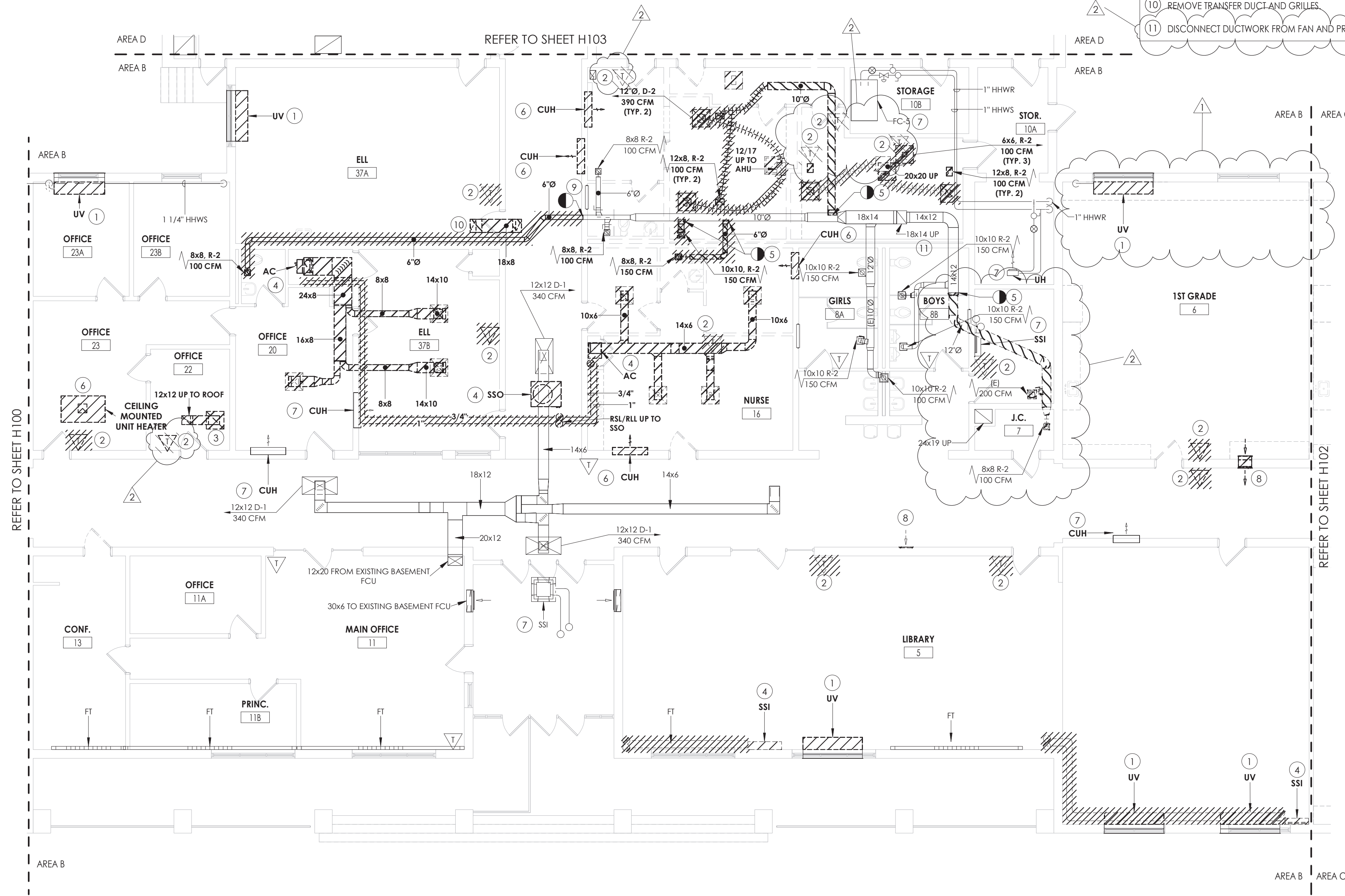
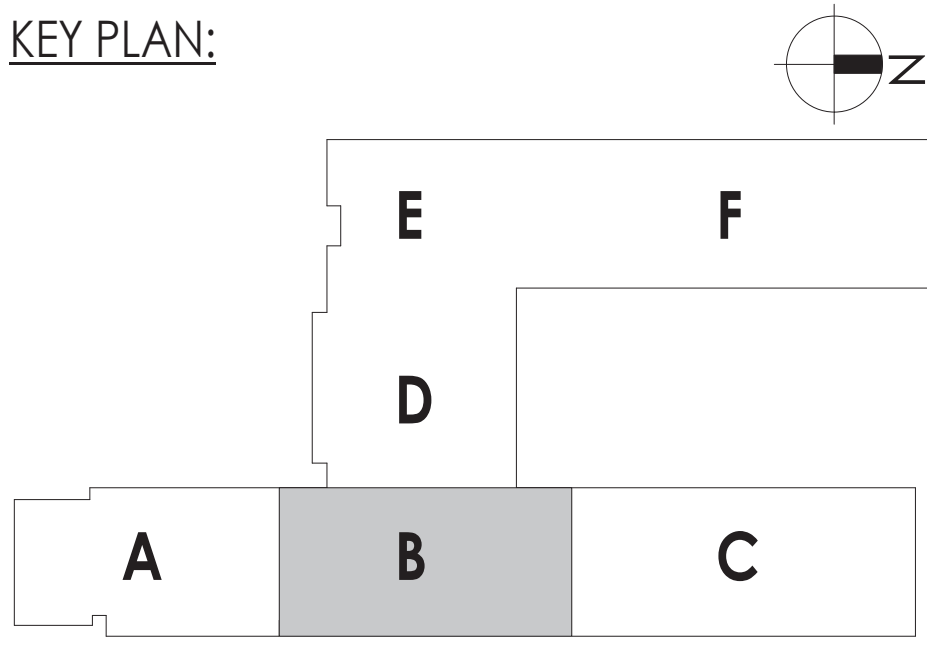


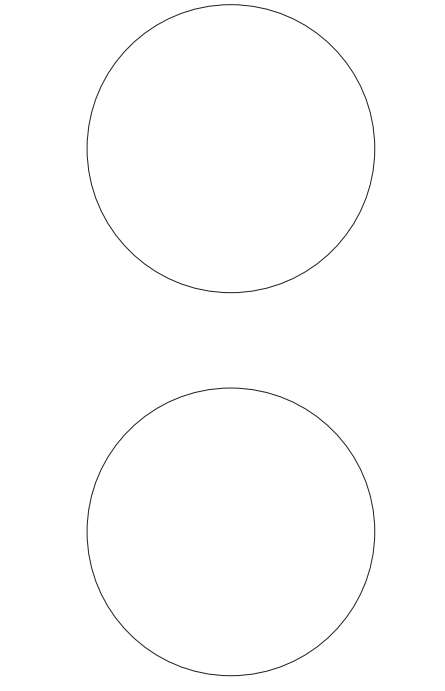


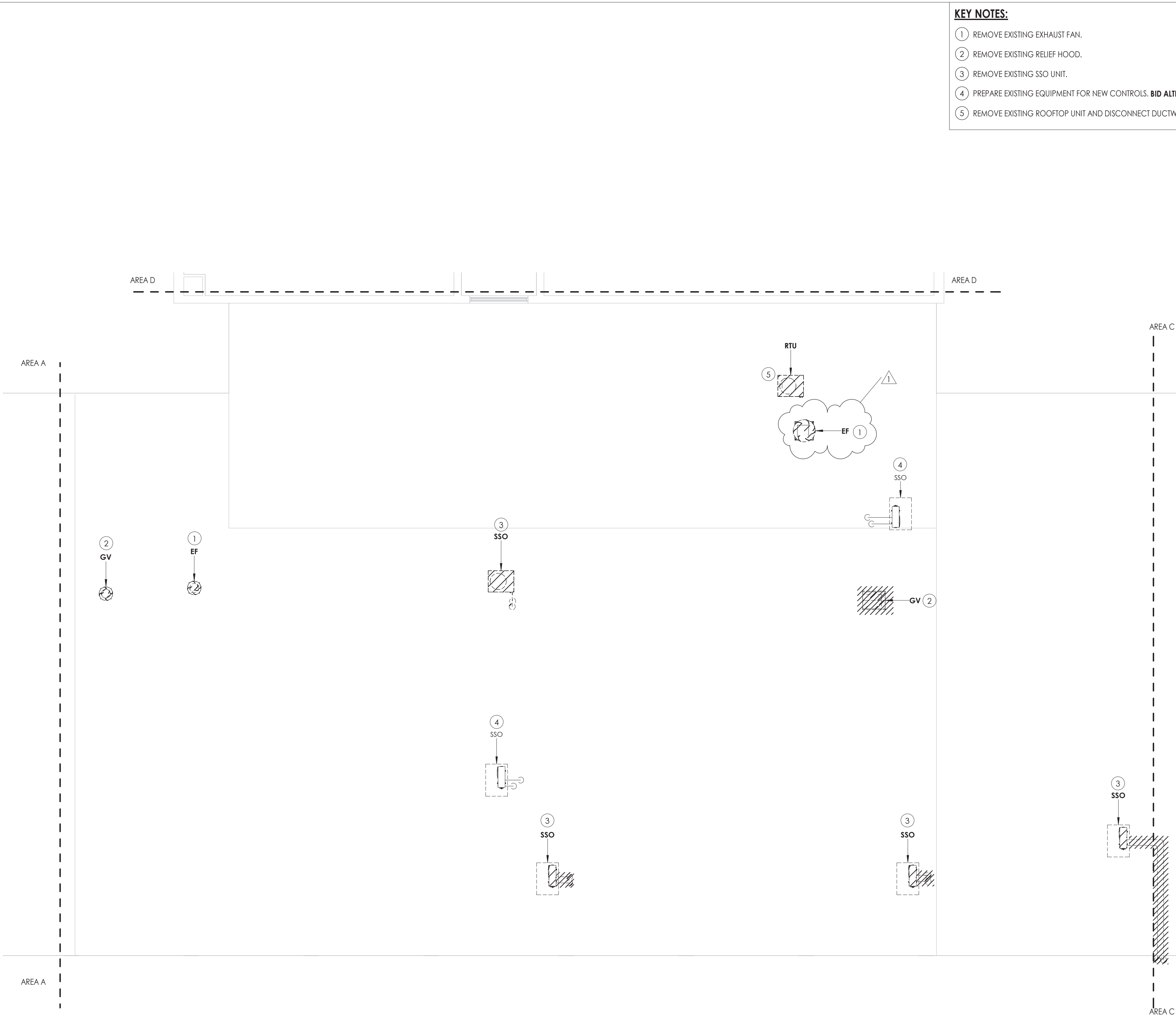
1
H101
FIRST FLOOR DEMOLITION PLAN- AREA B
1/8" = 1'-0"

KEY PLAN:



- 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.

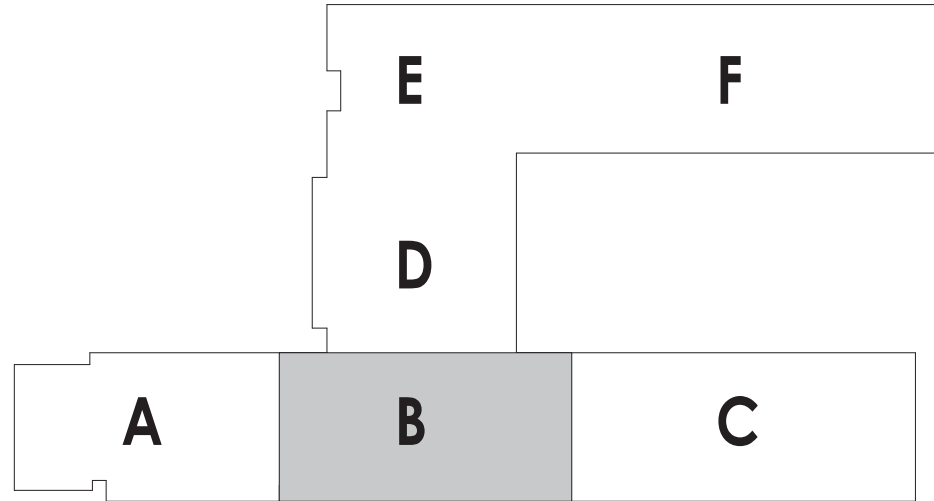




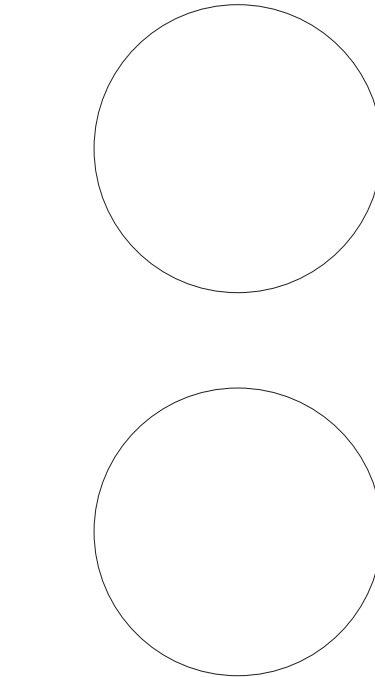
1
H111
1/8" = 1'-0"

- KEY NOTES:**
- 1 REMOVE EXISTING EXHAUST FAN.
 - 2 REMOVE EXISTING RELIEF HOOD.
 - 3 REMOVE EXISTING SSO UNIT.
 - 4 PREPARE EXISTING EQUIPMENT FOR NEW CONTROLS. **BID ALTERNATE MC-01.**
 - 5 REMOVE EXISTING ROOFTOP UNIT AND DISCONNECT DUCTWORK.

KEY PLAN:



PROFESSIONAL STAMPS

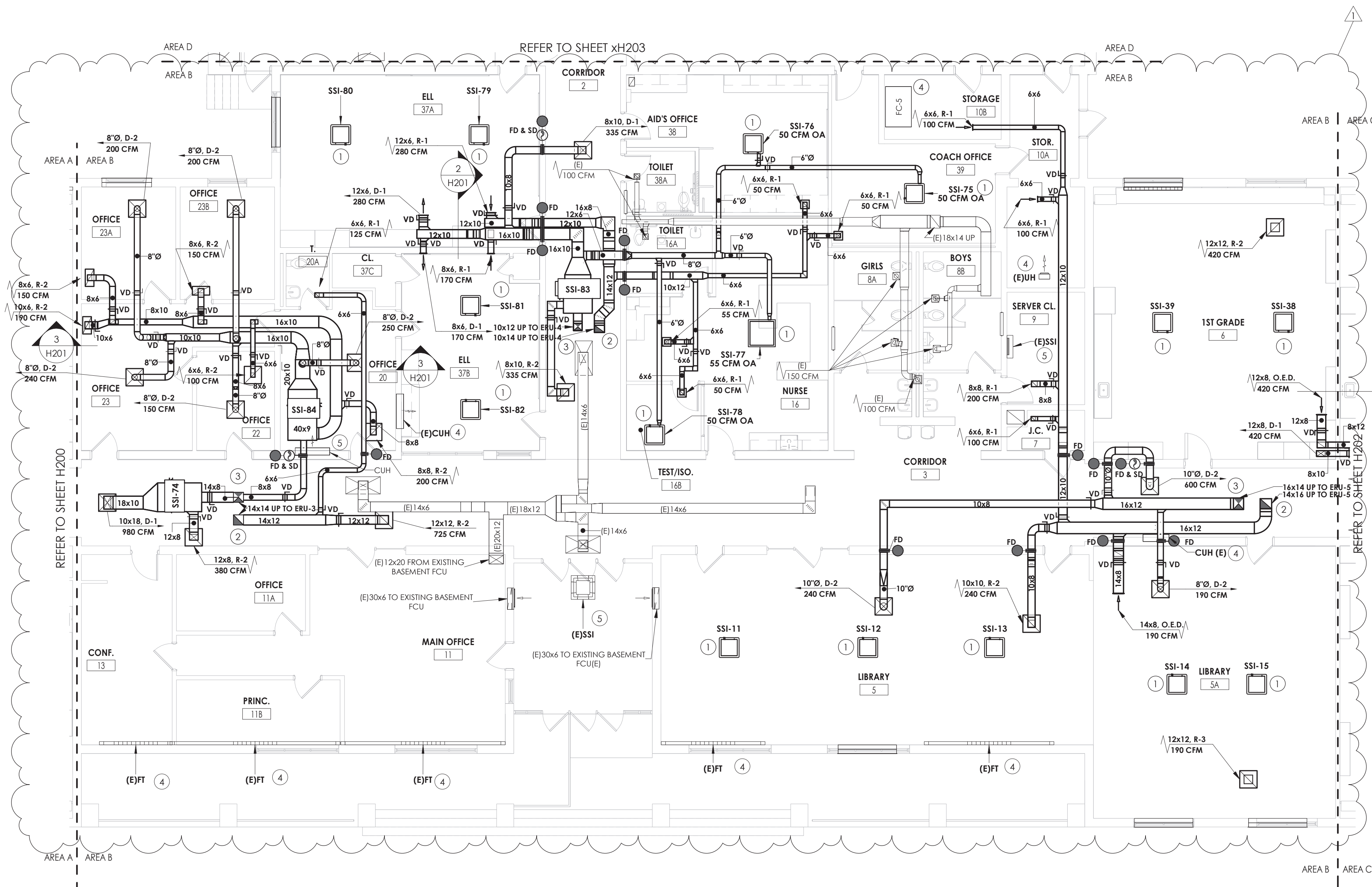


NEW YORK STATE EDUCATION STATEMENT
I, as a member of the NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS
REGULATIONS FOR ANY PERSON, UNDER THE DIRECTION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS AN ARCHITECT, ENGINEER OR LAND SURVEYOR,
BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR, HAVE REVIEWED THE DRAWING,
PLAN, SPECIFICATION AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE
ALTERATION.

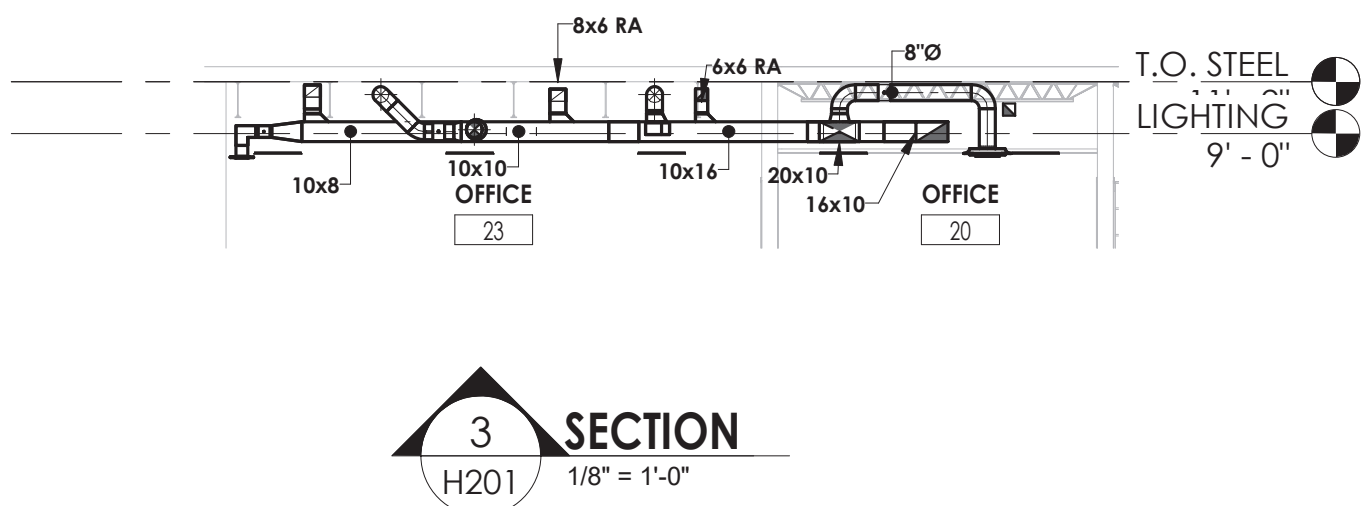
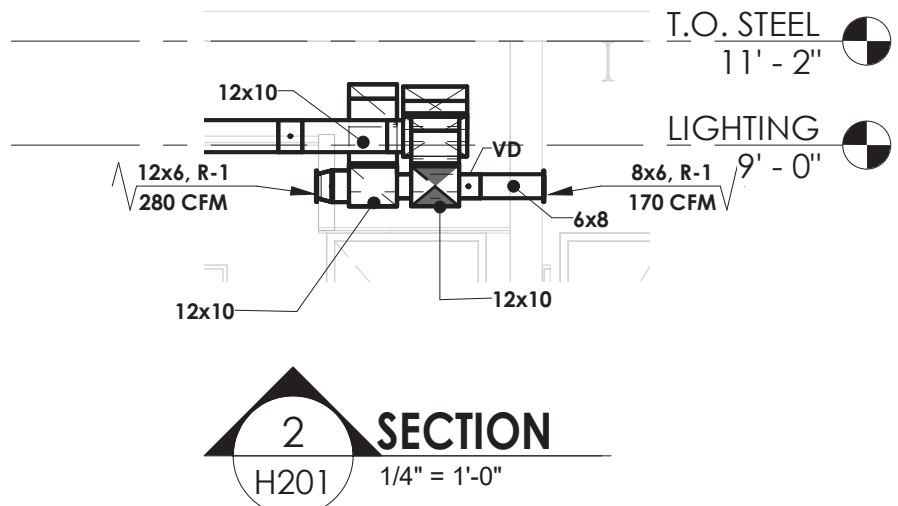
SHEET INFORMATION
Issued 10/18/2023 Scale 1/8" = 1'-0"
Project Status
BID DOCUMENTS
Drawn By KCM Checked By JJM
Drawing Title
ROOF HVAC DEMOLITION PLANS-
AREA B

Drawing Number
**WOS
H111**

11/16/2023 3:32:56 PM <project location> REVIT PROJECT FILES ON BIM360



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



GENERAL NOTES

1. MAINTAIN ALL EXISTING ROOF WARRANTIES.

KEY NOTES:

- 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.
- RETURN DUCTWORK TO BE ROUTED IN HALLWAY CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
- SUPPLY DUCTWORK TO BE ROUTED IN CEILING. COORDINATE WITH EXISTING UTILITIES AND REFRIGERANT PIPING.
- CONNECT EXISTING EQUIPMENT TO NEW BMS SYSTEM. PROVIDE NEW CONTROL VALVE OR BRACNET CARD DEPENDING UPON THE TYPE OF EQUIPMENT. **BID ALTERNATE MC-01.**
- EQUIPMENT NOT CONNECTED TO NEW BMS SYSTEM.

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50 Front Street Suite 202,
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CPLteam.com

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

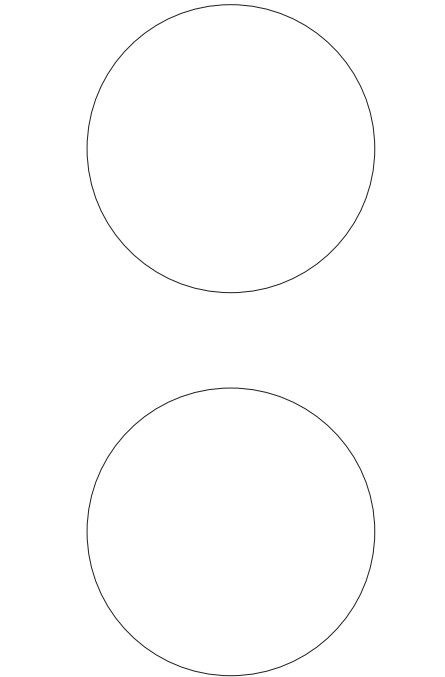
SOUTH ORANGETOWN CSD

- WILLIAM O. SCHAFER SED#35-03-01-06-010-010
- COTTAGE LANE ELEMENTARY SED#35-03-01-06-010-010-022
- TAPPAN ZEE HIGH SCHOOL SED#35-03-01-06-010-010-032
- WILLIAM O. SCHAFER SAL SED#35-03-01-06-010-010-020
- COTTAGE LANE SAL SED#35-03-01-06-010-010-023
- COTTAGE LANE LIBRARY SAL SED#35-03-01-06-010-010-023
- WOS OUTDOOR CLASSROOM SED#35-03-01-06-7-035-001
- SCONE OUTDOOR CLASSROOM SED#35-03-01-06-7-035-001
- CLE OUTDOOR CLASSROOM SED#35-03-01-06-7-035-001
- 1245 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 STATEMENT
I, A VOUCHER OF THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS
REGULATIONS FOR ANY PERSON, UNDER ACTING UNDER THE SUPERVISION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS AN ARCHITECT, ENGINEER OR LAND SURVEYOR
BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR, IN THE STATE OF NEW YORK,
AND THE NEW YORK STATE EDUCATION LAW AND THE COMMISSIONERS REGULATIONS FOR ANY PERSON,
UNDER ACTING UNDER THE SUPERVISION OF A LICENSED ARCHITECT, ENGINEER OR LAND SURVEYOR,
TO ACT AS AN ARCHITECT, ENGINEER OR LAND SURVEYOR, IN THE STATE OF NEW YORK, AND A SPECIFIC DESCRIPTION OF THE
ALTERNATION.

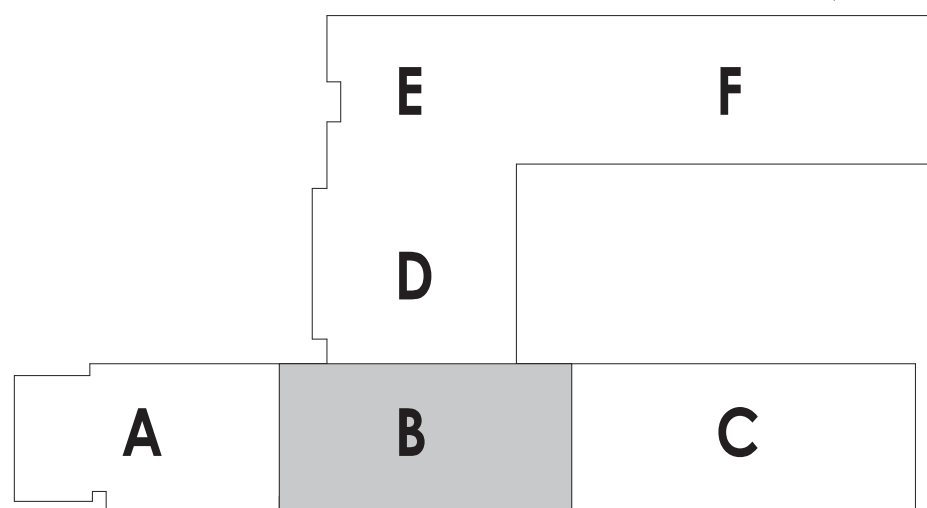
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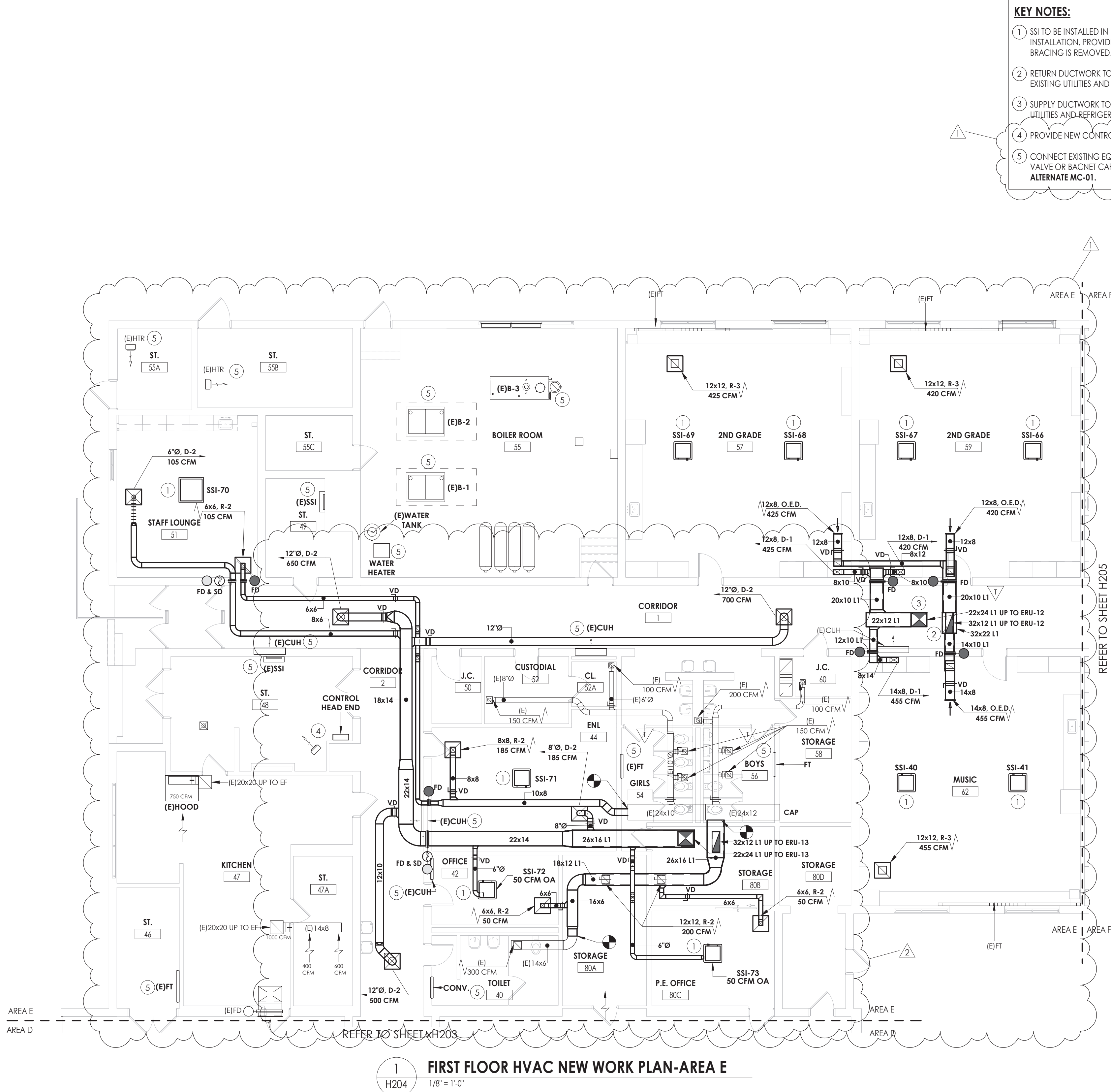
Issued
10/18/2023
Scale
As indicated
Project Status
BID DOCUMENTS
Drawn By
KCM
Checked By
JJM
Drawing Title
FIRST FLOOR HVAC NEW WORK
PLAN- AREA B

Drawing Number

WOS
H201

KEY PLAN:

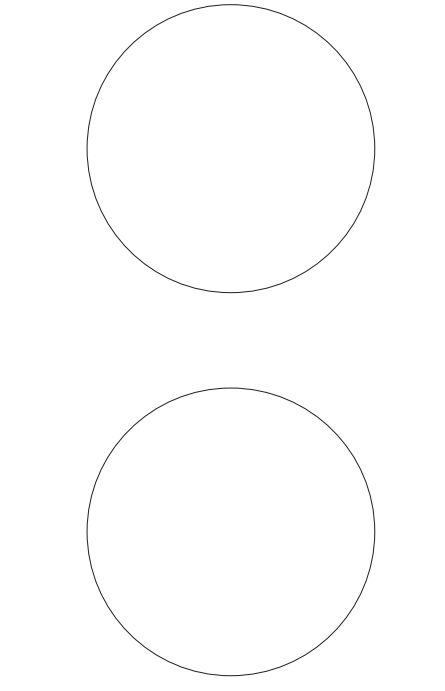
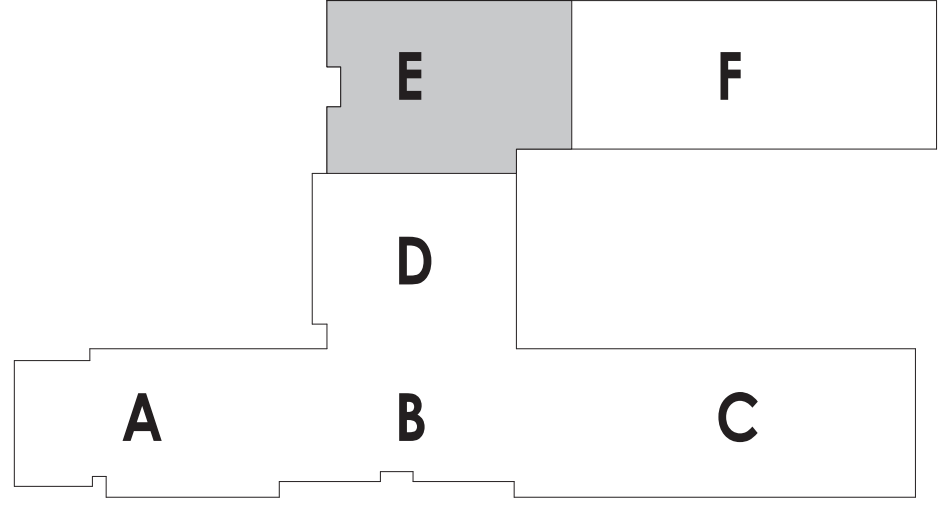


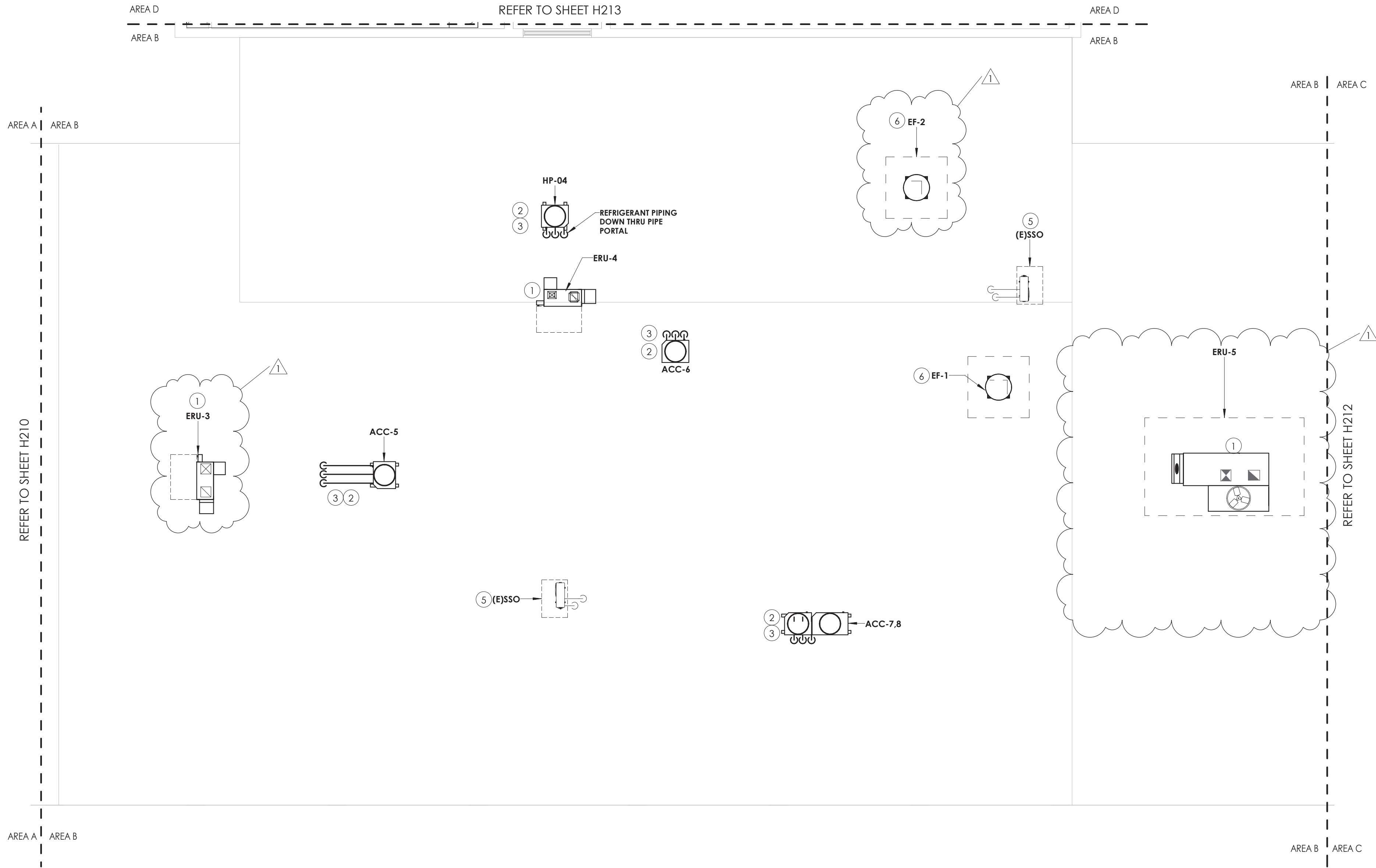


1
H204
1/8" = 1'-0"

- 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:





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

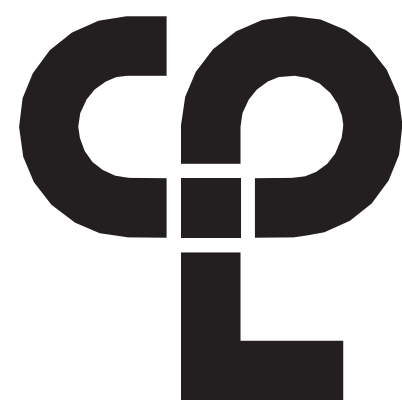
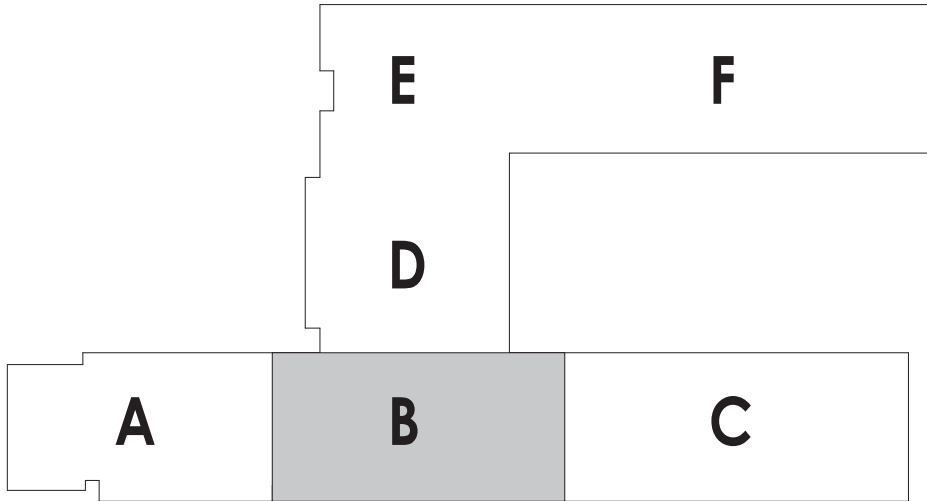
GENERAL NOTES

1. MAINTAIN ALL EXISTING ROOF WARRANTIES.

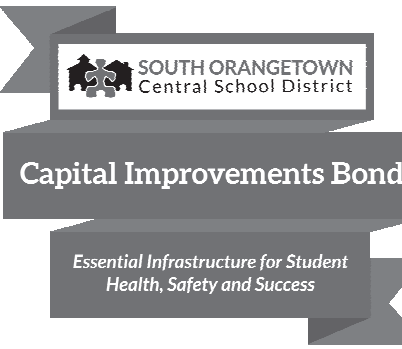
KEY NOTES

- 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.

KEY PLAN:



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50 Front Street Suite 202,
Newburgh, NY 12550
CPLteam.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

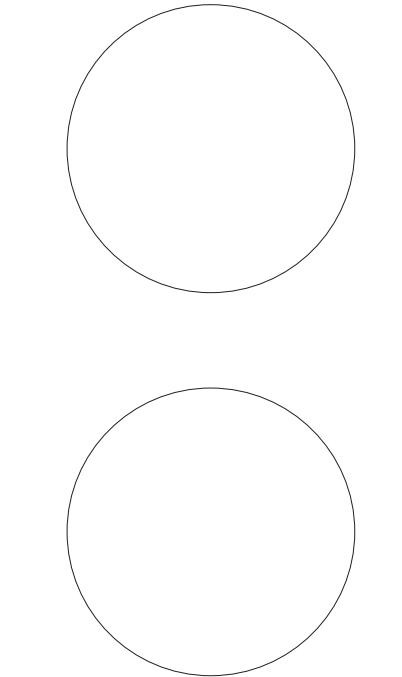
SOUTH ORANGETOWN CSD

- WILLIAM O. SCHAFER SED# 35-03-01-06-0-010-0019
- COTTAGE LANE ELEMENTARY SED# 35-03-01-06-0-010-0022
- TAPPAN ZEE HIGH SCHOOL SED# 35-03-01-06-0-006-002
- WILLIAM O. SCHAFER SAL SED# 35-03-01-06-0-010-0020
- COTTAGE LANE SAL SED# 35-03-01-06-0-010-0023
- COTTAGE LANE LIBRARY SAL SED# 35-03-01-06-8-003-002
- WOS OUTDOOR CLASSROOM SED# 35-03-01-06-7-055-001
- SCONE OUTDOOR CLASSROOM SED# 35-03-01-06-7-056-001
- CLE OUTDOOR CLASSROOM SED# 35-03-01-06-7-054-001
- 12HS OUTDOOR CLASSROOM SED# 35-03-01-06-7-055-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	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, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS SUCH IN ANY WAY, IN ANY FORM,
BEARING THE SEAL OF AN ARCHITECT, ENGINEER OR LAND SURVEYOR, THE ATTESTING
PARTY SHALL BE HELD TO BE THE SAME AS THE ARCHITECT, ENGINEER OR LAND SURVEYOR.
THEIR SIGNATURE AND THE DATE OF SUCH ATTESTATION, AND A SPECIFIC DESCRIPTION OF THE
ALTERNATION.

SHEET INFORMATION

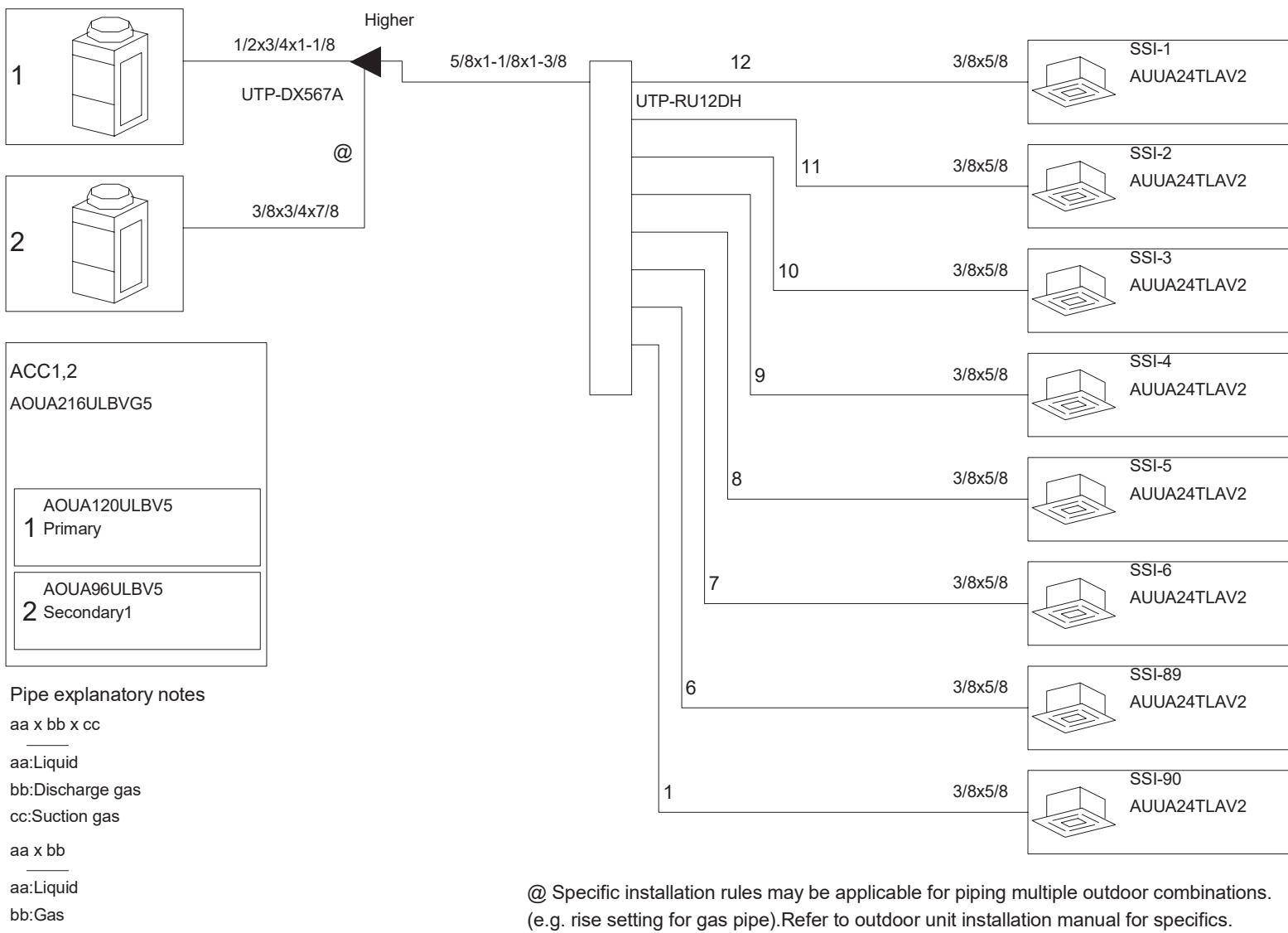
Issued
10/18/2023
Scale
1/8" = 1'-0"
Project Status
BID DOCUMENTS
Drawn By
KCM
Checked By
JJM
Drawing Title
ROOF HVAC NEW WORK
PLAN-AREA B

Drawing Number

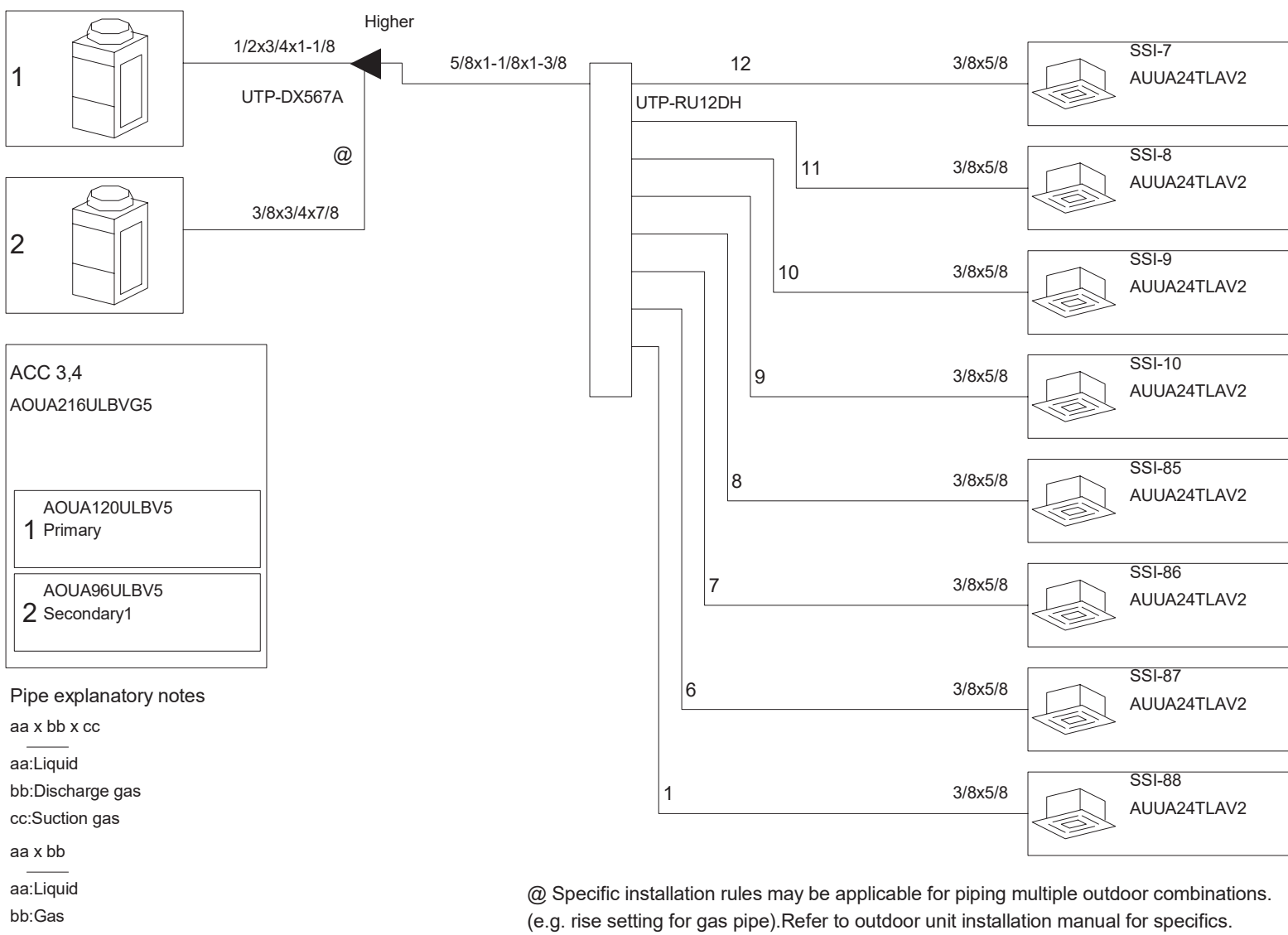
WOS
H211



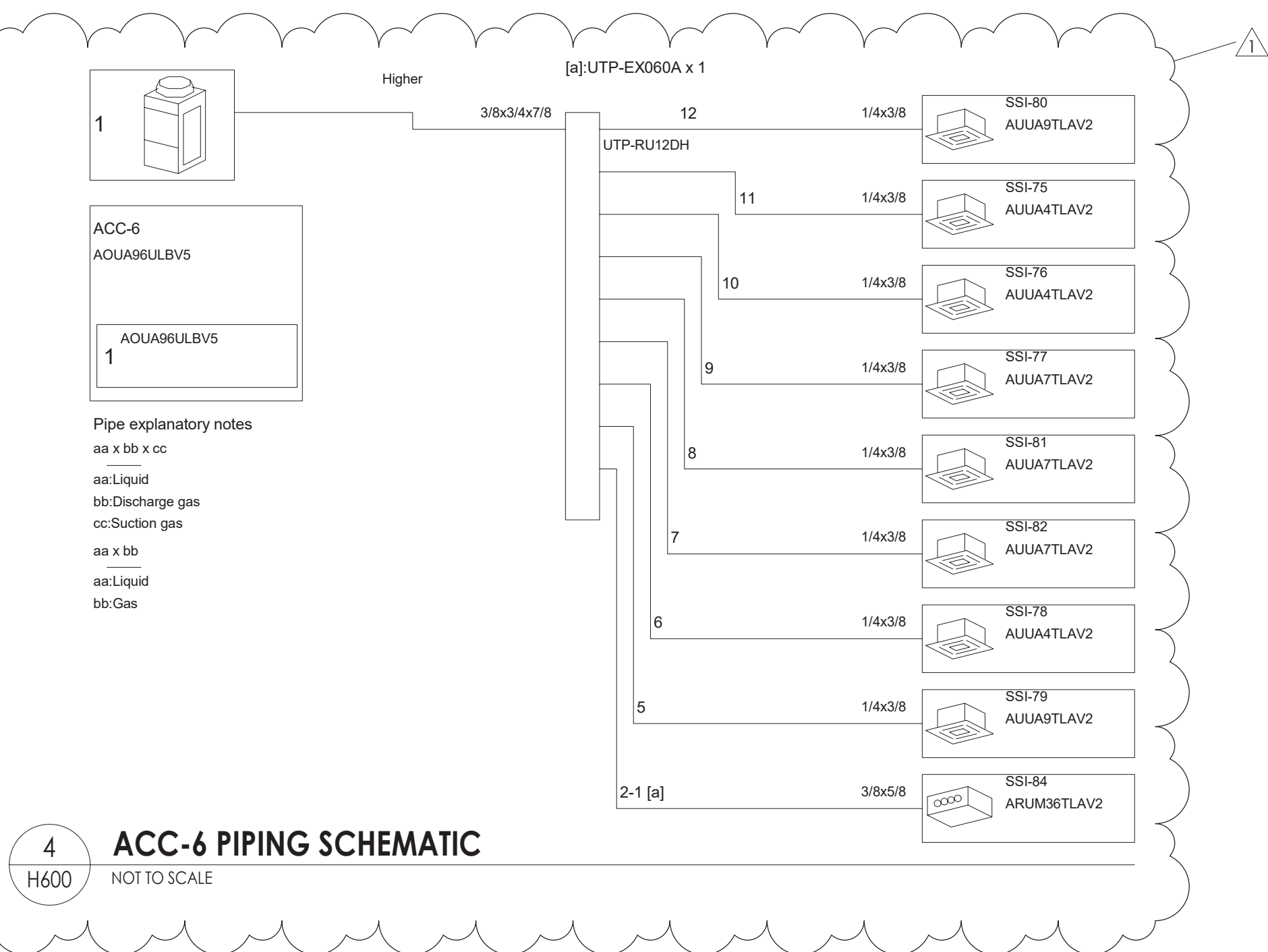
The diagram shows a hierarchical tree structure. At the bottom level, there are three nodes: A (white), B (gray), and C (white). Node B is the root of a subtree. Above node B is node D (white). Node D has two children: node E (white) on the left and node F (white) on the right. Node E has a single child, node A. Node F has a single child, node C. The nodes are arranged in a way that suggests a depth-first search or a similar traversal order.



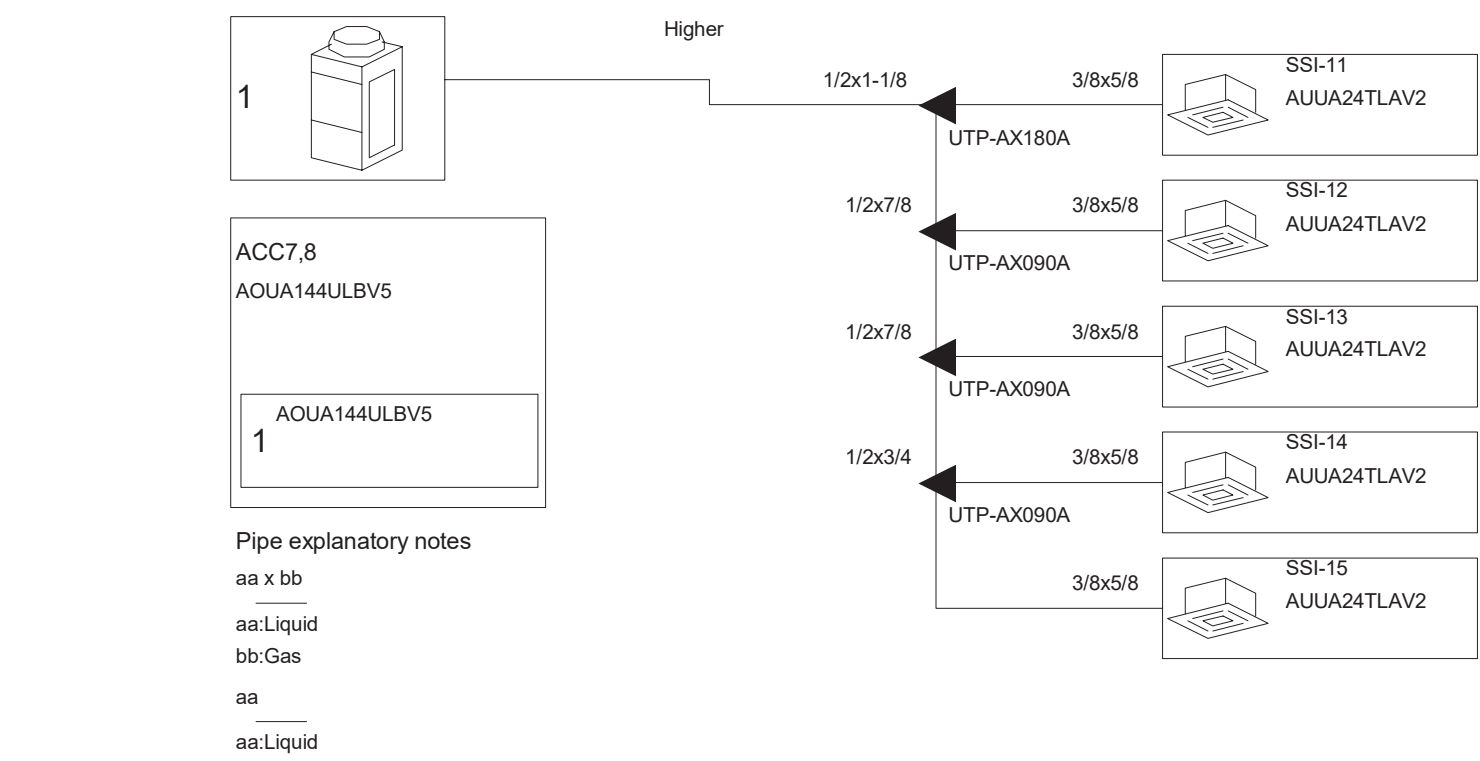
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H600 NOT TO SCALE



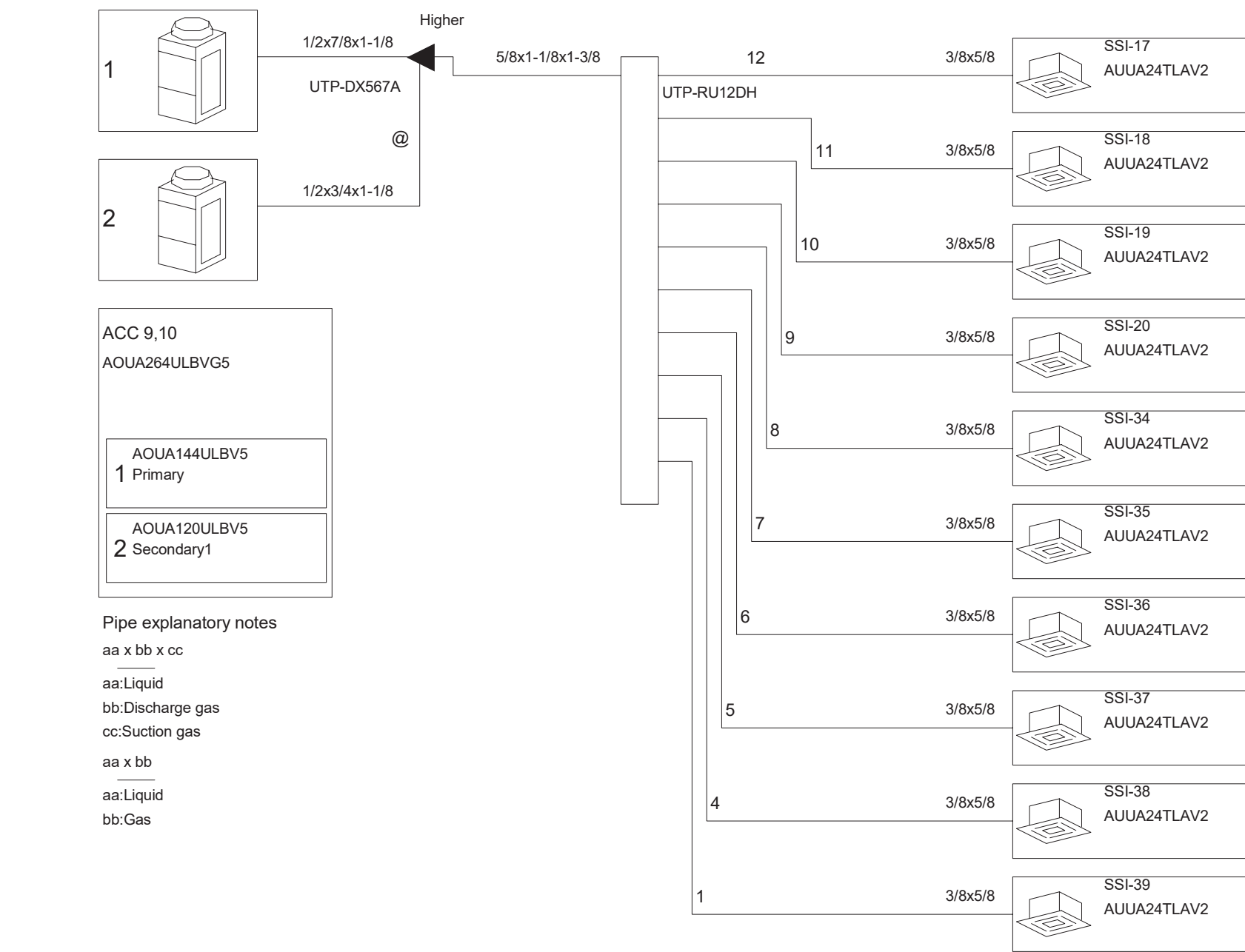
2 ACC-3,4 PIPING SCHEMATIC
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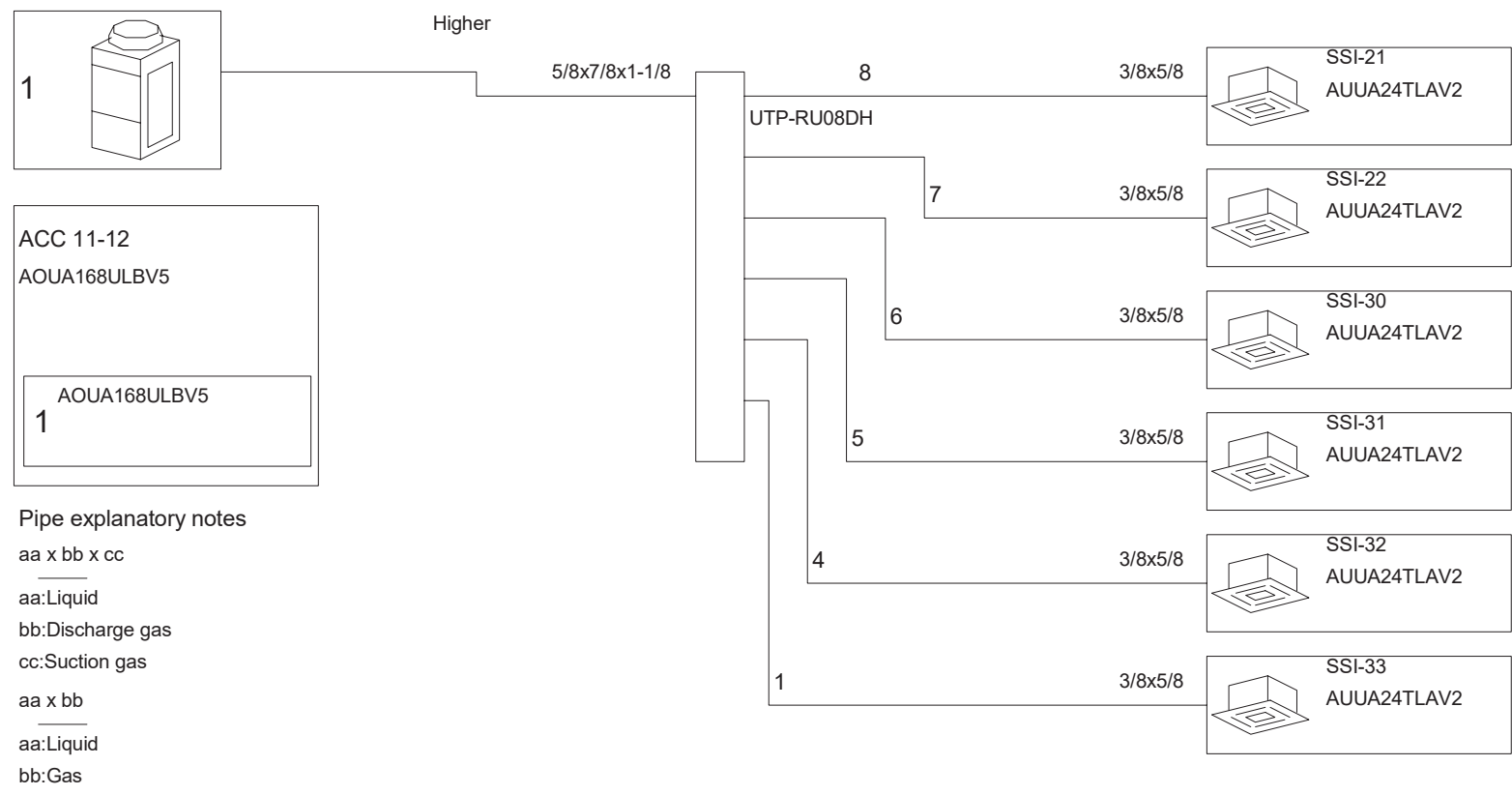
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H600 NOT TO SCALE



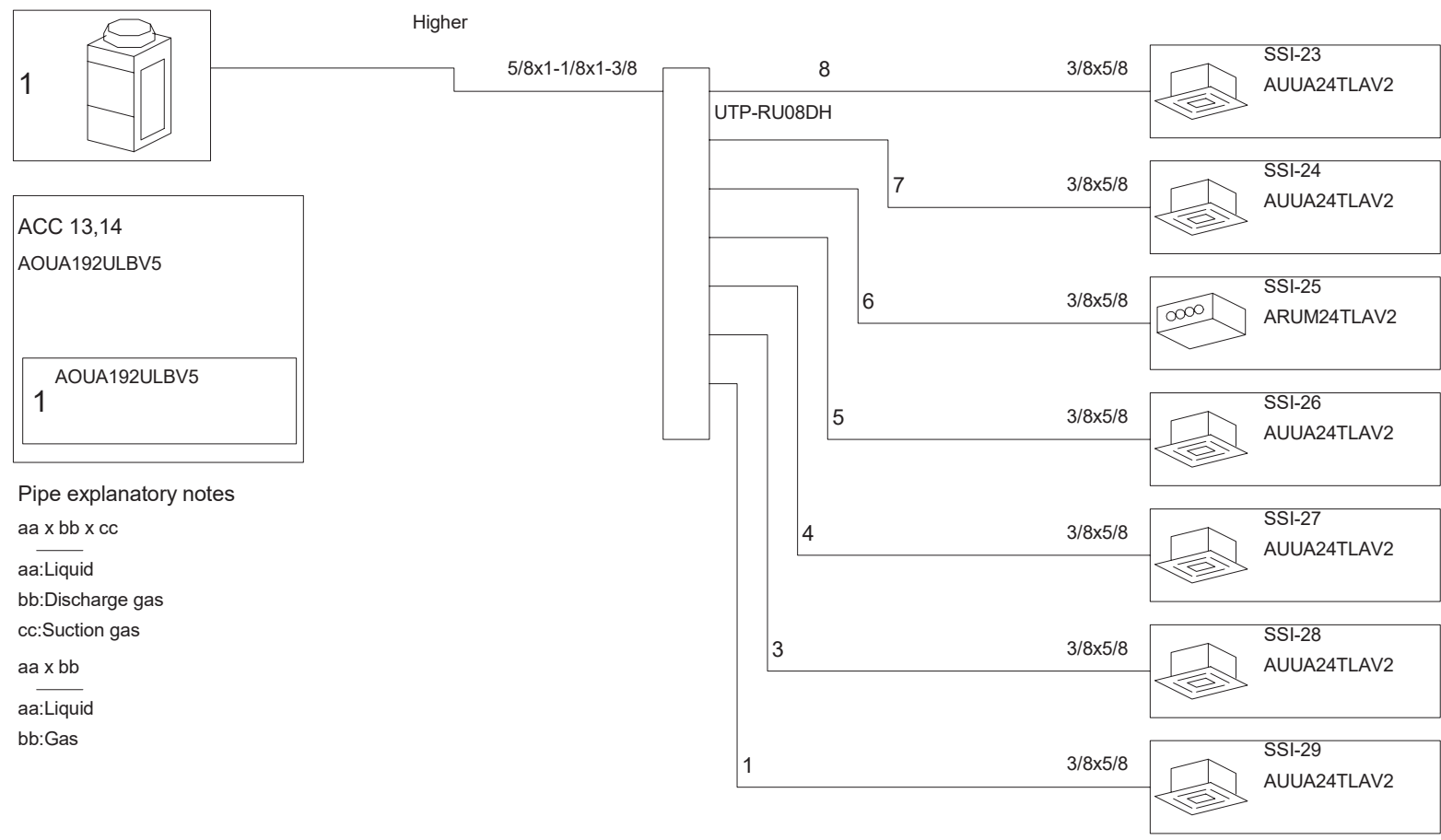
5 ACC-7,8 PIPING SCHEMATIC
H600 NOT TO SCALE



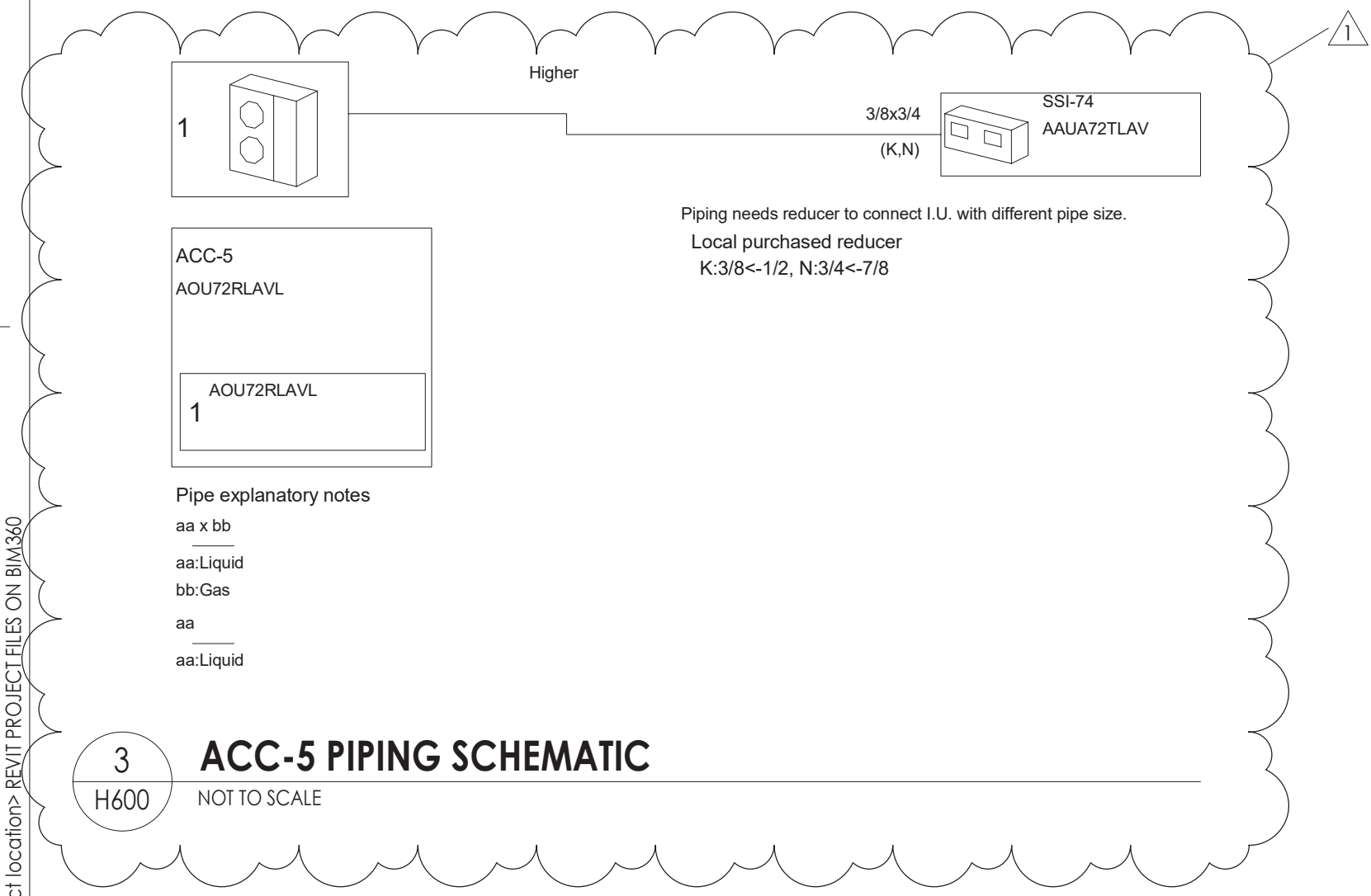
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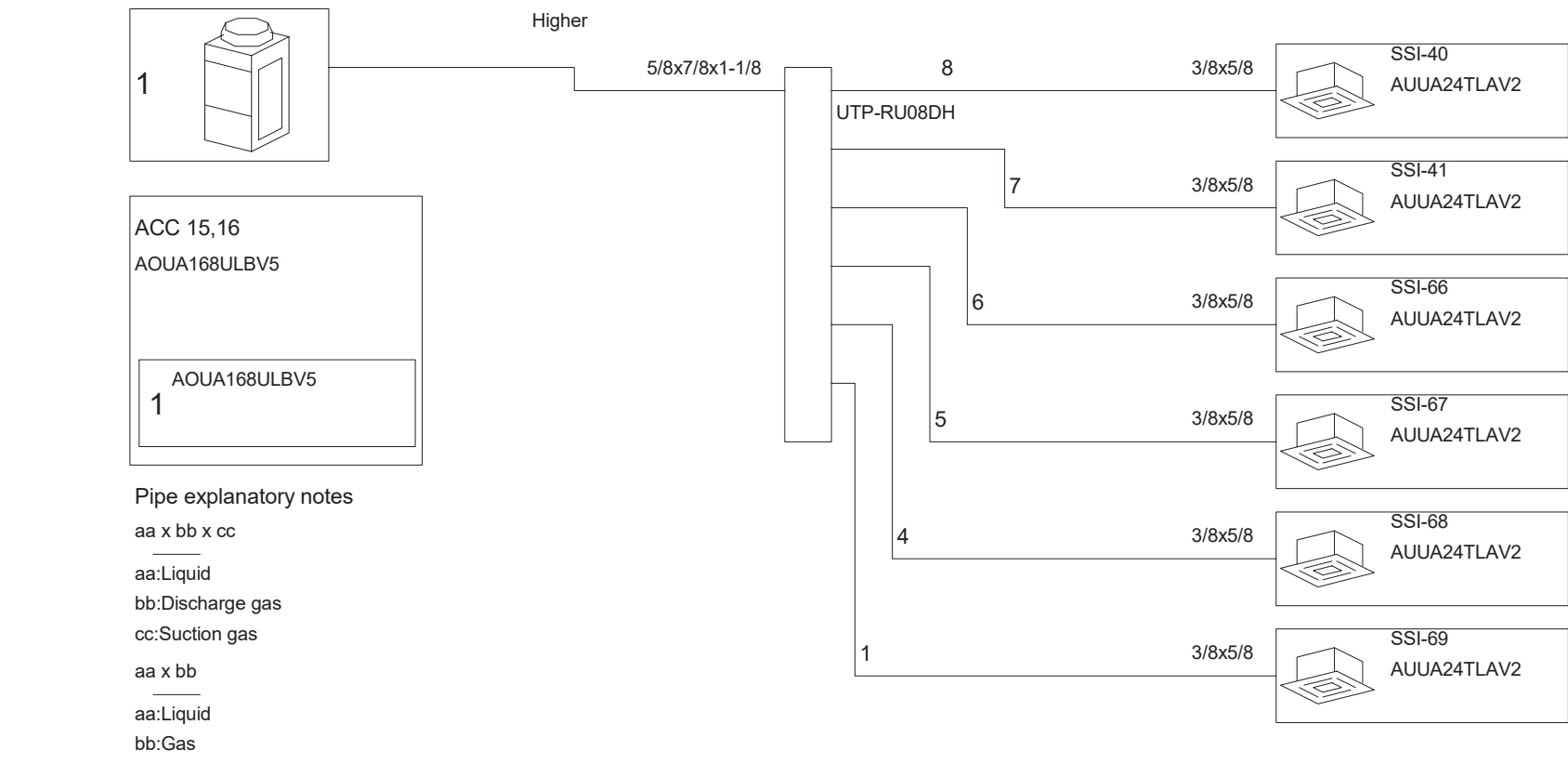
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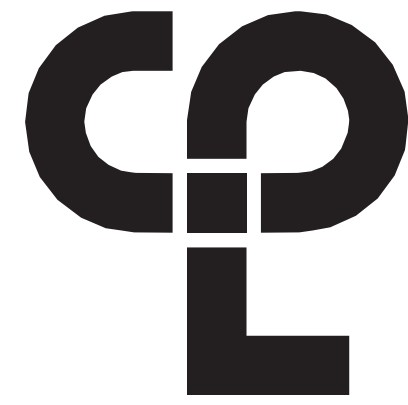
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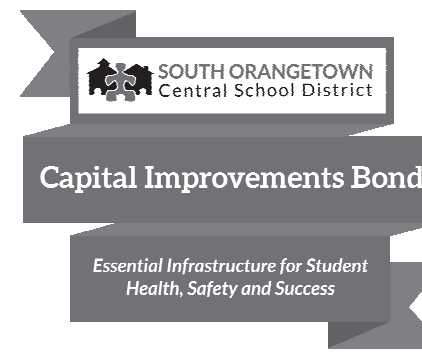
3 ACC-5 PIPING SCHEMATIC
H600 NOT TO SCALE



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



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Newburgh, NY 12550
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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

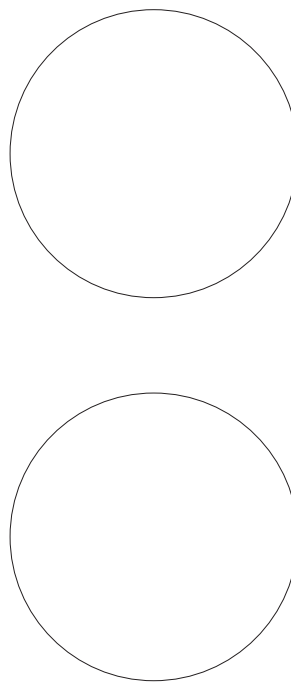
SOUTH ORANGETOWN CSD

- ☒ WILLIAM O. SCHAFER SED# 35-03-01-06-0-010-2-019
- ☐ 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# 35-03-01-06-0-010-020
- ☐ COTTAGE LANE SAL SED# 35-03-01-06-0-010-023
- ☐ COTTAGE LANE LIBRARY SAL SED# 35-03-01-06-0-023-002
- ☐ WOS OUTDOOR CLASSROOM SED# 35-03-01-06-7-034-001
- ☐ SCANS 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 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, WITHOUT THE SIGNATURE AND THE DATE OF SUCH ADOPTION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

SHEET INFORMATION

Issued

10/18/2023

Project Status

BID DOCUMENTS

Drawn By

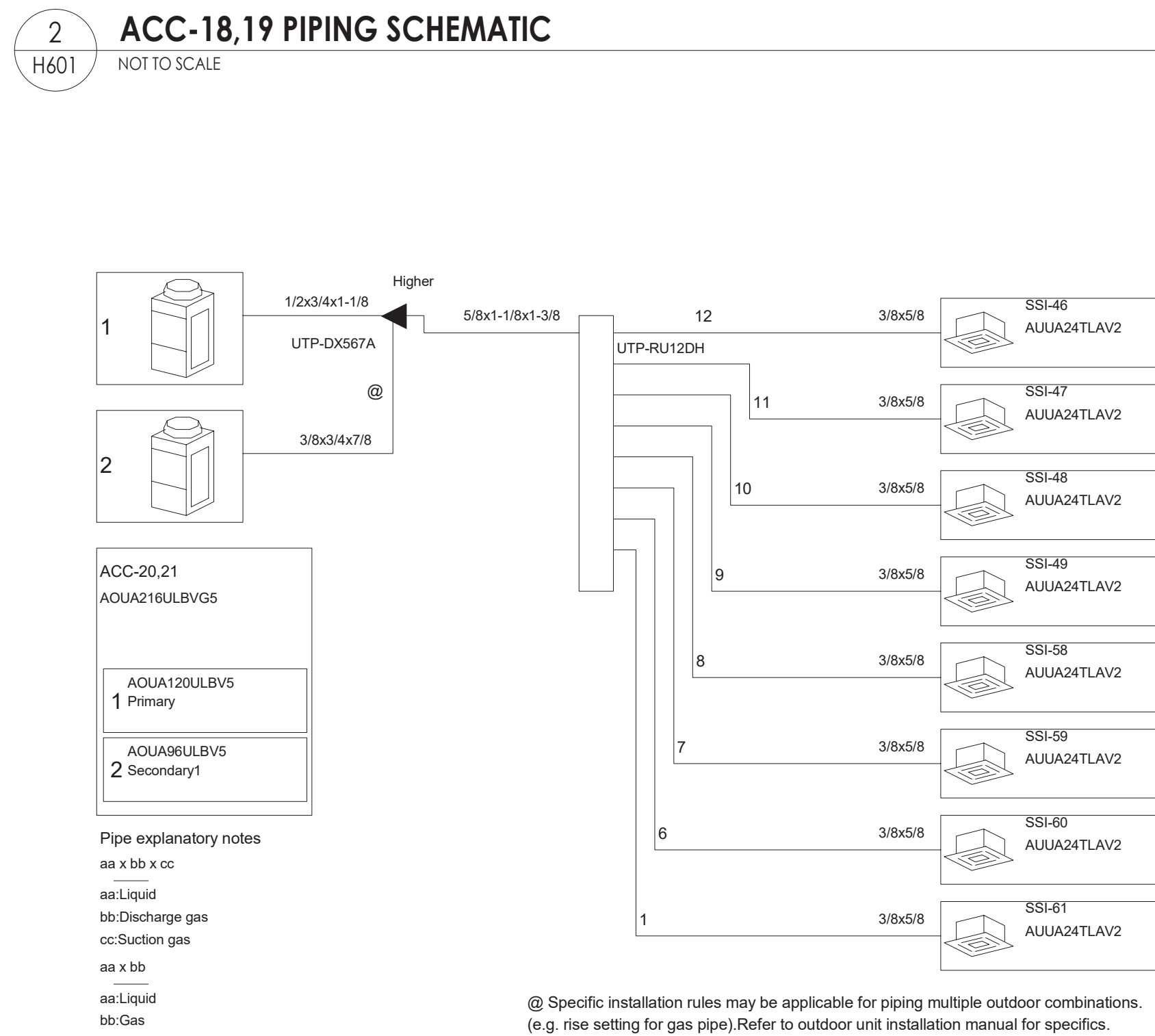
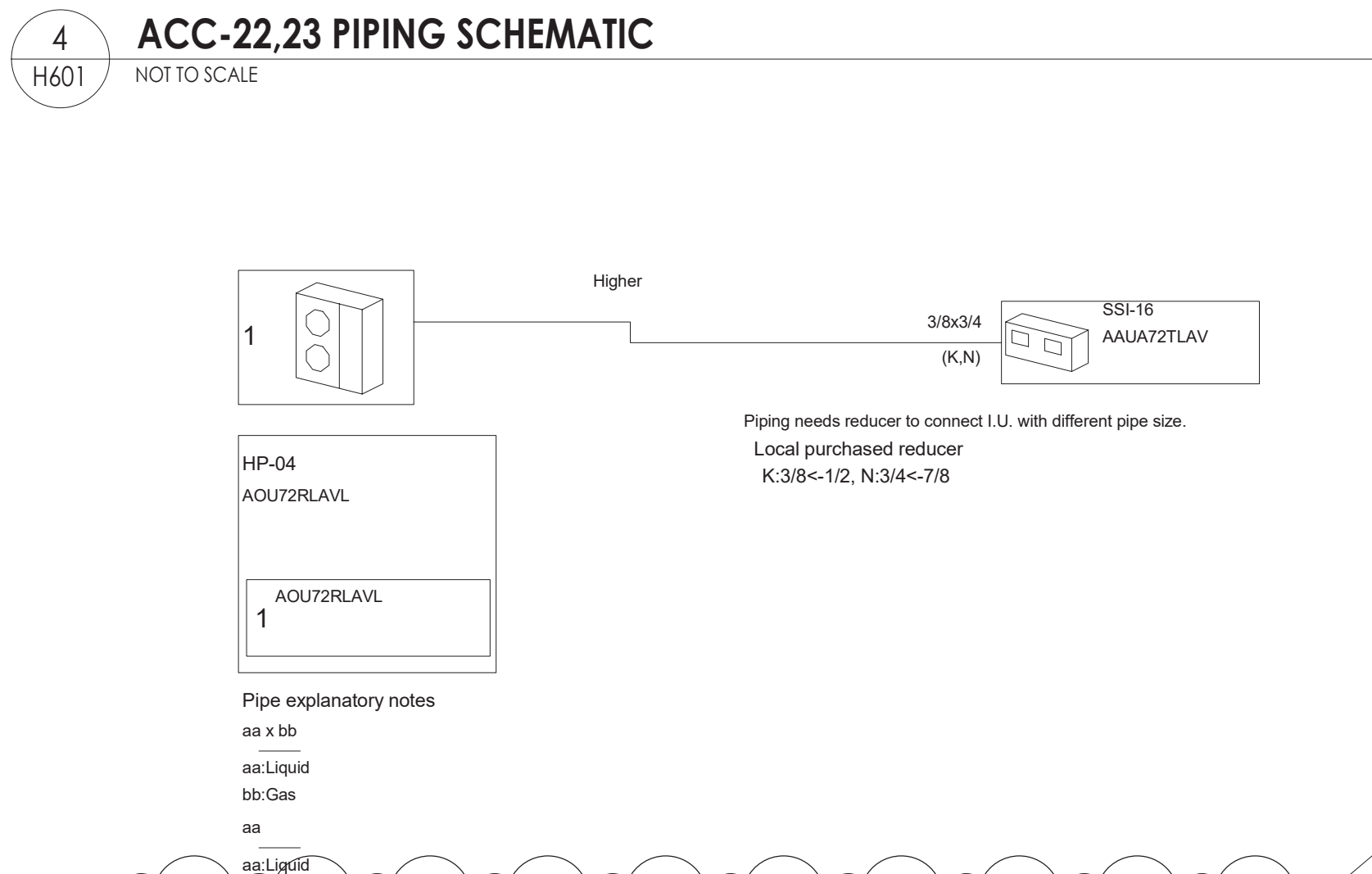
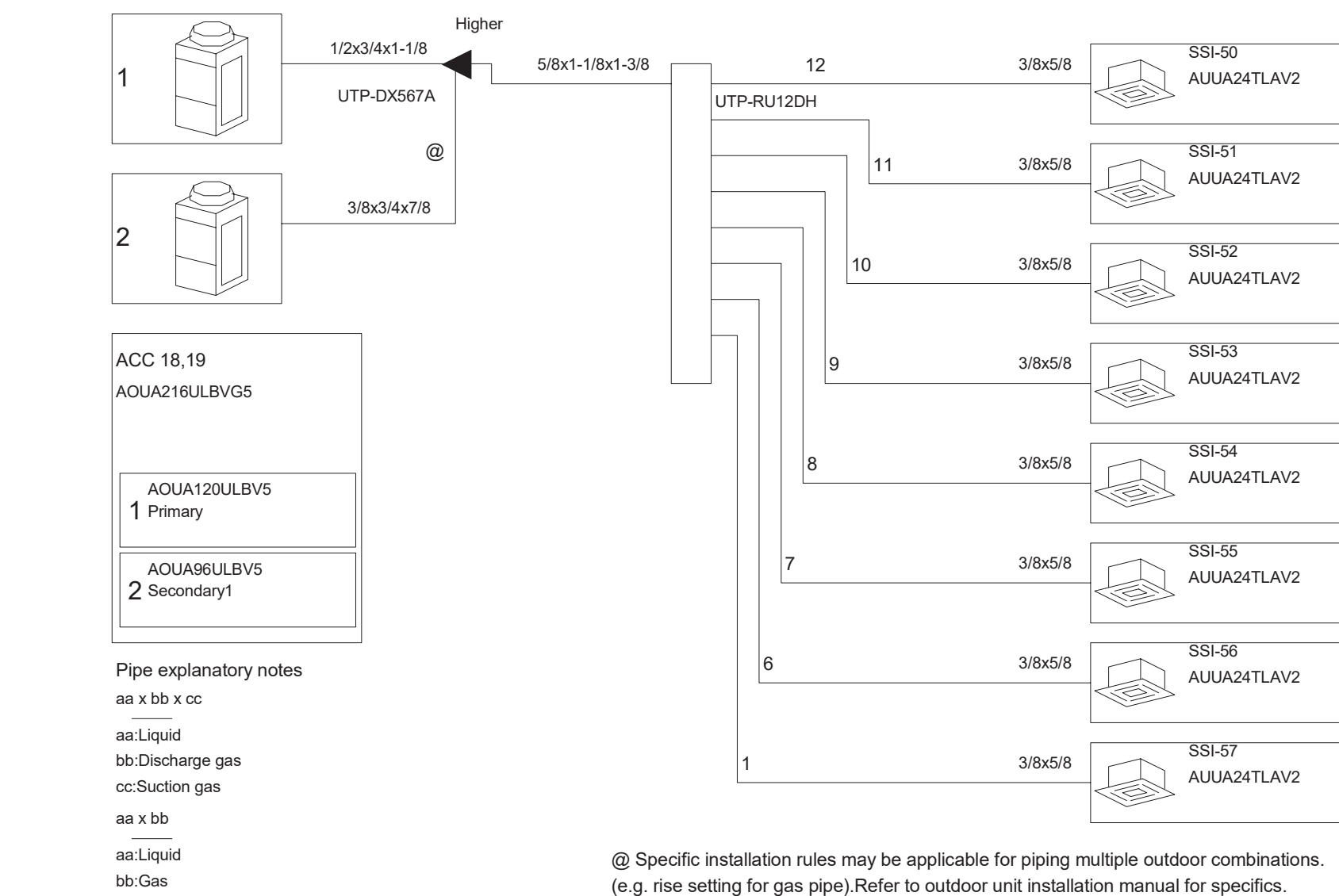
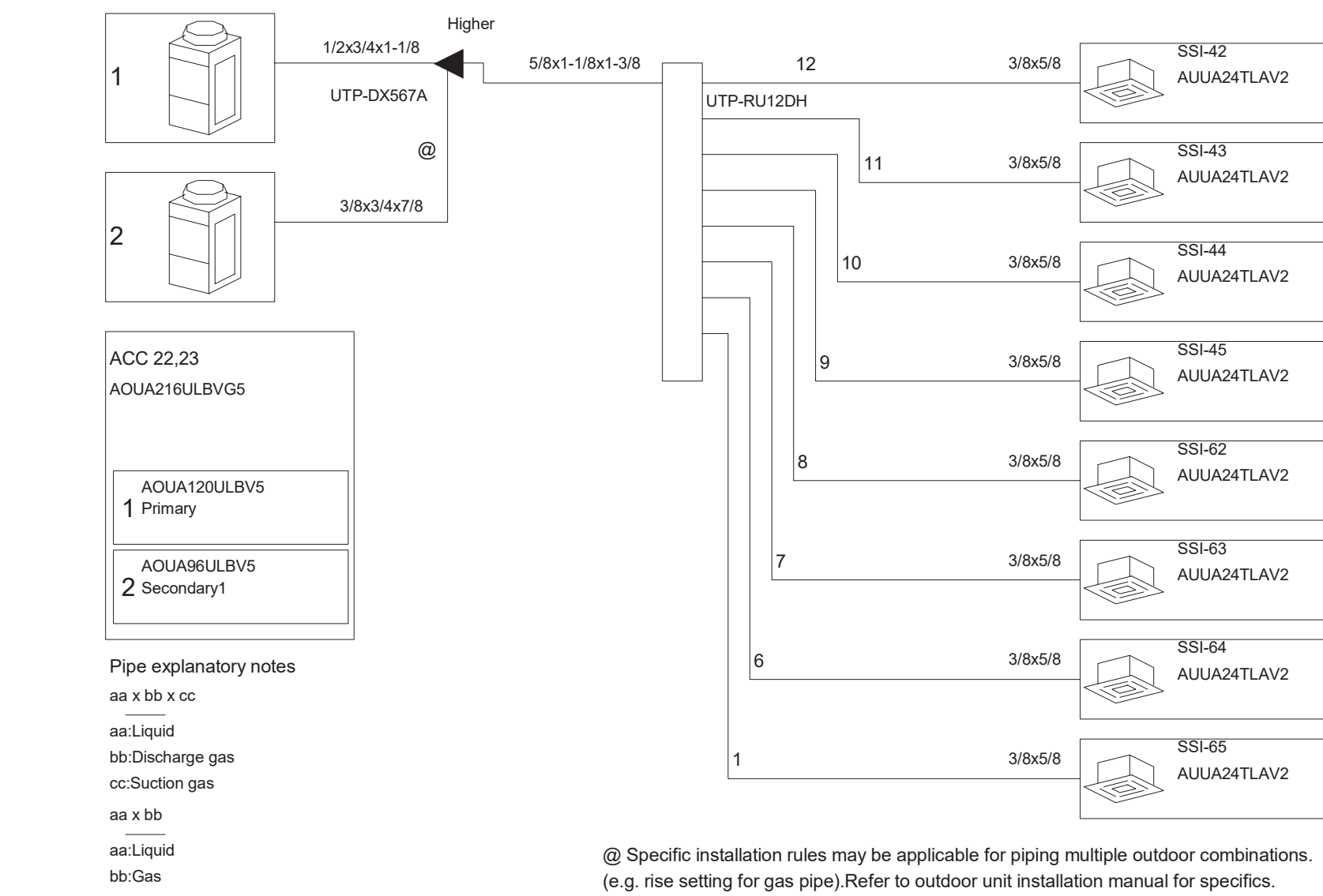
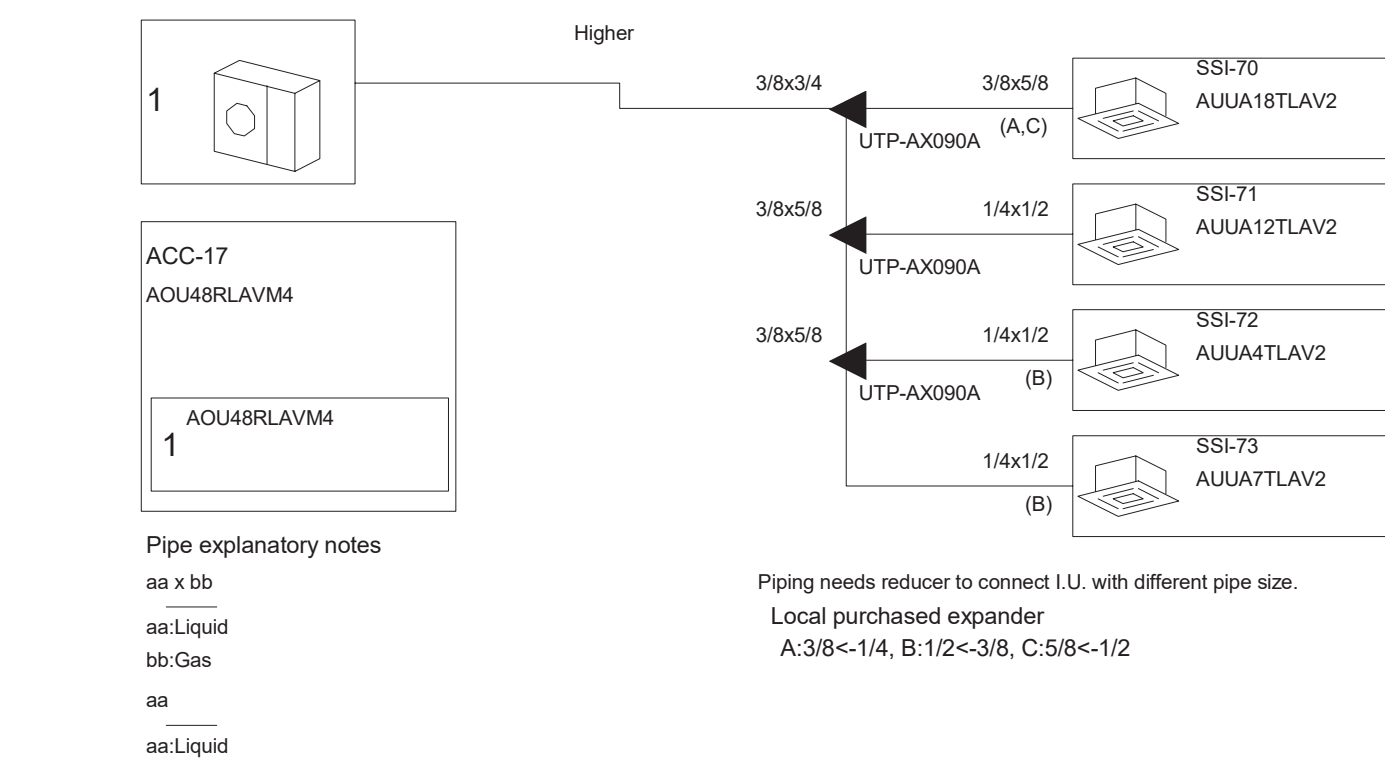
KCM

Drawing Title

VRF PIPING

Drawing Number

WOS
H600



1/16/2023 3:45:21 PM c:\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
NOTES: 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 x W x D)	POWER (V/Ø/HZ)	POWER (WATTS)	TYPICAL UNIT MFG & MODEL NO.	
RBU-1	ACC-1,2	12	8	245	27	2592	2304	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-2	ACC-3,4	12	8	245	27	2592	2304	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-4	ACC-6	8	8	245	27	1010.4	852	11" x 26" x 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH	
RBU-6	ACC-9,10	12	10	324	27	3240	2880	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-7	ACC-11,12	8	6	245	27	1944	1728	11" x 26" x 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH	
RBU-8	ACC-13,14	8	7	245	27	2268	2016	11" x 26" x 25"	208 / 230 / 1 / 60	226 W	UTP-RU08AH	
RBU-9	ACC-18,19	12	8	245	27	2592	2304	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-10	ACC-20,21	12	8	245	27	2592	2304	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-11	ACC-22,23	12	8	245	27	2592	2304	11" x 39" x 25"	208 / 230 / 1 / 60	339 W	UTP-RU12AH	
RBU-12	ACC-15,16	8	6	245	27	1944	1728	11" x 26" x 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
<u>NOTES:</u> 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								EFFECTIVENESS @ WINTER DESIGN	SUMMER CONDITIONS								EFFECTIVENESS @ SUMMER DESIGN	TYPICAL UNIT MFG & MODEL NO.	NOTES
	WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS					WHEEL ENTERING CONDITIONS				WHEEL LEAVING CONDITIONS						
	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				INPUT KW
								TOTAL CAPACITY (MBH)	SENSIBLE (MBH)	EAT(F)	LAT(F)	CAPACITY (MBH)	LAT(F)	OAT(F)	RAT(F)	EAT(F)	TOTAL CAPACITY (MBH)	
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

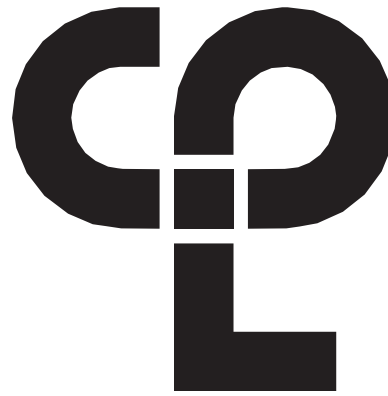
VENTILATION CALCULATIONS													
SPACE NAME		HVAC SYSTEM	SPACE MAXIMUM SUPPLY (CFM)	FLOOR AREA (SQ FT)	OCCUPANT DENSITY (PERSON/SQ FT)	TOTAL OCCUPANCY FOR VENTILATION (PEOPLE/1000 SQ FT)	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON)	AREA OUTDOOR AIRFLOW RATE (CFM/SQ FT)	EXHAUST AIRFLOW RATE (CFM/SQ FT)	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

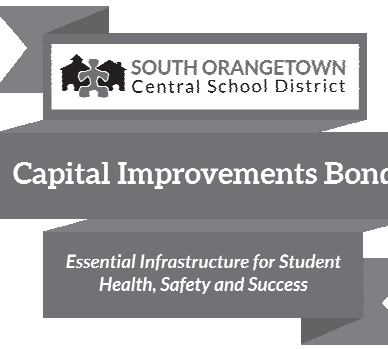
TAG	LOCATION	NOM. TONS	SEER	SUPPLY FAN				TOTAL MBH	SENS MBH	COOLING CAPACITY				ELECTRICAL			TYPICAL UNIT MFG & MODEL NO.	NOTES:
				CFM	OA CFM	ESP (IN. W.C.)	BHP / HP			EAT °F		LAT °F	AMB °F	VOLT/Ø	MCA	FLA		
										DB	WB							
RTU-3	ROOF	1-6	13.4	1250	250	1	0.73/1	37.81	25.61	75	64.66	55.78	95	208/1	32	28	AAON: RQ-003-1-0-DAAC-V0-21-000-A	1,2,3
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)	ENCLOSURE			TYPICAL UNIT MFG & MODEL NO.	NOTES:
								H (IN.)	D (IN.)	STYLE		
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.												



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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

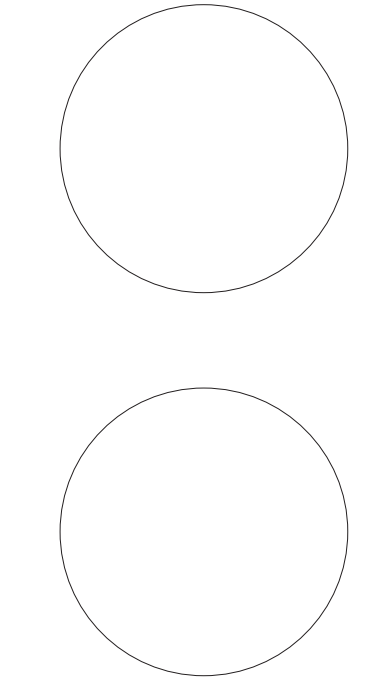
SOUTH ORANGETOWN CSD

- ☒ WILLIAM O. SCHAFER SED# 50-03-01-06-0-010-2019
☐ 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. SCHAFER SAL SED# 50-03-01-06-0-010-200
☐ COTTAGE LANE SAL SED# 50-03-01-06-0-010-023
☐ COTTAGE LANE LIBRARY SAL SED# 50-03-01-06-8-023-002
☐ WOS OUTDOOR CLASSROOM SED# 50-03-01-06-7-035-001
☐ JONES OUTDOOR CLASSROOM SED# 50-03-01-06-7-036-001
☐ CLE OUTDOOR CLASSROOM SED# 50-03-01-06-7-034-001
☐ JHS OUTDOOR CLASSROOM SED# 50-03-01-06-7-035-001

PROJECT ISSUE & REVISION SCHEDULE

No.	Date	Description
1	10/27/2023	BID ADDENDUM #1
2	11/03/2023	BID ADDENDUM #2
3	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 COMMISSIONER'S
REGULATIONS FOR ANY PERSON, UNDER ACTING UNDER THE SUPERVISION OF A LICENSED
ARCHITECT, ENGINEER OR LAND SURVEYOR, TO ACT AS ARCHITECT IN ANY WAY, IF AN INDIVIDUAL
BEARING THE TITLE OF ARCHITECT, ENGINEER OR LAND SURVEYOR, IS NOT LICENSED BY THE BOARD.
FURTHER, THE TITLE OF ARCHITECT, ENGINEER OR LAND SURVEYOR, SHALL NOT BE USED BY ANY INDIVIDUAL
WHOSE NAME AND THE DATE OF SUCH ABRIDGMENT, AND A SPECIFIC DESCRIPTION OF THE
ABRIDGMENT.

SHEET INFORMATION

Issued
10/18/2023

Scale
12" = 1'-0"

Project Status

BID DOCUMENTS

Drawn By

KCM

Drawing Title

MECHANICAL SCHEDULES

Drawing Number

WOS
H902