG & MODEL NO.	NOTES:
					TOTAL MBH	SENS MBH	EAT°F		LAT°F		AMB °F	MAX APD (IN WC)					
							DB	WB	DB	WB							
DX-1	ROOF / AUDITORIUM	5025	2700	20.3	243.2	170.2	84.0	69.2	55.0	54.5	93 / 75	0.83	9.93 SF	28.7 / 11.2	6	CARRIER 28ME	1.2
DX-2	ROOF / GYMNASIUM	5163	1800	18.2	217.9	152.5	81.2	67.2	55.0	54.5	93 / 75	0.37	14.34 SF	32.6 / 11.6	4	CARRIER 28ME	1.2
<u>NOTES:</u> 1. COORDINATE REFRIGERATION TYPE WITH CONDENSING UNIT 2. LOCATE IN EXISTING RTU, UPSTREAM OF SUPPLY FAN, DOWN STREAM FROM FILTERS.																	

REFRIGERANT BRANCH BOXES											
MARK	UNIT SERVES	NUMBER OF BRANCHES AVAILABLE	NUMBER OF BRANCHES USED	MAX TOTAL CAPACITY (MBH)	MAX BRANCH CAPACITY (MBH)	CONNECTED TOTAL HEATING CAPACITY (MBH)	CONNECTED TOTAL COOLING CAPACITY (MBH)	DIMENSIONS (H × W × D)	POWER (V/Ø/HZ)	POWER (WATTS)	TYPICAL UNIT MFG & MODEL NO.
RBU-1	ACC-1,2	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-2	ACC-3,4	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-4	ACC-6	8	8	245	27	1010.4	852	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-6	ACC-9,10	12	10	324	27	3240	2880	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-7	ACC-11,12	8	6	245	27	1944	1728	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-8	ACC-13,14	8	7	245	27	2268	2016	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH
RBU-9	ACC-18,19	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-10	ACC-20,21	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-11	ACC-22,23	12	8	245	27	2592	2304	11" × 39" × 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH
RBU-12	ACC-15,16	8	6	245	27	1944	1728	11" × 26" × 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH

FAN SCHEDULE												
TAG	LOCATION	SERVICE	TYPE	CFM	SP IN W.G.	RPM	ELECTRICAL DATA			TYPICAL UNIT MFG & MODEL NO.	NOTES:	
							HP	VOLTS	PHASE			AMPS
EF-1	ROOF	CRAWLSPACE	DOWNBLAST	2320	1.3	1725	1-1/2	208	1	11	GREEHECK G-140-A	1-2
EF-2	ROOF	TOILETS	DIRECT	900	0.3	959	1/4	115	1	3.8	GREEHECK G-120-VG	1-2
NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT. 2. HINGED BASE AND BIRD SCREEN.												

REGISTERS, GRILLES, AND DIFFUSERS						
TAG	APPLICATION	MATERIAL	TYPE	FINISH	DESIGN EQUIP.	NOTES:
D-1	SUPPLY	STEEL	CEILING GRILLE	WHITE	PRICE 500	3
D-2	SUPPLY	STEEL	LAY-IN	WHITE	PRICE SPD	2,4
D-3	SUPPLY	STEEL	ROUND	WHITE	PRICE HCD	1
R-1	RETURN/EA	STEEL	CEILING GRILLE	WHITE	PRICE 510	3
R-2	RETURN/EA	STEEL	LAY-IN	WHITE	PRICE PDN	-
R-3	RETURN/EA	STEEL	LAY-IN	WHITE	PRICE PDDR	-
NOTES: 1. OPPOSED BLADE DAMPER. 2. STANDARD AIR FLOW PATTERN. 3. SINGLE DEFLECTION, BLADES PARALLEL TO LENGTH. 4. INSULATED BACK PAN.						

ENERGY RECOVERY UNIT																					
TAG	LOCATION	AREA SERVED	SA/OA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN					EXHAUST FAN					HEATING TYPE	FROST CONTROL	OPERATING WEIGHT (LBS)	FILTERS	UNIT ELECTRICAL REQUIREMENTS	
						FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP	FAN TYPE	E.S.P. (IN. WC)	RPM	BHP	HP					V/Ø/HZ	FLA
ERU-1	ROOF	CLASSROOMS	1885	1885	1885	PLENUM	1	1760	1.39	2	PLENUM	0.5	1562	0.77	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-2	ROOF	CLASSROOMS	1620	1620	1620	PLENUM	1	1760	1.14	2	PLENUM	0.5	1454	0.61	2	ELECTRIC	YES	1524	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-5	ROOF	CLASSROOMS	1120	1120	1120	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-6	ROOF	CLASSROOMS	2120	2120	2120	PLENUM	1	1760	1.62	2	PLENUM	0.5	1635	0.8	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-7	ROOF	CLASSROOMS	1230	1230	1230	PLENUM	1	1760	0.8	2	PLENUM	0.5	1633	0.4	1	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-8	ROOF	CLASSROOMS	1260	1260	1260	PLENUM	1	1760	0.8	2	PLENUM	0.5	1626	0.4	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-9	ROOF	CLASSROOMS	1990	1990	1990	PLENUM	1	1760	1.53	2	PLENUM	0.5	1608	0.84	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-10	ROOF	CLASSROOMS	1690	1690	1690	PLENUM	1	1760	1.2	2	PLENUM	0.5	1481	0.65	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-11	ROOF	CLASSROOMS	1680	1680	1680	PLENUM	1	1760	1.2	2	PLENUM	0.5	1481	0.65	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	78
ERU-12	ROOF	CLASSROOMS	1300	1300	1300	PLENUM	1	1760	0.8	2	PLENUM	0.5	1321	0.4	1	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54
ERU-13	ROOF	CLASSROOMS	2240	2240	2240	PLENUM	1	1760	1.7	2	PLENUM	0.5	1684	0.9	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	120

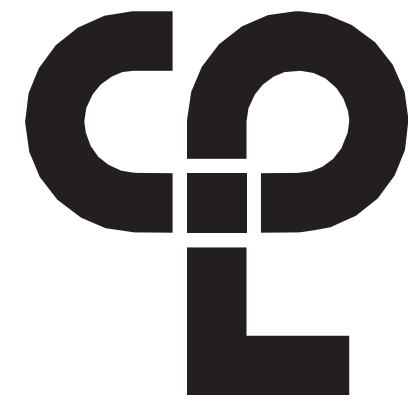
ENERGY RECOVERY UNIT (CONT.)																				
TAG	WINTER CONDITIONS									SUMMER CONDITIONS									TYPICAL UNIT MFG & MODEL NO.	NOTES
	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ WINTER DESIGN	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				EFFECTIVENESS @ SUMMER DESIGN		
	OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR			OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR				
	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)		TOTAL %	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)			
ERU-1	-7	-8	65	62	39.2	39.2	18.7	18.7	65.4	90	71	75	62	79.8	65.1	85	68.1	65.4	AAON RN-007-80-E60E14A	1,2,3,4
ERU-2	-7	-8	65	62	41.6	41.6	16.3	16.3	68.2	90	71	75	62	79.3	64.9	85.4	68.4	68.2	AAON RN-006-80-E60E13A	1,2,3,4
ERU-5	-7	-8	65	62	46.2	46.2	11.7	11.7	74.3	90	71	75	62	78.4	64.3	86.4	68.9	74.3	AAON RN-006-80-E60E12A	1,2,3,4
ERU-6	-7	-8	65	62	42	42	18.7	18.7	65.1	90	71	75	62	79.3	64.8	84.9	68.1	65.1	AAON RN-007-80-E60E14A	1,2,3,4
ERU-7	-7	-8	65	62	45.2	45.2	12.7	12.7	72.9	90	71	75	62	78.6	64.4	86.2	68.8	72.9	AAON RN-006-80-E60E12A	1,2,3,4
ERU-8	-7	-8	65	62	45.3	45.3	12.7	12.7	73.1	90	71	75	62	78.6	64.4	86.2	68.8	73.1	AAON RN-006-80-E60E12A	1,2,3,4
ERU-9	-7	-8	65	62	38.2	38.2	19.7	19.7	63.8	90	71	75	62	80	65.3	84.8	68	63.8	AAON RN-007-80-E60E14A	1,2,3,4
ERU-10	-7	-8	65	62	41	41	16.9	16.9	67.4	90	71	75	62	79.4	64.9	85.3	68.3	67.4	AAON RN-007-80-E60E13A	1,2,3,4
ERU-11	-7	-8	65	62	41	41	16.9	16.9	67.4	90	71	75	62	79.4	64.9	85.3	68.3	67.4	AAON RN-007-80-E60E13A	1,2,3,4
ERU-12	-7	-8	65	62	46.5	46.5	12.7	12.7	73.1	90	71	75	62	78.3	64.3	86.2	68.8	73.1	AAON RN-006-80-E60E12A	1,2,3,4
ERU-13	-7	-8	65	62	33.6	33.6	19.8	19.8	63.7	90	71	75	62	81	65.9	84.7	68	63.7	AAON RN-007-80-E60E15A	1,2,3,4
NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT. 2. FRESH AIR AND EXHAUST DAMPERS. 3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS. 4. DIRTY FILTER SENSORS.																				

ENERGY RECOVERY UNIT (CONT.)																		
TAG	TYPE	FINS PER INCH	ROWS	FACE VEL	COIL PD	REF.	COMP QTY	COOLING				REHEAT		HEATING				
								TOTAL CAPACITY (MBH)	SENSIBLE (MBH)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT(F)	OAT(F)	RAT(F)	EAT(F)	TOTAL CAPACITY (MBH)	INPUT KW
ERU-1	AIR TO AIR	14	3	221	0.12	R410A	1	105	52.9	79.8	55.2	34	70/59	-7.0	65	39.2	102.4	30
ERU-2	AIR TO AIR	14	3	190	0.09	R410A	1	93.2	46.1	79.3	54.4	31	70/58.7	-7.0	65	41.6	76.8	22.5
ERU-5	AIR TO AIR	14	3	131		R410A	1	79.6	37.8	78.4/64.3	48.2/47	28	70/56.3	-7.0	65	46.2	51.2	15
ERU-6	AIR TO AIR	14	3	249	0.14	R410A	1	106	55.7	79.3	54.5	35	70/59.4	-7.0	65	42.1	102.4	30
ERU-7	AIR TO AIR	14	3	144	0.06	R410A	1	83	39.7	78.6	49.8	29	70/56.9	-7.0	65	45.2	68.3	20
ERU-8	AIR TO AIR	14	3	143	0.06	R410A	1	82.7	39.6	78.6	49.6	29	70/56.8	-7.0	65	45.3	51.2	15
ERU-9	AIR TO AIR	14	3	233	0.12	R410A	1	107	54.4	80	56.2	34	70/59.3	-7.0	65	38.2	102.4	30
ERU-10	AIR TO AIR	14	3	198	0.1	R410A	1	100	49.7	79.4	53.6	33	70/58.3	-7.0	65	41	76.8	22.5
ERU-11	AIR TO AIR	14	3	197	0.1	R410A	1	100	49.7	79.4	53.6	33	70/58.3	-7.0	65	41	76.8	22.5
ERU-12	AIR TO AIR	14	3	152	0.07	R410A	1	83.4	40.9	78.3	50.4	30	70/57.1	-7.0	65	46.5	51.2	15
ERU-13	AIR TO AIR	14	3	261	0.14	R410A	1	109	58.6	81	58.1	34	70/60.2	-7.0	65	33.7	128	37.6

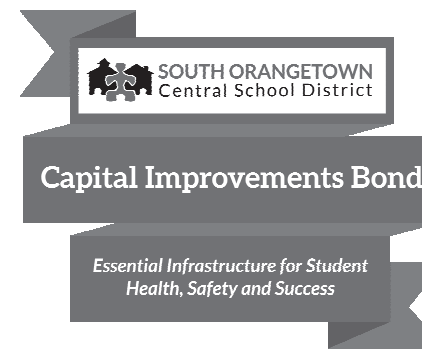
VRF INDOOR UNITS														
MARK	ROOM SERVED	TYPE	AIRFLOW (H/L) CFM	OUTDOOR AIRFLOW CFM	ESP (INWG)	NOM. HEATING CAPACITY MBH	NOM. COOLING CAPACITY MBH	DIMENSIONS (H" X W" X D")	WEIGHT (LBS)	POWER (V/0/HZ)	MOCp	FLA	TYPICAL UNIT MFG & MODEL NO.	REMARKS:
SSI-1	KINDERGARTEN RM 32	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-2	KINDERGARTEN RM 32	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-3	KINDERGARTEN RM 21	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-4	KINDERGARTEN RM 21	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-5	KINDERGARTEN RM 19	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-6	KINDERGARTEN RM 19	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-7	KINDERGARTEN RM 17	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-8	KINDERGARTEN RM 17	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-9	FIRST GRADE RM 15	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-10	FIRST GRADE RM 15	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-11	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-12	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-13	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-14	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-15	LIBRARY RM 5	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-16	MAKERSPACE RM 3	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-17	MAKERSPACE RM 3	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-18	MAKERSPACE RM 3	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-19	1ST GRADE RM 1	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-20	1ST GRADE RM 1	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-21	KINDERGARTEN RM 104	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-22	KINDERGARTEN RM 104	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-23	OT/PT RM 105	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-24	OT/PT RM 105	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-25	OFFICES M1/M2/M3	DUCTED	860/760/648	60	-	27	24	52 X 32 X 12	104	208/1/60	15	0.88	FUJITSU ARUM24TLAV2	1-5
SSI-26	KINDERGARTEN RM 103	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-27	KINDERGARTEN RM 103	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-28	KINDERGARTEN RM 102	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-29	KINDERGARTEN RM 102	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-30	KINDERGARTEN RM 101	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-31	KINDERGARTEN RM 101	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-32	SPECIAL ED RM 100	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-33	SPECIAL ED RM 100	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-34	1ST GRADE RM 2	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-35	1ST GRADE RM 2	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-36	1ST GRADE RM 4	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-37	1ST GRADE RM 4	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-38	1ST GRADE RM 6	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-39	1ST GRADE RM 6	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-40	MUSIC RM 62	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-41	MUSIC RM 62	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-42	2ND GRADE RM 64	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-43	2ND GRADE RM 64	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-44	2ND GRADE RM 66	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-45	2ND GRADE RM 66	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-46	2ND GRADE RM 68	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-47	2ND GRADE RM 68	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-48	1ST GRADE RM 70	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-49	1ST GRADE RM 70	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-50	2ND GRADE RM 72	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-51	2ND GRADE RM 72	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5

VRF INDOOR UNITS														
MARK	ROOM SERVED	TYPE	AIRFLOW (H/M/L) CFM	OUTDOOR AIRFLOW CFM	ESP (IN/WG)	NOM. HEATING CAPACITY MBH	NOM. COOLING CAPACITY MBH	DIMENSIONS (H" X W" X D")	WEIGHT (LBS)	POWER (V/Ø/Hz)	MOCP	FLA	TYPICAL UNIT MFG & MODEL NO.	REMARKS:
SSI-52	ART RM 74	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-53	ART RM 74	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-54	1ST GRADE RM 71	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-55	1ST GRADE RM 71	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-56	1ST GRADE RM 69	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-57	1ST GRADE RM 69	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-58	2ND GRADE RM 67	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-59	2ND GRADE RM 67	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-60	2ND GRADE RM 65	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-61	2ND GRADE RM 65	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-62	2ND GRADE RM 63	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-63	2ND GRADE RM 63	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-64	1ST GRADE RM 61	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-65	1ST GRADE RM 61	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-66	2ND GRADE RM 59	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-67	2ND GRADE RM 59	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-68	2ND GRADE RM 57	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-69	2ND GRADE RM 57	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	208/1/60	15	0.62	FUJITSU AUUA24TLAV2	1-5
SSI-70	STAFF LOUNGE RM 51	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	208/1/60	15	0.41	FUJITSU AUUA18TLAV2	1-5
SSI-71	ENL RM44	CEILING CASSETTE	353/306/253	-	-	13.5	12	23 X 23 X 10	42	208/1/60	15	0.41	FUJITSU AUUA12TLAV2	1-5
SSI-72	OFFICE RM 42	CEILING CASSETTE	312/265/230	-	-	4.4	4	23 X 23 X 10	40	208/1/60	15	0.23	FUJITSU AUUA4TLAV2	1-5
SSH-73	P.E. OFFICE RM 80B	CEILING CASSETTE	319/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-74	CORRIDOR 3	VENTILATION UNIT	989/742/495	600	-	47	72	60 X 27 X 20	139	208/1/60	15	-	FUJITSU AAUA72TLAV	1-5
SSI-75	COACH OFFICE RM 39	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-76	AID'S OFFICE RM 38	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	208/1/60	15	0.41	FUJITSU AUUA7TLAV2	1-5
SSI-77	NURSE RM 16	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	208/1/60	15	0.41	FUJITSU AUUA18TLAV2	1-5

SPLIT SYSTEM OUTDOOR CONDENSING UNIT SCHEDULE																		
NAME	LOCATION	SERVES	EER	COP	RATED COOLING CAPACITY (TON)	RATED HEATING CAPACITY (TON)	TOTAL COOLING CAPACITY (TON)	TOTAL HEATING CAPACITY (TON)	ELECTRICAL DATA					DIMENSIONS (H X W X D) (INCH)	WEIGHT (LBS)	MANUF.	MODEL	NOTES
									POWER (Ø/1/2)	RATED CURRENT IN COOLING (A)	RATED CURRENT IN HEATING (A)	MCA (A)	MFA (A)					
ACC-1,2,	ROOF	SSI-1, SSI-2, SSI-3, SSI-4, SSI-5, SSI-6, SSI-89, SSI-90	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FWJITSU	AQUA120ULBVB5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AQUA96ULBVB5	
ACC-3,4	ROOF	SSI-7, SSI-8, SSI-9, SSI-16, SSI-85, SSI-86, SSI-87, SSI-88	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FWJITSU	AQUA120ULBVB5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AQUA96ULBVB5	
ACC-5	ROOF	SSI-74	11	3.48	16	18	12.88	8.4	3/208/60	14.83	13.94	71	40	64-1/2 X 42-1/2 X 18-7/8	489.6	FWJITSU	AQUA272RLAVL	1,2,3
ACC-6	ROOF	SSI-75, SSI-76, SSI-77, SSI-78, SSI-79, SSI-80, SSI-81, SSI-82, SSI-84	14.9	4.42	6	6.75	3.64	4.83	3/208/60	17.64	19.4	29.3	60	66-9/16 X 48-13/16 X 30-1/8	622	FWJITSU	AQUA96ULBVB5	1,2,3
ACC-7,8	ROOF	SSI-11, SSI-12, SSI-13, SSI-14, SSI-15	14.4	4.07	12	13.5	8.17	9.67	3/208/60	24.36	28.25	49.8	60	66-9/16 X 63 X 30-1/8	937	FWJITSU	AQUA144ULBVB5	1,2,3
ACC-9,10	ROOF	SSI-17, SSI-18, SSI-19, SSI-20, SSI-34, SSI-35, SSI-36, SSI-37, SSI-38, SSI-39	11.7	3.52	22	24.75	15.89	17.72	3/208/60	24.36	28.25	93.7	60	66-9/16 X 63 X 30-1/8	937	FWJITSU	AQUA144ULBVB5	1,2,3
									3/208/60	21.69	26.71		50	66-9/16 X 36-5/16 X 30-1/8	569		AQUA120ULBVB5	1.2
ACC-11,12	ROOF	SSI-21, SSI-22, SSI-30, SSI-31, SSI-32, SSI-33	12.2	3.78	14	15.67	9.62	10.78	3/208/60	33.49	35.83	59.8	70	66-9/16 X 63 X 30-1/8	937	FWJITSU	AQUA168ULBVB5	1,2,3
ACC-13,14	ROOF	SSI-23, SSI-24, SSI-25, SSI-26, SSI-27, SSI-28, SSI-29	11	3.48	16	18	11	12.72	3/208/60	33.49	45.08	71	80	66-9/16 X 63 X 30-1/8	937	FWJITSU	AQUA192ULBVB5	1,2,3
ACC-15,16	ROOF	SSI-40, SSI-41, SSI-46, SSI-67, SSI-68, SSI-69	12.2	3.78	14	15.67	9.62	10.78	3/208/60	33.49	35.83	59.8	70	66-9/16 X 63 X 30-1/8	937	FWJITSU	AQUA168ULBVB5	1,2,3
ACC-17	ROOF	SSI-70, SSI-71, SSI-72, SSI-73	12.5	3.88	4	4.5	2.83	3.43	1/208/60	16.38	17.44	29.8	30	52-1/2 X 38-3/16 X 14-9/16	265	FWJITSU	AQUA48RLAVM4	1,2,3
ACC-18,19	ROOF	SSI-50, SSI-51, SSI-52, SSI-53, SSI-54, SSI-55, SSI-56, SSI-57	10.9	3.47	18	20.25	12.37	14.01	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FWJITSU	AQUA120ULBVB5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AQUA96ULBVB5	
ACC-20,21	ROOF	SSI-46, SSI-47, SSI-48, SSI-49, SSI-58, SSI-59, SSI-60, SSI-61	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FWJITSU	AQUA120ULBVB5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AQUA96ULBVB5	
ACC 22,23	ROOF	SSI-42, SSI-43, SSI-44, SSI-45, SSI-62, SSI-63, SSI-64, SSI-65	10.9	3.47	18	20.25	13	14.19	3/208/60	21.69	26.71	81.6	50	66-9/16 X 36-5/16 X 30-1/8	569	FWJITSU	AQUA120ULBVB5	1,2,3
	ROOF								3/208/60	17.64	19.4		60	66-9/16 X 48-13/16 X 30-1/8	622		AQUA96ULBVB5	
SSO-1	HIGH ROOF	DX COIL	10.4	-	25	-	264.7	-	3/208/60	-	-	120.2	150	66.5 × 40.3 × 88.2	1095	CARRIER	38APD255H	1,2
SSO-2	HIGH ROOF	DX COIL	10.6	-	20	-	224.3	-	3/208/60	-	-	114.8	100	50.4 × 67.4 × 86.1	976	CARRIER	38AUD125	1,2
HP-05																		
HP-04	ROOF	SSI-16	12.1	4.19	6	6.75	6.86	6.07	3/208/60	14.83	13.94	38	40	64-1/2 X 42-1/2 X 18-7/8	469.6	FWJITSU	AQUA272RLAVL	1,2,3
NOTES:	1. FACTORY MOUNTED DISCONNECT 2. 95°F OUTDOOR TEMPERATURE IN COOLING (DRY BULB), 10°F OUTDOOR TEMPERATURE IN HEATING/DRY BULB) 3. LOW AMBIENT TEMPERATURE KIT																	



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PROJECT INFORMATION

Project Number
14457.20

Client Name

SOUTH

SCHOOL DISTRICT

Project Name

PHASE 1: 2022 BOND

District Office Address
160 VAN WYCK RD. BLAUVELT, NY 10913

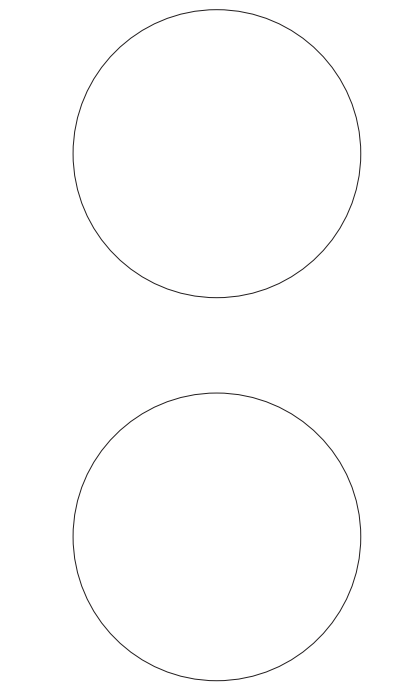
SOUTH ORANGETOWN CSD

☐ WILLIAM O. SCHAEFER SED#: 50-03-01-06-0-012-019
☐ COTTAGE LANE ELEMENTARY SED#: 50-03-01-06-0-010-007
☐ TAPPAN ZEE HIGH SCHOOL SED#: 50-03-01-06-0-006-032
☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-012-020
☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-010-023
☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-0-023-002
☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-000
☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-000
☐ CLE OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
☐ THHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-000

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



NEW YORK STATE EDUCATION STATEMENT

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SHEET INFORMATION

Issued	Scale
10/18/2023	NOT TO SCALE
Project Status	
BID DOCUMENTS	
Drawn By	Checked By
KCM	JJM
Drawing Title	

MECHANICAL SCHEDULES

Drawing Number

WOS
H901

VENTILATION CALCULATIONS													
SPACE NAME		HVAC SYSTEM	SPACE MAXIMUM SUPPLY (CFM)	FLOOR AREA (SQ FT)	OCCUPANT DENSITY (PERSON/SQ FT)	TOTAL OCCUPANCY FOR VENTILATION (PEOPLE/1000 SQ FT)	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON)	AREA OUTDOOR AIRFLOW RATE (CFM/SQ FT)	EXHAUST AIRFLOW RATE (CFM/SQ FT)	AIR DISTRIBUTION EFFECTIVENESS	BREATHING OUTDOOR AIR (CFM)	ZONE OUTDOOR AIRFLOW (CFM)	ADJUSTED CFM
ROOM #	CLASSIFICATION		Vpz	Az	A		Rp	Ra		Ez	Vbz	Voz	
1	CLASSROOMS (5-8)	SSI-19.20	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
2	CLASSROOMS (5-8)	SSI-34.35	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
3	CLASSROOMS (5-8)	SSI-17.18	425	885 SF	25	23	10.0	0.12	-	0.8	336	421	425
4	CLASSROOMS (5-8)	SSI-30.37	425	888 SF	25	23	10.0	0.12	-	0.8	337	421	425
5	LIBRARY	ERU-5	240	1099 SF	10	11	5.0	0.12	-	0.8	187	234	240
5A	LIBRARY	ERU-5	190	882 SF	10	9	5.0	0.12	-	0.8	151	189	190
6	CLASSROOMS (5-8)	SSI-38.39	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
15	CLASSROOMS (5-8)	SSI-9.10	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
16	OFFICE SPACES	SSI-7.7	55	464 SF	5	3	5.0	0.06	-	0.8	43	54	55
16B	SICKROOM	SSI-7.8	50	66 SF	25	2	10.0	0.18	-	0.8	32	40	50
17	CLASSROOMS (5-8)	SSI-7.8	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
19	CLASSROOMS (5-8)	SSI-5.6	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
20	OFFICE SPACES	SSI-8.4	250	228 SF	5	2	5.0	0.06	-	0.8	24	30	50
21	CLASSROOMS (5-8)	SSI-3.4	480	1025 SF	25	26	10.0	0.12	-	0.8	383	479	480
22	OFFICE SPACES	SSI-8.4	150	104 SF	5	1	5.0	0.06	-	0.8	11	15	50
23	OFFICE SPACES	SSI-8.4	240	266 SF	5	2	5.0	0.06	-	0.8	26	33	50
23A	OFFICE SPACES	SSI-8.4	200	142 SF	5	1	5.0	0.06	-	0.8	14	17	50
23B	OFFICE SPACES	SSI-8.4	200	142 SF	5	1	5.0	0.06	-	0.8	14	17	50
24	CLASSROOMS (5-8)	SSI-85.86	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
26	CLASSROOMS (5-8)	SSI-87.88	405	857 SF	25	22	10.0	0.12	-	0.8	323	404	405
30	CLASSROOMS (5-8)	SSI-89.90	520	1105 SF	25	28	10.0	0.12	-	0.8	413	516	520
32	CLASSROOMS (5-8)	SSI-1.2	480	1025 SF	25	26	10.0	0.12	-	0.8	383	479	480
37A	CLASSROOMS (5-8)	SSI-79.80	280	600 SF	25	15	10.0	0.12	-	0.8	222	278	280
37B	CLASSROOMS (5-8)	SSI-81.82	170	356 SF	25	9	10.0	0.12	-	0.8	133	166	170
38	OFFICE SPACES	SSI-7.6	50	309 SF	5	2	5.0	0.06	-	0.8	29	36	50
39	OFFICE SPACES	SSI-7.5	50	261 SF	5	2	5.0	0.06	-	0.8	26	33	50
42	OFFICE SPACES	SSI-7.2	50	141 SF	5	1	5.0	0.06	-	0.8	13	17	50
44	CLASSROOMS (5-8)	SSI-7.1	185	377 SF	25	10	10.0	0.12	-	0.8	145	182	185
51	BREAK ROOMS	SSI-7.0	105	369 SF	30	12	5.0	0.06	-	0.8	82	103	105
57	CLASSROOMS (5-8)	SSI-68.69	425	898 SF	25	23	10.0	0.12	-	0.8	338	423	425
59	CLASSROOMS (5-8)	SSI-66.67	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
61	CLASSROOMS (5-8)	SSI-64.65	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
62	MUSIC/THEATER/DANCE	SSI-40.41	455	882 SF	35	31	10.0	0.06	-	0.8	363	454	455
63	CLASSROOMS (5-8)	SSI-62.63	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
64	CLASSROOMS (5-8)	SSI-42.43	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
65	CLASSROOMS (5-8)	SSI-60.61	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
66	CLASSROOMS (5-8)	SSI-44.45	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
67	CLASSROOMS (5-8)	SSI-58.59	425	889 SF	25	23	10.0	0.12	-	0.8	337	421	425
68	CLASSROOMS (5-8)	SSI-46.47	420	882 SF	25	23	10.0	0.12	-	0.8	336	420	420
69	CLASSROOMS (5-8)	SSI-56.57	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
70	CLASSROOMS (5-8)	SSI-48.49	425	889 SF	25	23	10.0	0.12	-	0.8	337	421	425
71	CLASSROOMS (5-8)	SSI-54.55	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
72	CLASSROOMS (5-8)	SSI-50.51	425	891 SF	25	23	10.0	0.12	-	0.8	337	422	425
74	ART CLASSROOM	SSI-52.53	715	891 SF	20	18	10.0	0.18	0.70	0.8	340	713	715
80C	OFFICE SPACES	SSI-7.3	50	186 SF	5	1	5.0	0.06	-	0.8	16	21	50
100	CLASSROOMS (5-8)	SSI-32.33	410	869 SF	25	22	10.0	0.12	-	0.8	324	406	410
101	CLASSROOMS (5-8)	SSI-30.31	410	870 SF	25	22	10.0	0.12	-	0.8	324	406	410
102	CLASSROOMS (5-8)	SSI-28.29	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
103	CLASSROOMS (5-8)	SSI-26.27	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
104	CLASSROOMS (5-8)	SSI-21.22	410	872 SF	25	22	10.0	0.12	-	0.8	325	406	410
105	HEALTH CLUB/WEIGHT ROOM	SSI-23.24	290	856 SF	10	9	20.0	0.06	-	0.8	231	290	290
106	CORRIDOR	RTU-3	100	172 SF	-	0	-	0.06	-	0.8	10	13	50
106A	OFFICE SPACES	RTU-3	380	181 SF	5	1	5.0	0.06	-	0.8	16	20	50
106B	OFFICE SPACES	RTU-3	360	132 SF	5	1	5.0	0.06	-	0.8	13	17	50
106C	OFFICE SPACES	RTU-3	180	124 SF	5	1	5.0	0.06	-	0.8	12	16	50
106D	OFFICE SPACES	RTU-3	250	245 SF	5	2	5.0	0.06	-	0.8	25	31	50
M1	OFFICE SPACES	SSI-25	175	113 SF	5	1	5.0	0.06	-	0.8	12	15	50
M2	OFFICE SPACES	SSI-25	228	150 SF	5	1	5.0	0.06	-	0.8	14	18	50
M3	OFFICE SPACES	SSI-25	365	241 SF	5	2	5.0	0.06	-	0.8	24	31	50
1	CORRIDOR	ERU-13	1,350	2472 SF	-	0	-	0.06	-	0.8	148	186	200
2	CORRIDOR	ERU-13	500	1500 SF	-	0	-	0.06	-	0.8	90	113	120
3	CORRIDOR	ERU-5	600	1915 SF	-	0	-	0.06	-	0.8	115	144	150
3	CORRIDOR	SSI-7.4	980	1915 SF	-	0	-	0.06	-	0.8	115	144	150

ROOFTOP AIR CONDITIONING UNIT SCHEDULE												
TAG	LOCATION	NOM. TONS	SEER	SUPPLY FAN			BHP / HP	TOTAL MBH	SENS MBH	COOLING CAPACITY		NOTES:
				CFM	OA CFM	ESP (IN. W.C.)				EAT °F		
RTU-3	ROOF	1-6	13.4	1250	250	1	0.73/1	37.81	25.61	DB	WB	
NOTES:				1. 14" INSULATED CURB. UNIT SHALL HAVE PACKAGED CONTROLS AND CONNECT TO BMS. 2. FACTORY MOUNTED AND WIRED DISCONNECT. 2" PREFILTER, 4" MERV 13 FILTER. 3. DOUBLE WALL R-13 FOAM INSULATION.								

FIN TUBE SCHEDULE												
TAG	LOCATION	BTU/FT.	GPM	TUBE SIZE (IN.)	FINS / FT.	EWT (°F)	EAT (°F)	H (IN.)	D (IN.)	STYLE	TYPICAL UNIT MFG & MODEL NO.	NOTES:
FT-1		1200	0.7	0.75	50	180	65	28"	5-5/16"	BARE ELEMENT	STERLING JVB-T-C3/4-435	1,2,3
NOTES:		1. LOCATE ELEMENT BEHIND MILLWORK BY GC. 2. MC TO FIELD VERIFY ENCLOSURE LENGTH. ENCLOSURE TO BE FULL WIDTH WITHOUT GAPS. 3. COORDINATE HEIGHT WITH ELECTRICAL DEVICES.										

REGISTERS, GRILLES, AND DIFFUSERS						
TAG	APPLICATION	MATERIAL	TYPE	FINISH	DESIGN EQUIP.	NOTES:
D-1	SUPPLY	STEEL	CEILING GRILLE	WHITE	PRICE 500	3
D-2	SUPPLY	STEEL	LAY-IN	WHITE	PRICE SPD	2,4
D-3	SUPPLY	STEEL	ROUND	WHITE	PRICE HCD	1
R-1	RETURN/E	STEEL	CEILING GRILLE	WHITE	PRICE 510	3
R-2	RETURN/E	STEEL	LAY-IN	WHITE	PRICE PDN	-
R-3	RETURN/E	STEEL	GYM RA	WHITE	PRICE 90	1,3
<u>NOTES:</u>	1. OPPOSED BLADE DAMPER. 2. STANDARD AIR FLOW PATTERN. 3. SINGLE DEFLECTION, BLADES PARALLEL TO LENGTH. 4. INSULATED BACK PAN.					

GRAVITY VENTILATOR SCHEDULE										
TAG	LOCATION	SERVICE	MANUF.	MODEL	THROAT AREA (SQ.FT.)	HOOD AREA (SQ.FT.)	AIR FLOW (CFM)	S.P. (IN.WG.)	TYPICAL UNIT MFG & MODEL NO.	NOTES
GI-1	ROOF	I.T. & RESOURCES	GREENHECK	GRSI-8	0.4	2.0	160	0.032	GREENHECK: GRSI-8	1.2
GI-2	ROOF	NURSE	GREENHECK	GRSI-8	0.4	2.0	100	0.013	GREENHECK: GRSI-8	1.2
GR-1	ROOF	I.T. & RESOURCES	GREENHECK	GRSR-8	0.4	2.0	160	0.019	GREENHECK: GRSR-8	1.2
GR-2	ROOF	NURSE	GREENHECK	GRSR-8	0.4	2.0	100	0.008	GREENHECK: GRSR-8	1.2
NOTES:	1. BAROMETRIC RELIEF DAMPER IN CURB. 2. 14" CURB, HINGED BASE AND BIRD SCREEN.									

VRF BRANCH SELECTOR UNITS										
MARK	NUMBER OF BRANCHES AVAILABLE	NUMBER OF BRANCHES USED	MAX TOTAL CAPACITY (MBH)	MAX BRANCH CAPACITY (MBH)	CONNECTED TOTAL HEATING CAPACITY (MBH)	CONNECTED TOTAL COOLING CAPACITY (MBH)	DIMENSIONS (H × W × D)	POWER (V/0HZ)	POWER (WATTS)	TYPICAL UNIT MFG & MODEL NO.
RBU-1	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-2	8	6	245	27	162	144	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-3	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-4	8	5	245	27	128	132	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-5	4	2	191	96	30	51	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-6	8	3	245	27	60	108	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-7	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-8	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-9	4	3	191	96	81	96	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-10	4	4	191	96	49	81	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-11	8	7	245	27	165	195	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-12	4	4	191	96	108	96	11" × 26" × 25"	208-230 / 1 / 60	110 W	FUJITSU UTP-RU08AH
RBU-13	8	8	245	27	216	192	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-14	8	6	245	27	162	144	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH
RBU-15	8	5	245	27	97	135	11" × 26" × 25"	208-230 / 1 / 60	226 W	FUJITSU UTP-RU08AH

HOT WATER REHEAT COIL SCHEDULE														
TAG	LOCATION	AIR DATA					WATER DATA				MFG SIZE HxL (IN.)	ROWS	TYPICAL UNIT MFG & MODEL NO.	NOTES:
		CFM	TEMP °F		MAX APD (IN WC)	MIN. MBH	GPM	TEMP °F		MAX WPD (FT. HD)				
			ENT	LVG				ENT	LVG					
HC-1	GYM	3750	22.6	90.1	0.27	268.6	21.3	180	154.2	2.5	30X30	2	CAPITAL COIL W8-3030-10B-HCA-R	1
HC-2	GYM	3750	22.6	90.1	0.27	268.6	21.3	180	154.2	2.5	30X30	2	CAPITAL COIL W8-3030-10B-HCA-R	1
HC-3	GYM STAGE	2000	28.2	92.0	0.21	138.1	10.7	180	153.2	2.9	18X30	2	CAPITAL COIL W8-3018-09B-HCA-R	1
NOTES: 1. TUBE OD 0.625, TUBE SPACING 1.500 x 1.299														

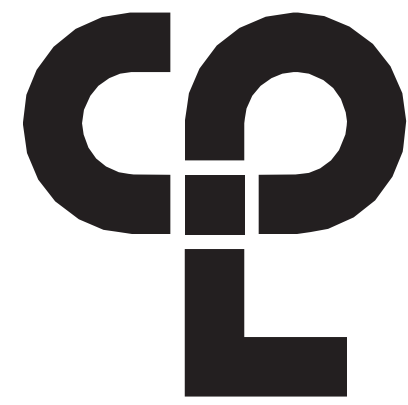
TAG	LOCATION	AIR DATA					ELECTRICAL			MFG SIZE H (IN.)	MFG SIZE L (IN.)	TYPICAL UNIT MFG & MODEL NO.	NOTES:
		CFM	TEMP °F		MAX APD (IN WVG)	KW	VOLTS	Ø	AMPS				
			ENT	LVG									
EC-1	MAIN OFFICE	390	40	72	0.08	13.48	208	3	65	8	10	INDEECO QUA	1.2.3
EC-2	RESOURCE	160	40	72	0.08	5.53	208	3	27	6	6	INDEECO QUA	1.2.3
EC-3	NURSE	100	40	72	0.08	3.46	208	3	17	8	8	INDEECO QUA	1.2.3
EC-4	ENL	265	40	72	0.08	9.16	208	3	45	6	8	INDEECO QUA	1.2.3
EC-5	MAC LAB	260	40	72	0.08	8.99	208	3	45	8	8	INDEECO QUA	1.2.3

NOTES:

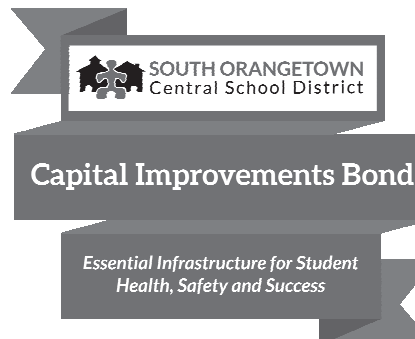
1. PROVIDE PROPORTIONAL SCR CONTROLS AND DUCT TEMPERATURE SENSOR.
2. CONNECT TO BMS.
3. FACTORY MOUNTED AND WIRED DISCONNECT.

ENERGY RECOVERY UNITS																					
TAG	LOCATION	AREA SERVED	SA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN				EXHAUST FAN				TOTAL MBH SAVED SUMMER	TOTAL MBH SAVED WINTER	OPERATING WEIGHT (LBS)	FILTERS	ELECTRICAL REQUIREMENTS		TYPICAL UNIT MFG & MODEL NO.	NOTES
						FAN TYPE	E.S.P. (IN. WC)	WATTS	HP	FAN TYPE	E.S.P. (IN. WC)	WATTS	HP					V/Ø/HZ	MCA		
ERU-12	ROOF	MAIN OFFICE	390	390	390	DIRECT	0.75	395	0.5	DIRECT	0.75	395	0.5	9.0	21.1	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4
ERU-13	CORRIDOR	RESOURCE	160	160	160	DIRECT	0.47	146	0.1	DIRECT	0.47	146	0.1	4.2	9.3	68	MERV 8	208/1	15	RENEWAIRE: EV200	1,2,3,4
ERU-14	212 NURSE	NURSE	100	100	100	DIRECT	0.77	111	0.1	DIRECT	0.77	111	0.1	2.8	6.1	68	MERV 8	208/1	15	RENEWAIRE: EV200	1,2,3,4
ERU-15	ROOF	MAT LABS	260	260	260	DIRECT	0.75	493	0.6	DIRECT	0.75	493	0.6	6.9	15.1	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4
ERU-16	ROOF	ENL. BOOK, CUSTODIAN	265	265	265	DIRECT	0.75	493	0.6	DIRECT	0.75	493	0.6	7.0	15.4	184-243	MERV 8	208/1	15	RENEWAIRE EV450RT	1,2,3,4
NOTES:	1. FACTORY MOUNTED AND WIRED DISCONNECT. 2. FRESH AIR AND EXHAUST DAMPERS. 3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS. 4. DIRTY FILTER SENSORS.																				

VRF INDOOR UNITS															
MARK	ROOM SERVED	TYPE	AIRFLOW (H/M/L) CFM	OUTDOOR AIRFLOW CFM	ESP (INWG)	NOM.HEATING CAPACITY MBH	NOM.COOLING CAPACITY MBH	DIMENSIONS (W" X H" X D")	WEIGHT (LBS)	POWER (2/0/V/HZ)	MOCP	FLA	TYPICAL UNIT MFG & MODEL NO.	NOTES	
SSI-1,2	411	CEILING CASSETTE	607/465/330		-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-3,4	409	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-5,6	407	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-7,8	405	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-9,10	410	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-11,12	408	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-13,14	406	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-15	404	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-16	400B	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-17	400C	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-18,19	400	CEILING CASSETTE	418/348/271	75	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-20,21	106	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-22,23	108	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-24,25	110	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-26,27	111	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-28,29	109	CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-30,31	107	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-32,33	105	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-34	101A	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-35	101G	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-36	200B	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-37	200	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-38	202	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-39	204	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-40,41	206	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-42,43	208	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-44,45	210	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-46,47	209	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-48,49	207	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-50,51	205	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-52	201B	CEILING CASSETTE	318/271/230	110	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-53	202A	CEILING CASSETTE	418/348/271	50	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-54	212	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-55	212A	CEILING CASSETTE	318/271/230	50	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-56,57	300C	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-58	300B	CEILING CASSETTE	318/271/230	-	-	9.5	7.5	23 X 23 X 10	40	1/208/60	15	0.41	FUJITSU AUUA7TLAV2	1,2,3,4,5,6	
SSI-59	300A	CEILING CASSETTE	418/348/271	-	-	20	18	23 X 23 X 10	44	1/208/60	15	0.41	FUJITSU AUUA18TLAV2	1,2,3,4,5,6	
SSI-60	302	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-61,62	301	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-63,64	301A	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-65,66	301B	CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-67	304	CEILING CASSETTE	589/512/436	-	-	27	24	46 X 32 X 13	84	1/208/60	15	0.74	FUJITSU ABUA24TLAV2	1,2,3,4,5,6	
SSI-68,69	306	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-70,71	308	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-72,73	310	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-74,75	312	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-76,77	311	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-78,79	309	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-80,81	307	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-82,83	305	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
SSI-84,85	303	CEILING CASSETTE	607/465/330	-	-	27	24	23 X 23 X 10	44	1/208/60	15	0.62	FUJITSU AUUA24TLAV2	1,2,3,4,5,6	
NOTES:	1. UNIT MOUNTED AND WIRED DISCONNECT. 2. BAC NET INTEGRATION TO BMS. 3. COLOR WHITE. 4. DRAIN PAN LEVEL SENSORS. 5. CONDENSATE PUMP. 6. OUTDOOR UNITS POWERS INDOOR UNITS.														



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Newburgh, NY 12550
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PROJECT INFORMATION

Project Number
14457.20

Client Name

SOUTH

SCHOOL DISTRICT

Project Name
BILBO 1 0000 00

PHASE 1. 2022 BOND

District Office Address

160 VAN WYCK RD.
BLAUVELT, NY 10913

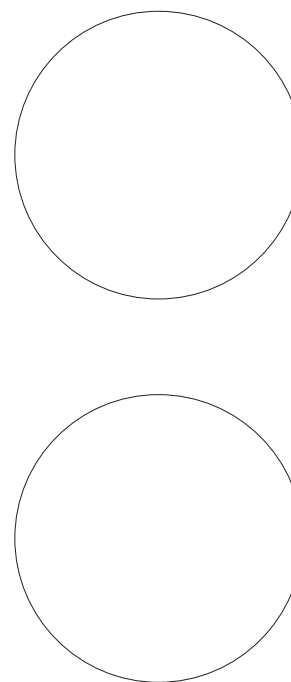
SOUTH ORANGETOWN CSD

☐ WILLIAM O. SCHAEFER SED#: 50-03-01-06-0-012-019
☐ COTTAGE LANE ELEMENTARY SED#: 50-03-01-06-0-010-022
☐ TAPPAN ZEE HIGH SCHOOL SED#: 50-03-01-06-0-006-032
☐ WILLIAM O. SCHAEFER S&L SED#: 50-03-01-06-0-010-012-020
☐ COTTAGE LANE S&L SED#: 50-03-01-06-0-013-023
☐ COTTAGE LANE LIBRARY S&L SED#: 50-03-01-06-06-023-022
☐ WOS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-053-000
☐ SOMS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-056-000
☐ ZLS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-054-001
☐ TCHS OUTDOOR CLASSROOM SED#: 50-03-01-06-7-055-000

PROJECT ISSUE & REVISION SCHEDULE

iv	Date	Description
1	11/03/2023	BID ADDENDUM #2
2	11/17/2023	BID ADDENDUM #4

PROFESSIONAL STAMPS



NEW YORK STATE EDUCATION STATEMENT

IF IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONER'S REGULATIONS FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY, IF AN ITEM BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR SURVEYOR IS ALTERED, THE ALTERING PARTY SHALL AFFIX TO THE ITEM THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF ALTERATION.

SHEET INFORMATION

Issued

10/18/23

Project Status

BID DOCS

KCM

Drawing Title

HVAC SCHEDULES

Drawing Number

CLE
H900

11/17/2023 9:24:47 AM c:\project\location> REVIT PROJECT FILES ON B:\MS&G

FAN COIL UNIT SCHEDULE																																	
TAG	LOCATION	SERVICE	MANUFACTURER	MODEL	TYPE	FAN				HOT WATER HEATING COIL												FILTER	ELECTRICAL						NOTES				
						AIR FLOW (CFM)	ESP (IN.WG.)	MOTOR BHP	MOTOR HP	DRIVE	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	CAPACITY (MBH)	FLUID TYPE	GPM	WPD (FT.WG)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	AMBIENT (°F)		FACE VELOCITY (FPM)	CIRCUITS	REFRIGERANT	V	PH	HZ		MCA	FLA	MOCp	WEIGHT (LBS)
FCU-1	VEST	102 VEST	AIR THERM	SRBB	DUCTED	500	100	-	2	DIRECT	50	90	180	150	21.6	WATER	1.44	-	19.3	13.5	85	400	1	R410A	MERV 8	120	1	60	-	-	15	-	1.2
NOTES: 1. PROVIDE DISCONNECT. 2. CEILING RECESSED																																	

ENERGY RECOVERY EHEEL PERFORMANCE SCHEDULE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
TAG	SUPPLY FAN				EXHAUST FAN				ELECTRICAL		WINTER CONDITIONS										SUMMER CONDITIONS										TYPICAL UNIT MFG & MODEL NO.	NOTES:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	AIR FLOW (CFM)	E.S.P. (IN.WC)	RPM	HP	AIR FLOW (CFM)	E.S.P. (IN.WC)	RPM	HP	VOLT/Ø	FLA	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				TOTAL CAPACITY (MBH)	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS				TOTAL CAPACITY (MBH)	EFFECTIVENESS @ SUMMER DESIGN TOTAL %																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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											DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)		DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

TAG	LOCATION	AREA SERVED	SAOA (CFM)	EA (CFM)	RA (CFM)	SUPPLY FAN					EXHAUST FAN					HEATING TYPE	FROST CONTROL	OPERATING WEIGHT (LBS)	FILTERS	UNIT ELECTRICAL REQUIREMENTS	
						FAN TYPE	E.S.P. (IN.WC)	RPM	BHP	HP	FAN TYPE	E.S.P. (IN.WC)	RPM	BHP	HP					V/Ø/HZ	FLA
ERU-1	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-2	ROOF	CLASSROOMS	1500	1500	1500	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	1	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	75
ERU-3	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-4	ROOF	CLASSROOMS	1950	1500	1500	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1541	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-5	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-6	ROOF	CLASSROOMS	1650	1060	1060	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-7	ROOF	CLASSROOMS	2020	2020	2020	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-8	ROOF	CLASSROOMS	2000	2000	2000	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1554	2" PRE-FILTER/4" MERV 13	208/3/60	99
ERU-9	ROOF	CLASSROOMS	1605	700	700	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1511	2" PRE-FILTER/4" MERV 13	208/3/60	96
ERU-10	ROOF	CLASSROOMS	2110	1660	1660	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1541	2" PRE-FILTER/4" MERV 13	208/3/60	117
ERU-11	ROOF	CLASSROOMS	1120	1120	1120	PLENUM	1	1760	1.48	2	PLENUM	0.5	1760	0.85	2	ELECTRIC	YES	1510	2" PRE-FILTER/4" MERV 13	208/3/60	54

ENERGY RECOVERY UNIT (CONT.)																						
TAG	WINTER CONDITIONS									SUMMER CONDITIONS									TYPICAL UNIT MFG & MODEL NO.	NOTES		
	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS					EFFECTIVENESS @ WINTER DESIGN	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS						EFFECTIVENESS @ SUMMER DESIGN	
	OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR				OUTSIDE AIR		RETURN AIR		SUPPLY AIR		EXHAUST AIR					
	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL %		DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)				TOTAL %
ERU-1	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-2	-7	-8	65	62	42.7	42.7	15.2	15.2	69.7	90	71	75	62	79.1	64.7	85.7	68.5	69.7	AAON RN-006-80-E60E13A	1,2,3,4		
ERU-3	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-4	-7	-8	65	62	28.1	28.1	19.3	19.3	72.4	90	71	75	62	81.1	65.9	86.2	68.9	72.4	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-5	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-6	-7	-8	65	62	24.1	24.1	16.6	16.6	78.6	90	71	75	62	81.9	66.4	87.2	69.4	78.6	AAON RN-006-80-E60E13A	1,2,3,4		
ERU-7	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-8	-7	-8	65	62	38	38	19.8	19.8	63.7	90	71	75	62	80	65	84.7	68	63.7	AAON RN-007-80-E60E14A	1,2,3,4		
ERU-9	-7	-8	65	62	24.1	24.1	16.6	16.6	78.6	90	71	75	62	81.9	66.4	87.2	69.4	78.6	AAON RN-006-80-E60E13A	1,2,3,4		
ERU-10	-7	-8	65	62	28.5	28.5	19.8	19.8	69.7	90	71	75	62	81.3	71.7	85.8	68.6	69.7	AAON RN-007-80-E60E15A	1,2,3,4		
ERU-11	-7	-8	65	62	46.2	46.2	11.7	11.7	74.3	90	71	75	62	78.4	64.3	86.4	68.9	74.3	AAON RN-006-80-E60E12A	1,2,3,4		
NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT. 2. FRESH AIR AND EXHAUST DAMPERS. 3. TERMINAL STRIP FOR BMS CONTROL OF FAN AND DAMPERS. 4. DIRTY FILTER SENSORS.																						

ENERGY RECOVERY UNIT (CONT.)																			
TAG	TYPE	FINS PER INCH	ROWS	FACE VEL	COIL PD	REF.	COMP QTY	COOLING				REHEAT		HEATING					
								TOTAL CAPACITY (MBH)	SENSIBLE (MBH)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT(F)	OAT(F)	RAT(F)	EAT(F)	TOTAL CAPACITY (MBH)	INPUT KW	
ERU-1	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102		30
ERU-2	AIR TO AIR	14	3	176		R410A	1	90.2	44.3	79.1/64.7	53/51.5	30	70/58.3	-7.0	65	42.8	76.8		22.5
ERU-3	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102		30
ERU-4	AIR TO AIR	14	3	229		R410A	1	102	54.5	81.6/65.9	56.7/54.4	32	70/59.6	-7.0	65	28.1	102		30
ERU-5	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102		30
ERU-6	AIR TO AIR	14	3	194		R410A	1	87.1	48.2	81.9/66.4	56.1/54.1	28	70/59.5	-7.0	65	24.1	102		30
ERU-7	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102		30
ERU-8	AIR TO AIR	14	3	235		R410A	1	107	54.6	80/65.3	54.5/53.3	34	70/59.4	-7.0	65	38.1	102		30
ERU-9	AIR TO AIR	14	3	194		R410A	1	86.6	47.8	81.1/65.9	55.6/53.8	29	70/59.4	-7.0	65	24.1	102		30
ERU-10	AIR TO AIR	14	3	248		R410A	1	105.5	57.2	81.3/66	57.6/55.4	33	70/60.1	-7.0	65	28.5	128		37.6
ERU-11	AIR TO AIR	14	3	131		R410A	1	79.6	37.8	78.4/64.3	48.2/47	28	70/56.3	-7.0	65	46.2	51.2		15