RIVER VALLEY MIDDLE SCHOOL FACILITY IMPROVEMENTS

2220 VETERANS PKWY.
JEFFERSONVILLE, IN.
47130

ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS MAY BE USED.

(A)	ABANDON	GC	GENERAL CONTRACTOR	PSI	POUNDS PER SQUARE INCH
(D)	DEMOLISH	GND	GROUND	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
(E)	EXISTING	GPM	GALLONS PER MINUTE	PSIG	POUNDS PER SQUARE INCH GAUGE
(N)	NEW	GPH	GALLONS PER HOUR	PVC	POLYVINYL CHLORIDE
(R)	RELOCATE	H	HEIGHT	QD	QUICK DISCONNECT
[redacted]		HB	HOSE BIBB	R	RADIUS
A/C	AIR CONDITIONING	HL	HIGH LIMIT	RA	RETURN AIR
AAV	AUTOMATIC AIR VENT	HOA	HAND–OFF–AUTO SWITCH	REQD	REQUIRED
AD	ACCESS DOOR	HP	HORSEPOWER	REV	REVISION
AFC	ABOVE FINISHED CEILING	HPR	HEAT PUMP RETURN	RH	RELATIVE HUMIDITY
AFF	ABOVE FINISHED FLOOR	HPS	HEAT PUMP SUPPLY	RL	REFRIGERANT LIQUID
AL	ALUMINUM	HPWS	HEAT PUMP, WATER SOURCE	RLA	RUNNING LOAD AMPS
AOP	ANALOG OUTPUT PNEUMATIC	HT	HEIGHT	RM	ROOM
AP	ACCESS PANEL	HTG	HEATING	RP	RADIANT PANEL
BD	BLOWDOWN	HTR	HEATER	RPM	REVOLUTIONS PER MINUTE
BDD	BACKDRAFT DAMPER	HVAC	HEATING, VENTILATING, AND AIR CONDITIONING	RS	REFRIGERANT SUCTION
BFP	BACKFLOW PREVENTER	HX	HEAT EXCHANGER	RV	RELIEF VENT
BOB	BOTTOM OF BEAM	IA	INSTRUMENT AIR	SA	SUPPLY AIR, SOUND ATTENUATOR
BOD	BOTTOM OF DUCT	ID	INSIDE DIMENSIONS	SD	SMOKE DETECTOR
BOJ	BOTTOM OF JOIST	IN	INCH	SF	SQUARE FEET
BOP	BOTTOM OF PIPE	INS	INSULATION	SFD	SMOKE/FIRE DAMPER
BTU	BRITISH THERMAL UNIT	KV	KILOVOLT	SP	STATIC PRESSURE
C/A	COMBUSTION AIR	KVA	KILOVOLT AMPS	SPEC	SPECIFICATION(S)
CAP	CAPACITY	KW	KILOWATT	SQ	SQUARE
CFH	CUBIC FEET PER HOUR	KWH	KILOWATT HOUR	SQ IN	SQUARE INCH
CFM	CUBIC FEET PER MINUTE	L	LENGTH	SS	STAINLESS STEEL
CLG	CEILING	LAT	LEAVING AIR TEMPERATURE	STD	STANDARD(S)
COND	CONDENSATE	LBS	POUNDS	STL	STEEL
CPVC	CHLORINATED POLYVINYL CHLORIDE	LCP	LOCAL CONTROL PANEL	STR	STRUCTURAL
CR	CONDENSATE RETURN	LDB	LEAVING DRY BULB	TCP	TEMPERATURE CONTROL PANEL
DB	DRY BULB	LF	LINEAR FOOT	TCV	TEMPERATURE CONTROL VALVE
DBA	DECIBEL	LPR	LOW PRESSURE CONDENSATE RETURN	TEMP	TEMPERATURE
DCW	DOMESTIC COLD WATER	LPS	LOW PRESSURE STEAM	TOB	TOP OF BEAM
DEMO	DEMOLITION	LRA	LOCKED ROTOR AMPS	TOC	TOP OF CURB
DHW	DOMESTIC HOT WATER	LWB	LEAVING WET BULB	TOD	TOP OF DUCT
DI	DIGITAL INPUT	LWT	LEAVING WATER TEMPERATURE	TOJ	TOP OF JOIST
DIA	DIAMETER	MAD	MANUAL AIR DAMPER	TSTAT	THERMOSTAT
DIM	DIMENSION	MAU	MAKE–UP AIR	TXV	THERMOSTATIC EXPANSION VALVE
DM	DAMPER MOTOR	MAV	MANUAL AIR VENT	TYP	TYPICAL
DN	DOWN	MAX	MAXIMUM	UL	UNDERWRITER'S LABORATORIES
DPI	DIFFERENTIAL PRESSURE INDICATOR	MBH	THOUSAND BTU	UNO	UNLESS NOTED OTHERWISE
DWG	DRAWING(S)	MCC	MOTOR CONTROL CENTER	V	VOLTS
DX	DIRECT EXPANSION	MD	MANUAL DAMPER	VAV	VARIABLE AIR VOLUME
EA	EXHAUST AIR	MEZZ	MEZZANINE	VD	VOLUME DAMPER
EC	ELECTRICAL CONTRACTOR	MFR	MANUFACTURER	VFD	VARIABLE FREQUENCY DRIVE
ELEC	ELECTRIC OR ELECTRICAL	MIN	MINIMUM	VR	VACUUM RETURN
ELEV	ELEVATION	MOD	MOTOR OPERATED DAMPER	VTR	VENT THROUGH ROOF
EQUIP	EQUIPMENT	MTD	MOUNTED	VVT	VARIABLE VOLUME AND TEMPERATURE
ETR	EXISTING TO REMAIN	MTR	MOTOR	W	WIDTH
EWB	ENTERING WET BULB	N/A	NOT APPLICABLE	W/	WITH
EWT	ENTERING WATER TEMPERATURE	NC	NORMALLY CLOSED	WB	WET BULB
EXH	EXHAUST	NIC	NOT IN CONTRACT	WG	WATER GAUGE (INCHES)
EX	EXISTING	NO	NORMALLY OPEN	WHSE	WAREHOUSE
FA	FRESH AIR	NOM	NOMINAL	W/O	WITH OUT
FD	FIRE DAMPER	NRS	NON–RISING STEM	XFMR	TRANSFORMER
FI	FLOW INDICATOR	NTS	NOT TO SCALE	XP	EXPLOSION PROOF
FLD	FLOOR DRAIN	OA	OUTSIDE AIR	Z	ZONE
FLG	FLANGE	OBD	OPPOSED BLADE DAMPER	ZD	ZONE DAMPER
FLM	FLOW METER	OD	OUTSIDE DIMENSIONS		
FLR	FLOOR	OE	OPEN END DUCT		
FOB	FLAT ON BOTTOM	OS&Y	OUTSIDE SCREW AND YOKE		
FOT	FLAT ON TOP	P	PRESSURE		
FPM	FEET PER MINUTE	PC	PLUMBING CONTRACTOR		
FS	FLOW SWITCH	PD	PUMPED CONDENSATE DRAIN		
FT	FOOT OR FEET	PG	PIPE GUARD		
GA	GAUGE	PH	PHASE		
GALV	GALVANIZED	PS	PRESSURE SWITCH		

EQUIPMENT NOTATION

NOTE: NOT ALL NOTATIONS MAY BE USED.

AC–1	AIR CONDITIONING UNIT
ACC–1	AIR COOLED CONDENSER
ACCU–1	AIR COOLED CONDENSING UNIT
ACF–1	AIR CURTAIN FAN
AHU–1	AIR HANDLING UNIT
ARU–1	AIR ROTATION UNIT
AS–1	AIR SEPARATOR
B–1	BOILER
BB–1	BASEBOARD HEATER
BDS–1	BLOWDOWN SEPARATOR
BFP–1	BOILER FEEDWATER PUMP
BPD–1	BY–PASS DAMPER
CC–1	COOLING COIL
CD1	CEILING DIFFUSER
CH–1	CHILLER
CP–1	CONTROL PANEL
CR–1	CONDENSATE RECEIVER
CRAC–1	COMPUTER ROOM AIR CONDITIONER
CRU–1	CONDENSATE RETURN UNIT
CT–1	COOLING TOWER
CU–1	CONDENSING UNIT
CUH–1	CABINET UNIT HEATER
D–1	DEAERATOR
DH–1	DUCT HEATER
EF–1	EXHAUST FAN
EG1	EXHAUST GRILLE
ET–1	EXPANSION TANK
EUH–1	ELECTRIC UNIT HEATER
EWH–1	ELECTRIC WALL HEATER
F–1	FURNACE
FCU–1	FAN COIL UNIT
FTR–1	FIN TUBE RADIATION
GIV–1	GRAVITY INTAKE VENTILATOR
GRV–1	GRAVITY RELIEF VENT
H–1	HUMIDIFIER
HC–1	HEATING COIL
HP–1	HEAT PUMP
HRC–1	HEAT RECOVERY COIL
HRU–1	HEAT RECOVERY UNIT
HVLS–1	HIGH VOLUME LOW SPEED FAN
HWC–1	HOT WATER COIL
HX–1	HEAT EXCHANGER
LV–1	LOUVER
MAU–1	MAKE–UP AIR UNIT
MOD–1	MOTOR OPERATED DAMPER
P–1	PUMP
PDH–1	POOL DEHUMIDIFICATION UNIT
PHC–1	PRE–HEAT COIL
PTAC–1	PACKAGED TERMINAL AIR CONDITIONER
RAC–1	ROOM AIR CONDITIONER
RF–1	RETURN FAN
RG1	RETURN GRILLE
RH–1	RADIANT UNIT HEATER
RHC–1	RE–HEAT COIL
RTU–1	ROOFTOP UNIT
SA–1	SOUND ATTENUATOR
SF–1	SUPPLY FAN
SG1	SUPPLY GRILLE
UH–1	UNIT HEATER
UV–1	UNIT VENTILATOR
VAV–1	VARIABLE AIR VOLUME TERMINAL
VFD–1	VARIABLE FREQUENCY DRIVE
WCC–1	WATER COOLED CONDENSER
ZD–1	ZONE DAMPER

DUCTWORK SYMBOLS LIST

NOTE: NOT ALL SYMBOLS MAY BE USED.

SUPPLY/O.A. DUCT RISE (SINGLE LINE)	OR
SUPPLY/O.A. DUCT RISE (DOUBLE LINE)	OR
SUPPLY/O.A. DUCT DROP (SINGLE LINE)	OR
SUPPLY/O.A. DUCT DROP (DOUBLE LINE)	OR
RETURN/EXHAUST/RELIEF DUCT RISE (SINGLE LINE)	OR
RETURN/EXHAUST/RELIEF DUCT RISE (DOUBLE LINE)	OR
RETURN/EXHAUST/RELIEF DUCT DROP (SINGLE LINE)	OR
RETURN/EXHAUST/RELIEF DUCT DROP (DOUBLE LINE)	OR
FLAT OVAL (DROP OR RISE)	OR
DOUBLE LINE FLEX DUCT	
SINGLE LINE FLEX DUCT	
ACCESS DOOR	OR
90 DEGREE FITTING (WITH TURNING VANES)	
DIFFUSER	OR / OR — WITHOUT FLEX, WITH FLEX
SIDEWALL GRILLE/REGISTER/DIFFUSER	OR — WITHOUT FLEX, WITH FLEX
GRILLE/REGISTER	
VOLUME DAMPER	
FIRE DAMPER WITH ACCESS DOOR	FD
SMOKE DAMPER WITH ACCESS DOOR	SD
COMB. FIRE/SMOKE DAMPER WITH ACCESS DOOR	CD
BACKDRAFT DAMPER	BD
MOTORIZED DAMPER WITH ACCESS DOOR	M
AIR FLOW ARROW	
CONTINUATION	OR / OR
DUCT SIZE (FIRST DIMENSION SIDE SHOWN)	20x10
DUCT RISE (R) OR DROP (D) (IN DIRECTION OF AIRFLOW)	R
INTERNALLY LINED DUCT	
DUCT TRANSITION	
EXHAUST FAN	
SPIN-IN BRANCH DUCT (WITH VOLUME DAMPER)	
INTAKE VENTILATOR (ROOFTOP)	
RELIEF VENTILATOR (ROOFTOP)	
EXHAUST VENTILATOR (ROOFTOP)	
THERMOSTAT (MOUNT 48" AFF TO CENTER UNO)	T
HUMIDISTAT (MOUNT 48" AFF TO CENTER UNO)	H
MISCELLANEOUS SENSOR	S
CO SENSOR	CO
CO_2 SENSOR	CO_2
CONNECT TO EXISTING	
VAV BOX	
FAN	
TYPICAL TAG: DEVICE TYPE-SIZE / CFM	CD1–8"ø / 75
SECTION CALL OUT	1 / M–2
TYPICAL CODED NOTE	#
DUCT TAP WITH DAMPER	WITHOUT DAMPER

PIPING SYMBOLS LIST

NOTE: NOT ALL SYMBOLS MAY BE USED.

PIPING LABELS

COMPRESSED AIR	A	GLYCOL RETURN	GR
BOILER BLOWDOWN	BBD	GLYCOL SUPPLY	GS
BOILER FEEDWATER	BFW	GAS VENT	GV
BRINE RETURN	BR	HOT WATER RETURN	HWR
BRINE SUPPLY	BS	HOT WATER SUPPLY	HWS
CONDENSATE DRAIN	COND–D	MAKE–UP WATER	MU
PUMPED STEAM CONDENSATE	COND–P	PROCESS WATER RETURN	PWR
CONDENSER WATER RETURN	CDR	PROCESS WATER SUPPLY	PWS
CONDENSER WATER SUPPLY	CDS	PUMPED CONDENSATE DRAIN	PD
CHILLED WATER RETURN	CWR	REFRIGERANT	R
CHILLED WATER SUPPLY	CWS	REFRIGERANT RELIEF	REFR
DEIONIZED WATER	DIW	STEAM (# INDICATES PRESSURE)	S–#
FILL LINE	FILL	STEAM CONDENSATE (# INDICATES PRESSURE)	SC–#
NATURAL GAS	G		
NATURAL GAS (# INDICATES PRESSURE)	G–#		

PIPING (FITTINGS, VALVES, AND MISCELLANEOUS)

DROP	STRAINER
RISE	DRAIN VALVE WITH HOSE END ADAPTER
TEE	UNION
CAP	AUTOMATIC AIR VENT
REDUCER	MANUAL AIR VENT
FLOW ARROW	THERMOMETER
PUMP (OR)	PRESSURE GAUGE (WITH STOPCOCK)
2–WAY CONTROL VALVE	PRESSURE/TEMP TEST PLUG
3–WAY CONTROL VALVE	FLOW SENSOR
BUTTERFLY VALVE	PRESSURE SENSOR
BALL VALVE	TEMPERATURE SENSOR
CHECK VALVE	STEAM TRAP
COMBINATION BALANCE/SHUT–OFF VALVE	METER
TRIPLE DUTY VALVE	FLEXIBLE CONNECTION
GATE VALVE	HEAT TRACED PIPE
PLUG VALVE	PIPE ANCHOR
GLOBE VALVE	PIPE GUIDE
PRESSURE RELIEF VALVE	EXPANSION JOINT
PRESSURE REDUCING VALVE	CONNECT TO EXISTING

DRAWING INDEX

PROJECT NOTES - OHIO

THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE – MECHANICAL PROVISIONS FOR BUILDING AND MECHANICAL CODES.

CONTRACT DRAWINGS ARE DIAGRAMMATIC, INTENDED TO CONVEY SCOPE OF WORK, AND SHOW GENERAL ARRANGEMENT OF EQUIPMENT AND SERVICES. FIELD VERIFY DIMENSIONS AND EXISTING CONDITIONS PRIOR TO EXECUTION OF WORK. REFER TO DETAILS AND SCHEDULES FOR ADDITIONAL INFORMATION OR REQUIREMENTS. DO NOT SCALE DRAWINGS.

INSTALL DUCTWORK AND ACCESSORIES IN SUCH A MANNER FOR EASE OF BALANCING AND SERVICE. (FIELD VERIFY).

FIELD COORDINATE FINAL LOCATION OF AIR DEVICES WITH WORK OF OTHER TRADES.

EQUIPMENT SCHEDULES ARE PROVIDED FOR INFORMATION PURPOSES AND ARE SUPERSEDED BY SHOP DRAWINGS. REFER TO SHOP DRAWINGS FOR MANUFACTURER'S INSTALLATION AND OPERATION INSTRUCTIONS, AND PERFORMANCE CRITERIA.

A SET OF CONSTRUCTION DRAWINGS SHALL BE MAINTAINED AT THE JOB SITE TO BE USED TO DOCUMENT DATA, INCLUDING BUT NOT LIMITED TO LOCATIONS AND EQUIPMENT SCHEDULES.

EVERY SUPPLY OR EXHAUST RUN–OUT SHALL BE EQUAL TO THE AIR DEVICE NECK SIZE, WITH A VOLUME DAMPER FOR BALANCING.

THERMOSTATS SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR IN ACCORDANCE WITH AMERICAN DISABILITIES ACT REQUIREMENTS.

MAINTAIN 42 INCHES OF WORK SPACE CLEARANCE IN FRONT OF ALL SERVICE PANELS. WORK SPACE SHALL PERMIT HINGED SERVICE PANELS TO SWING OPEN AT LEAST 90 DEGREES.

COVERINGS, LININGS, INSULATION, AND ADHESIVES, INSTALLED UNDER THIS CONTRACT SHALL MEET FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 PER ASTM E84. THICKNESS OF INSULATION SHALL BE IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE – MECHANICAL, SECTION 604.

FIRE RATED FLOOR AND WALL PENETRATIONS SHALL BE FIRE STOPPED WITH UL APPROVED MATERIALS MEETING THE TESTING REQUIREMENTS OF ASTM E814, OR IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION, FOR THE REQUIRED RATING OF THE STRUCTURE.

ALL SHEETMETAL DUCTWORK, HANGARS, AND SUPPORTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE – MECHANICAL, SECTION 603 AND SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". DUCTWORK SIZES INDICATED ON DRAWINGS ARE OUTSIDE DIMENSIONS. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 7 FEET.

VENTILATION AIR SHALL BE PROVIDED TO THE FACILITY IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2017 OHIO BUILDING CODE – MECHANICAL, SECTION 401.

AIR DISTRIBUTION SYSTEMS SHALL BE EQUIPPED WITH A PHOTOELECTRIC SMOKE DETECTOR IN ACCORDANCE WITH THE 2017 OHIO BUILDING CODE – MECHANICAL, SECTION 606. EACH SMOKE DETECTOR SHALL BE WIRED TO SHUT DOWN ITS RESPECTIVE AIR DISTRIBUTION SYSTEM. LOCAL AUDIBLE AND VISUAL INDICATION SHALL BE PROVIDED AS PART OF THIS CONTRACT AT LOCATIONS INDICATED ON THE DRAWINGS. INTERCONNECTION WIRING BETWEEN AIR DISTRIBUTION SYSTEMS OR FIRE ALARM PANELS, IF REQUIRED, IS NOT PART OF THIS CONTRACT. SMOKE DETECTOR POWER WIRING, IF REQUIRED, IS NOT PART OF THIS CONTRACT. WHEN THE FACILITY IS PROTECTED BY A CENTRAL FIRE ALARM PANEL, IN LIEU OF INSTALLING THE LOCAL AUDIBLE AND VISUAL ALARM, THE ALARM WILL BE TURNED OVER TO THE OWNER.

GAS PIPING SHALL BE ASTM A53 SCHEDULE 40 CONTINUOUS WELD OR SEAMLESS PIPE.

ALL FITTINGS ON GAS PIPING INSTALLED IN A PLENUM SPACE SHALL BE BUTT WELDED.

ALL FITTINGS 2" AND SMALLER SHALL BE THREADED BLACK MALLEABLE FITTINGS. ALL FITTINGS 2 1/2" AND LARGER SHALL BE BUTT WELDED.

GAS PIPING 2 1/2" AND LARGER SHALL BE WELDED, PIPING 2" AND UNDER SHALL BE THREADED.

PRESSURE TEST PIPING IN ACCORDANCE WITH INTERNATIONAL FUEL GAS CODE SECTION 406.1 WITH A KUHLMAN LEAK DETECTOR. PRESSURE TEST TO 30 PSI TEST PRESSURE FOR A MINIMUM OF 30 MINUTES.

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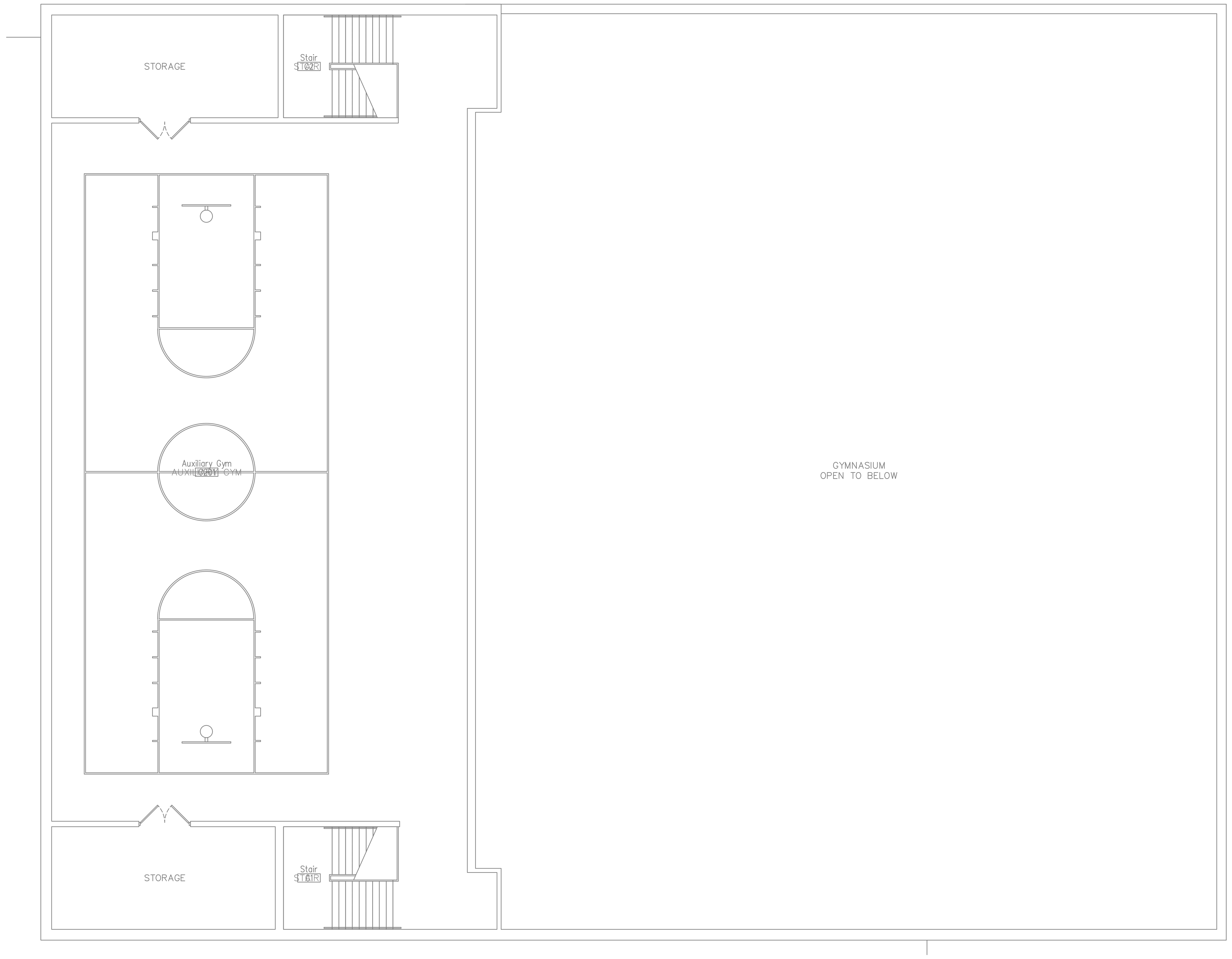
MECHANICAL COVER

RIVER VALLEY MIDDLE SCHOOL FACILITY IMPROVEMENTS
2220 VETERANS PKWY
JEFFERSONVILLE, IND. 47130

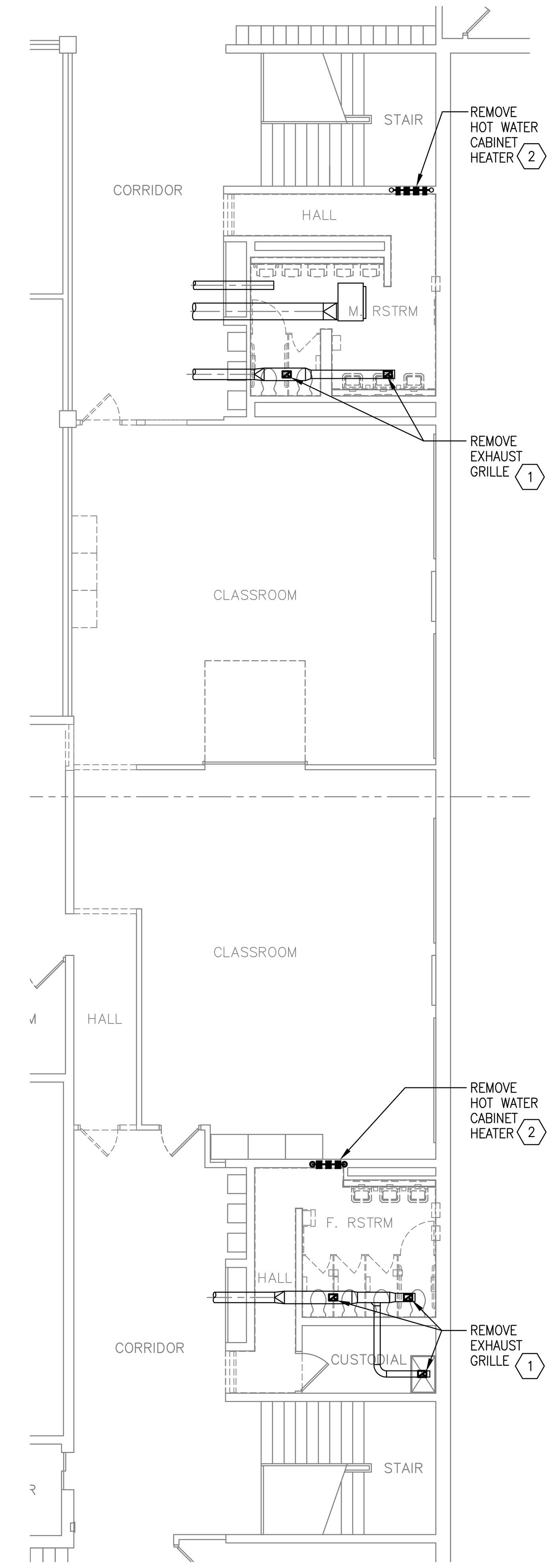
JOB NO.:
SCALE: AS NOTED
DATE: 5-12-23
DRAWN BY: CKB
APPROVED BY: CSL
DRAWING NUMBER:
M-C
REVISION NO.: 0

KEYNOTES

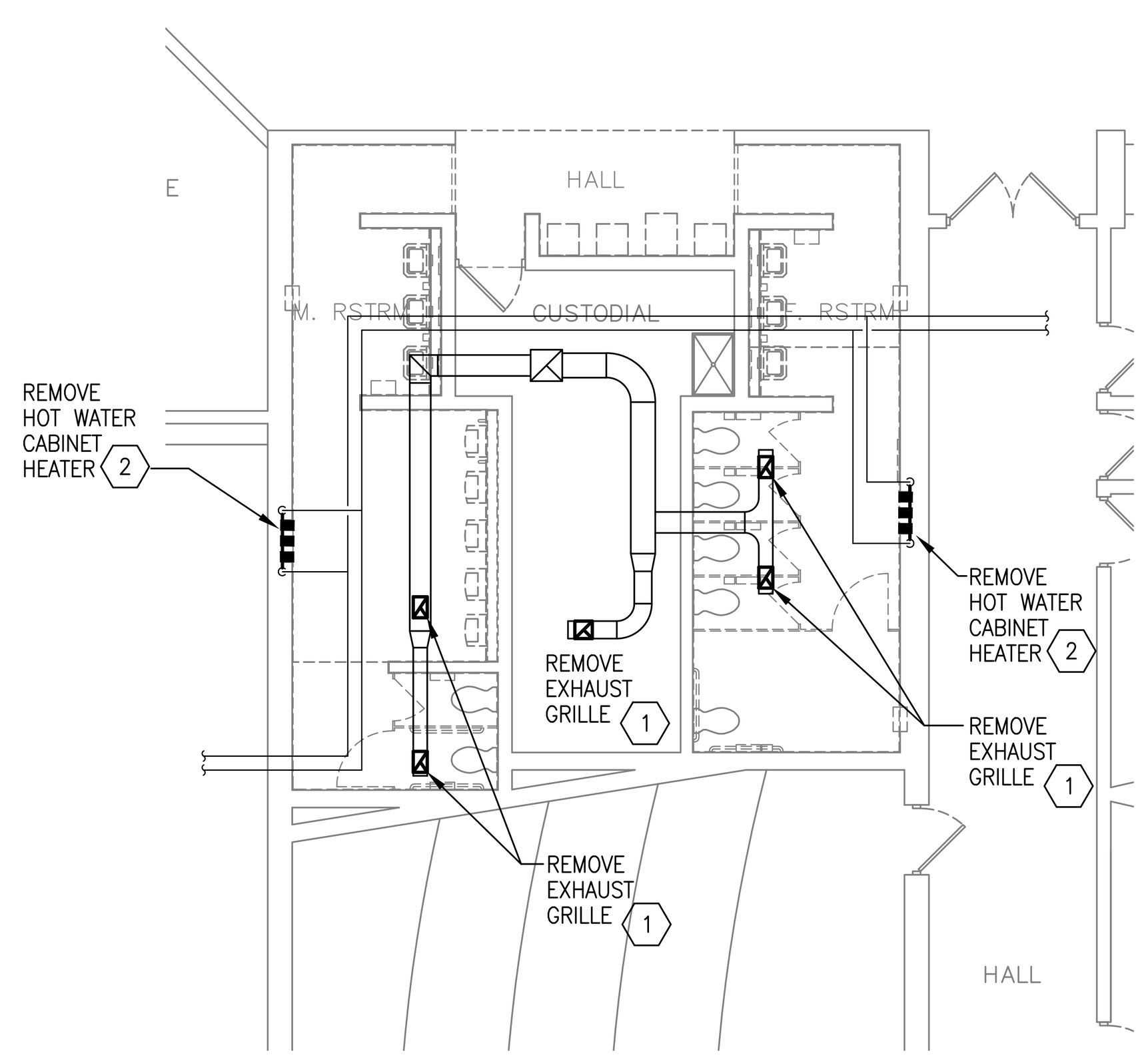
1. REMOVE EXHAUST GRILLE. SEE NEW WORK FOR REPLACEMENT.
2. REMOVE HOT WATER CABINET HEATER. PROVIDE SECTION OF PIPE BETWEEN SUPPLY AND RETURN PIPING BETWEEN REMOVAL POINTS IN WALL TO CREATE PIPING LOOP. PIPING TO BE ENCLOSED IN WALL. COORDINATE WALL COVERING WITH GENERAL CONTRACTOR.



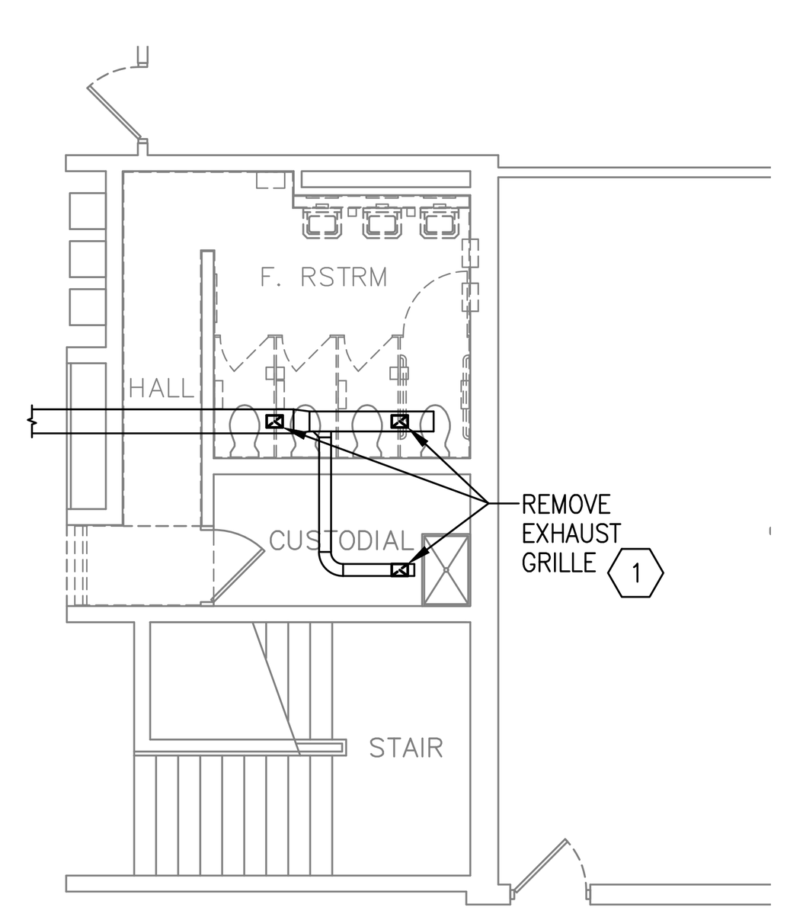
1 2ND FLOOR AREA C DEMOLITION PLAN
1/8"=1'-0"



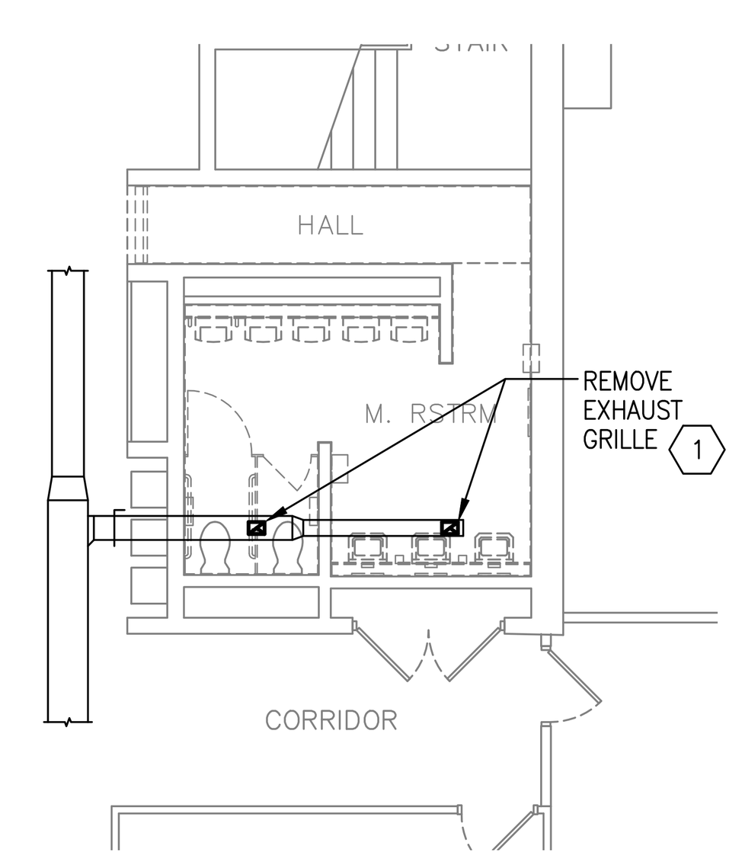
2 2ND FLOOR AREAS A&B DEMOLITION PLAN
1/8"=1'-0"



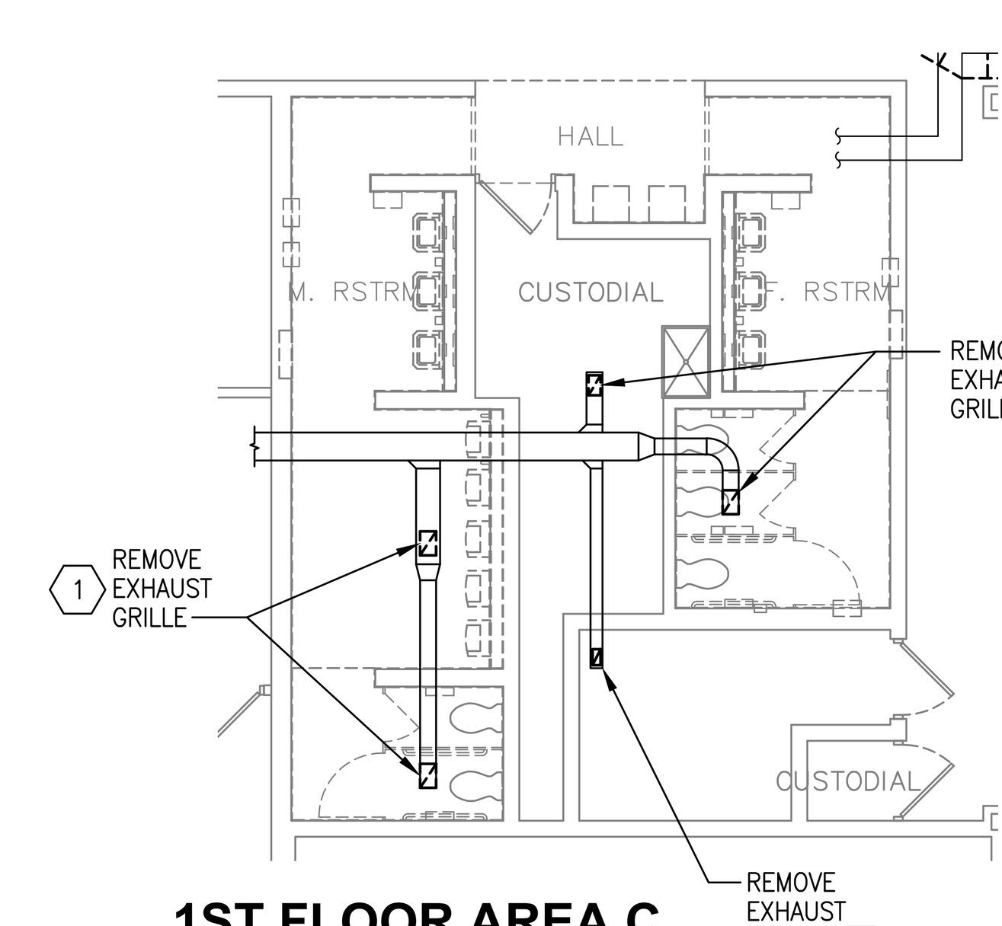
3 1ST FLOOR AREA D DEMOLITION PLAN
1/8"=1'-0"



4 1ST FLOOR AREA B DEMOLITION PLAN
1/8"=1'-0"



5 1ST FLOOR AREA A DEMOLITION PLAN
1/8"=1'-0"



6 1ST FLOOR AREA C DEMOLITION PLAN
1/8"=1'-0"

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DEMOLITION FLOOR PLANS

RIVER VALLEY MIDDLE SCHOOL
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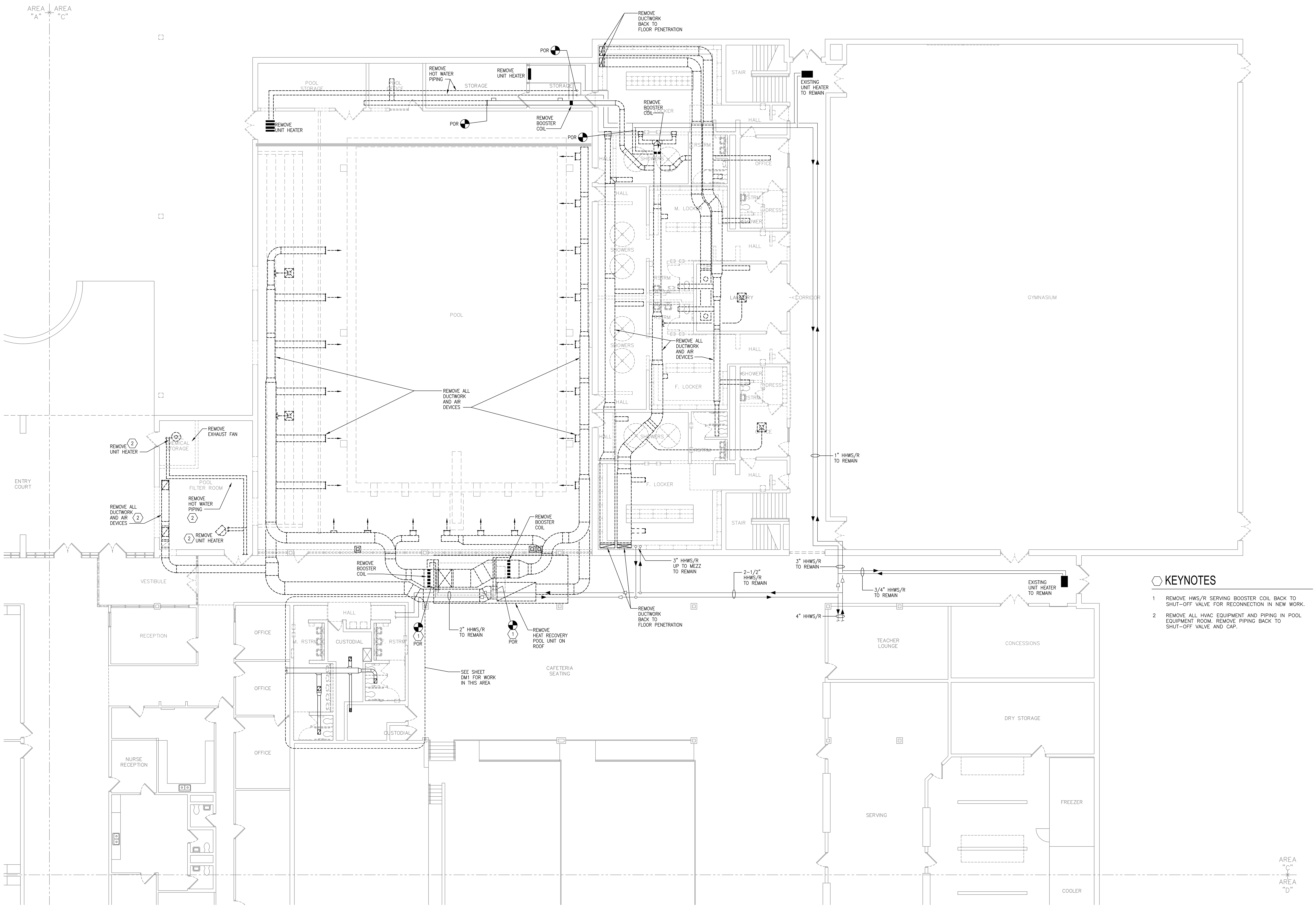

7 1ST FLOOR AREA C DEMOLITION PLAN

1/8"=1'-0"

KEYNOTES

1. REMOVE HWS/R SERVING BOOSTER COIL BACK TO SHUT-OFF VALVE FOR RECONNECTION IN NEW WORK.
2. REMOVE ALL HVAC EQUIPMENT AND PIPING IN POOL EQUIPMENT ROOM. REMOVE PIPING BACK TO SHUT-OFF VALVE AND CAP.

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DEMOLITION FLOOR PLAN

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2220 VETERANS PKWY
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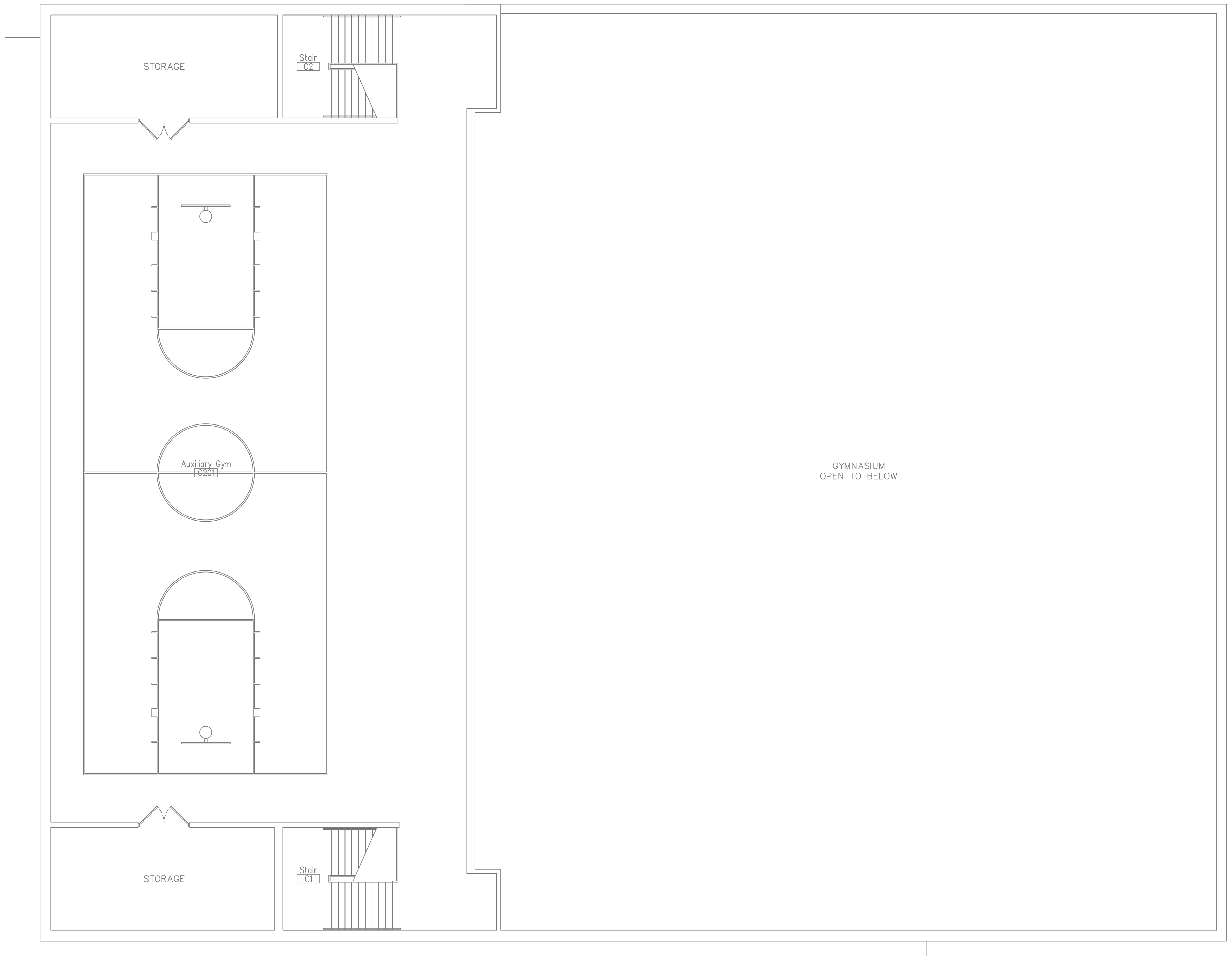
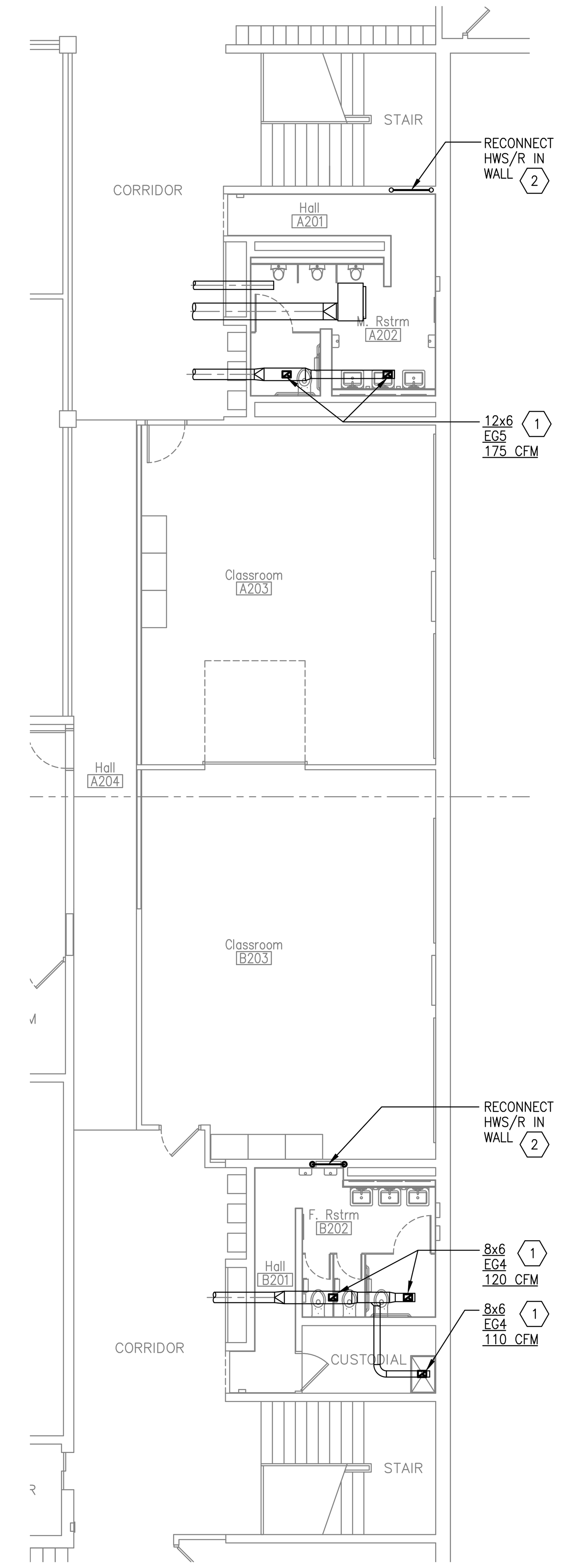
KEYNOTES

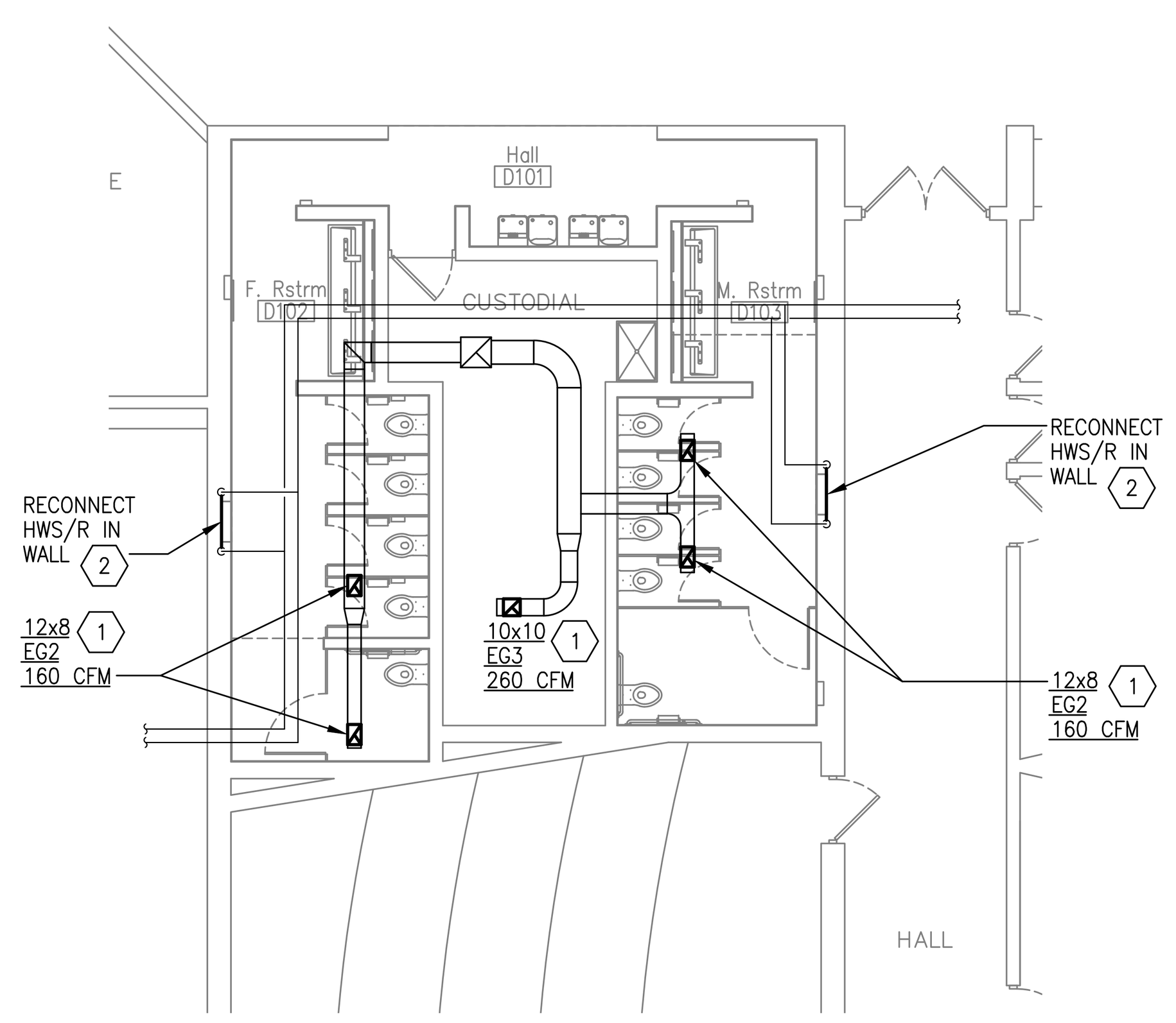
1. INSTALL NEW EXHAUST GRILLE IN CEILING. REMOVE CEILING AS REQUIRED TO MAKE CONNECTION. COORDINATE PATCHING OF CEILING WITH GENERAL CONTRACTOR.
2. PROVIDE SECTION OF PIPE BETWEEN SUPPLY AND RETURN PIPING BETWEEN REMOVAL POINTS IN WALL TO CREATE PIPING LOOP. PIPING TO BE ENCLOSED IN WALL. COORDINATE WALL COVERING WITH GENERAL CONTRACTOR.



1 — **2ND FLOOR AREA C NEW WORK PLAN**
1/8"=1'-0"



2 — **2ND FLOOR AREAS A&B NEW WORK PLAN**
1/8"=1'-0"



3 — **1ST FLOOR AREA D NEW WORK PLAN**
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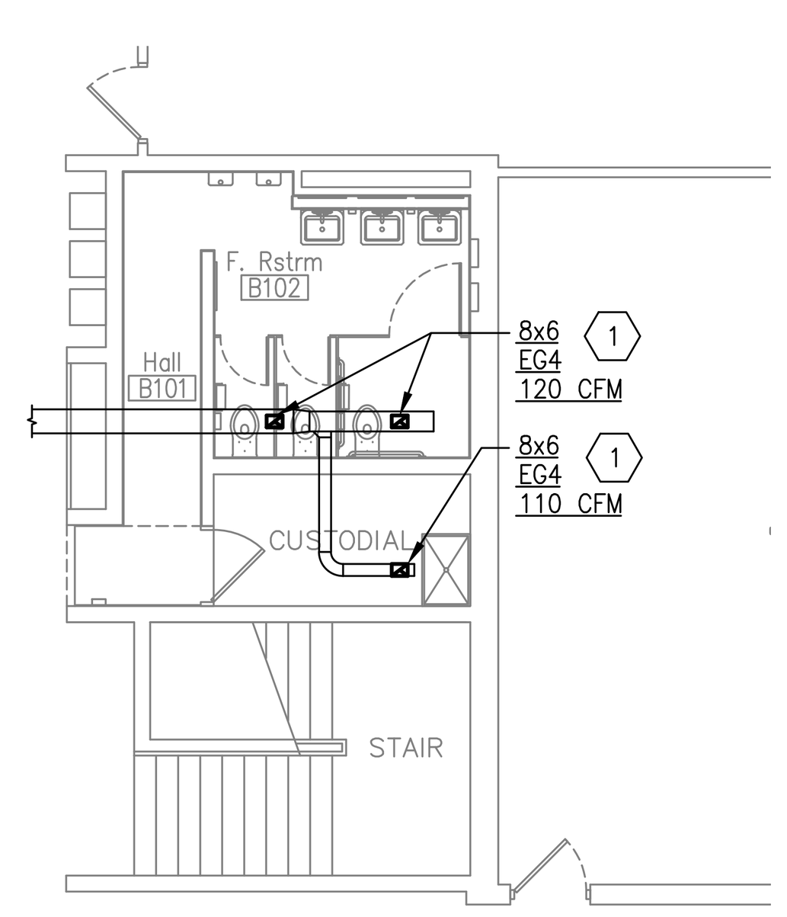
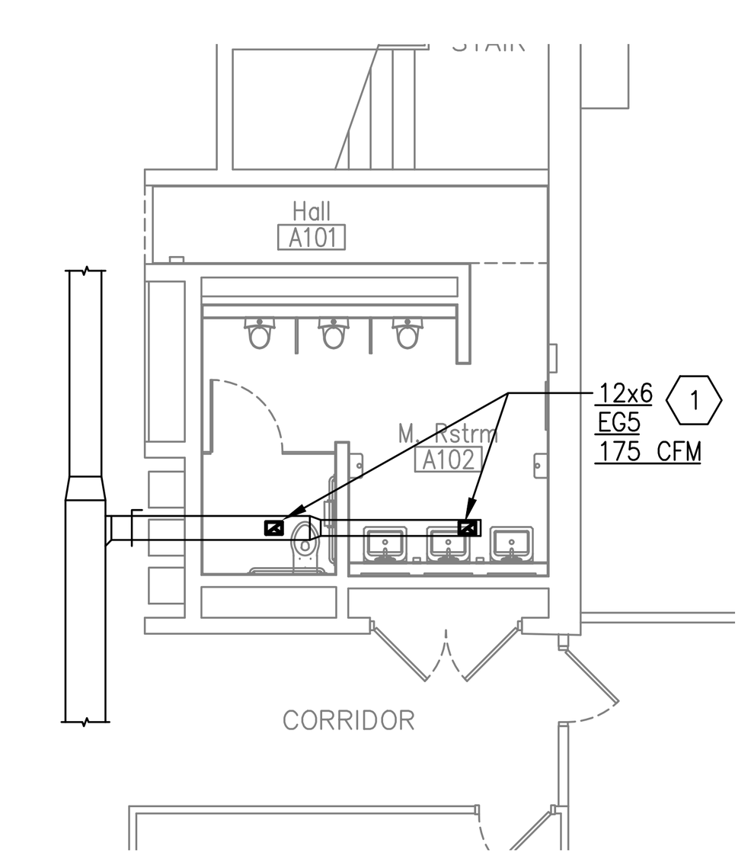
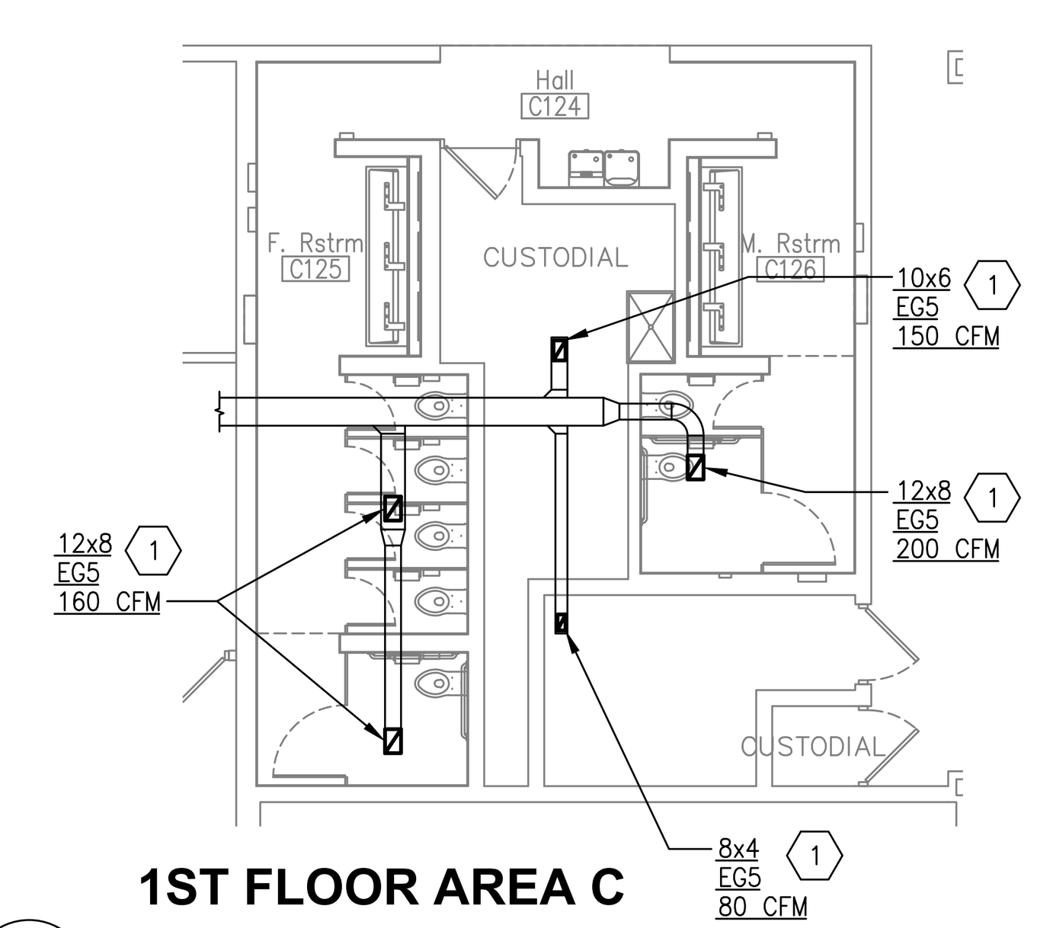


4 — **1ST FLOOR AREA B NEW WORK PLAN**
1/8"=1'-0"



5 — **1ST FLOOR AREA A NEW WORK PLAN**
1/8"=1'-0"



6 — **1ST FLOOR AREA C NEW WORK PLAN**
1/8"=1'-0"

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HVAC FLOOR PLANS

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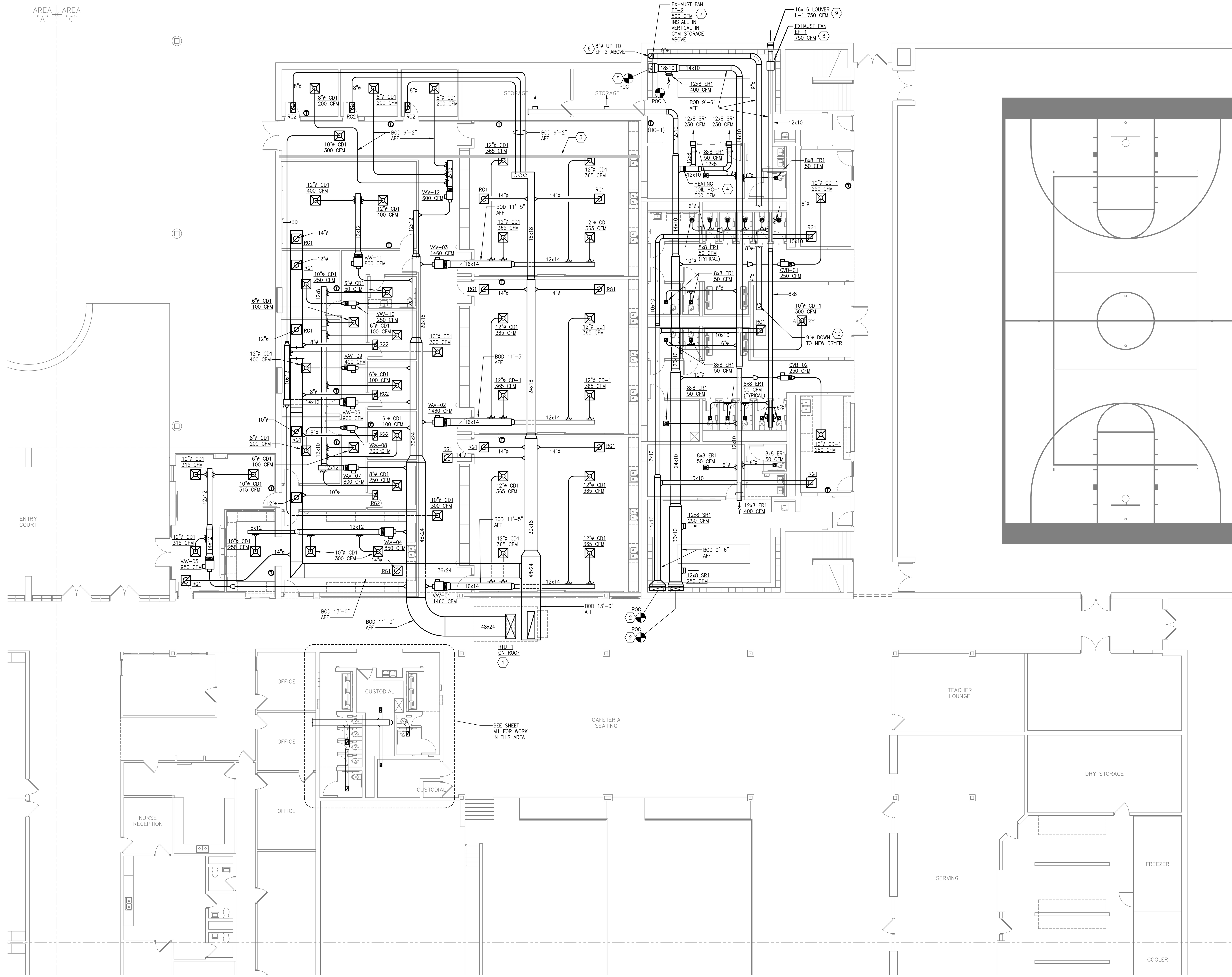

7 1ST FLOOR AREA C
HVAC PLAN
1/8"=1'-0"

KEYNOTES

1. RTU–1 MOUNTED ON CURB ADAPTER ON ROOF. ROUTE DUCTS UP TO RTU CONNECTIONS AS REQUIRED. CONNECT EXISTING GAS PIPING TO RTU GAS CONNECTION. SEE DETAIL "E" ON SHEET M–4 FOR CONNECTION.
2. CONNECT SUPPLY AND RETURN DUCTS TO EXISTING DROPS AT DECK PENETRATION.
3. EXISTING LOW ELEVATION STRUCTURAL BEAM COORDINATE DUCT SIZES AND ROUTING WITH GENERAL CONTRACTOR TO DETERMINE IF CEILING HEIGHT NEEDS ADJUSTED.
4. TRANSITION DUCT SIZE TO/FROM HEATING COIL AS REQUIRED.
5. CONNECT NEW EXHAUST DUCTWORK TO EXISTING AT DECK PENETRATION. TRANSITION AS REQUIRED.
6. ROUTE DUCT UP THRU DECK BY WAY OF EXISTING PENETRATION. PATCH ALL AROUND DUCTWORK AS REQUIRED TO PROVIDE SOLID DECK AT PENETRATIONS.
7. FAN TO BE MOUNTED VERTICALLY INLINE OF DUCTWORK. REFER TO EF–2 INSTALLATION MANUAL FOR OPERATION OF AUTOMATIC PRESSURE SWITCH AND CONSTANT PRESSURE SENSOR/CONTROLLERS.
8. FAN TO BE MOUNTED AS HIGH AS POSSIBLE IN LOCKER ROOM. FAN TO RUN ON BUILDING SCHEDULE. INSTALL WITHIN 36" OF EXTERIOR WALL PENETRATION.
9. MOUNT IN WALL. PROVIDE LINTEL AT BLOCK WALL PENETRATION. FLASH AS REQUIRED.
10. CONNECT TO DRYER AS REQUIRED. PROVIDE LINT FILTER IN DUCTWORK WITHIN ROOM BOUNDARIES.

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WILLIAM JOHN ALBRECHT JR. REGISTERED PE10607213 STATE OF INDIANA PROFESSIONAL ENGINEER

HVAC FLOOR PLAN

RIVER VALLEY MIDDLE SCHOOL
FACILITY IMPROVEMENTS
2220 VETERANS PKWY
JEFFERSONVILLE, IND. 47130

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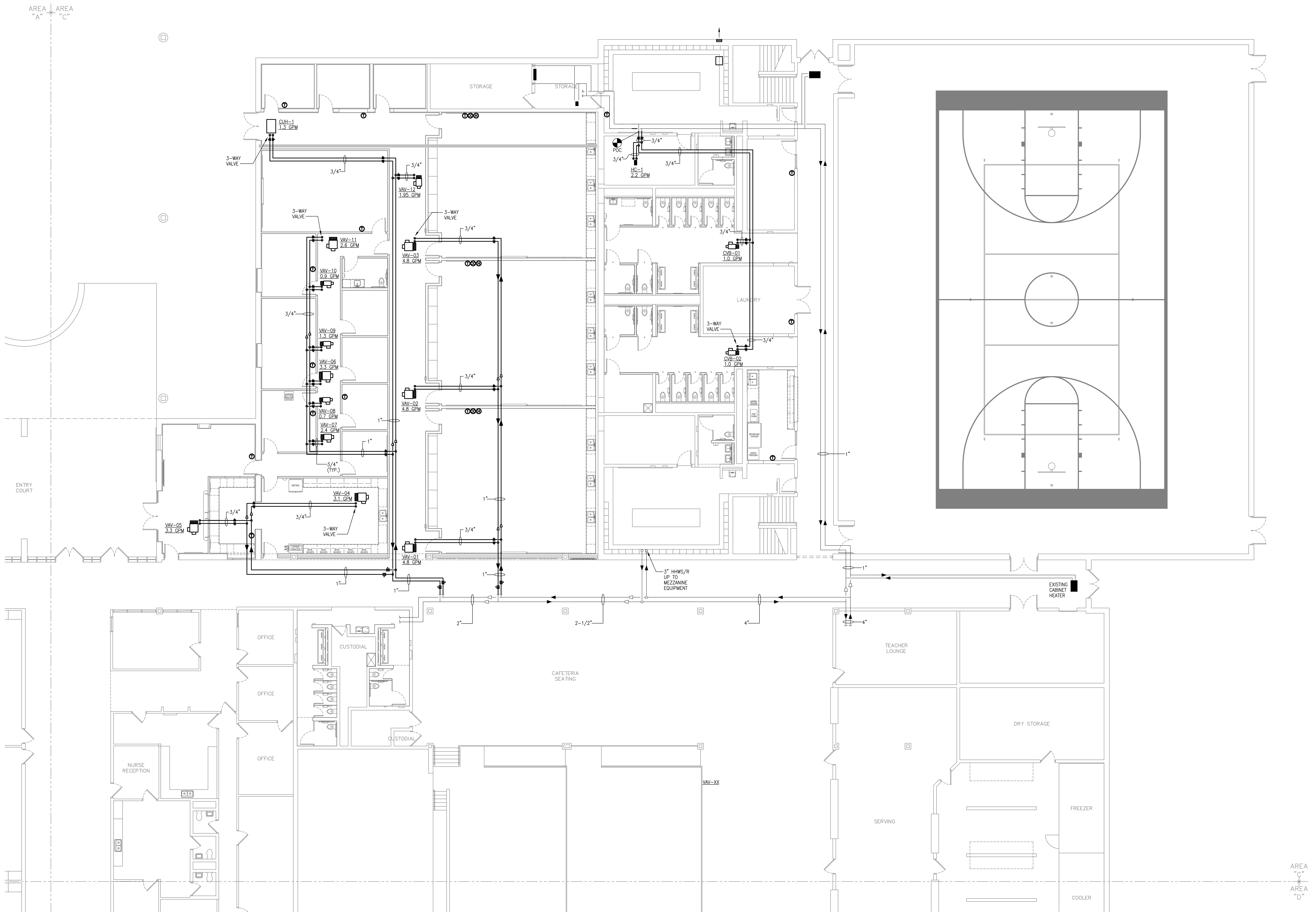

8
1ST FLOOR AREA C PIPING PLAN
1/8"=1'-0"

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PIPING FLOOR PLAN

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Nailor Single Duct VAV Units

	Tag1	Tag2	Model	ControlType	Heater Type	Unit Size	Inlet Size	Outlet Size	Primary Max AF (cfm)	Primary Min AF (cfm)	Inlet SP (in wg)	Outlet SP (in wg)	Min Inlet SP (in wg)	Integral Attenuator	Rad NC	Dis NC	HW Calc Method	HW Htg AF (cfm)	HW EWT (°F)	HW EAT (°F)	HW Rows	HW Fluid Flow (gpm)	HW AFV @Min (fpm)	HW AFV @Max (fpm)	HW Total Heat (mbh)	HW LAT (°F)	HW LWT (°F)	HW DT (°F)	HW FV (fps)	HW Fluid PD (ft wg)	Total HW Air PD @Min (in wg)	Total HW Air PD @Max (in wg)	HW FPI or MMPF	HW Connection Size (in)	HW Fluid Type	HW Glycol Pct	HW AHRI Certified
1460	VAV-01		D30RW	D	W	14	14	24 X 12 1/2	1400	500	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	1100	140	55	2	4.77	528	672	40.9	89.3	122.6	17.37	4.01	6.88	0.19	0.28	10	0.875	WTR	0	-1
1460	VAV-02		D30RW	D	W	14	14	24 X 12 1/2	1400	500	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	1100	140	55	2	4.77	528	672	40.9	89.3	122.6	17.37	4.01	6.88	0.19	0.28	10	0.875	WTR	0	-1
1460	VAV-03		D30RW	D	W	14	14	24 X 12 1/2	1400	500	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	1100	140	55	2	4.77	528	672	40.9	89.3	122.6	17.37	4.01	6.88	0.19	0.28	10	0.875	WTR	0	-1
850	VAV-04		D30RW	D	W	10	10	14 X 12 1/2	850	300	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	700	140	55	2	3.04	576	699.43	24.4	87.1	123.8	16.24	2.56	2.06	0.22	0.3	10	0.875	WTR	0	-1
945	VAV-05		D30RW	D	W	10	10	14 X 12 1/2	950	350	0.75	0.25	0.01	No	15	18	Rows, Fluid Flow	750	140	55	2	3.26	617.1	781.71	25.5	86.4	124.1	15.85	2.74	2.35	0.24	0.36	10	0.875	WTR	0	-1
900	VAV-06		D30RW	D	W	12	12	18 X 12 1/2	1000	350	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	750	140	55	2	3.26	480	640	28.3	89.7	122.4	17.56	2.74	2.73	0.16	0.26	10	0.875	WTR	0	-1
800	VAV-07		D30RW	D	W	8	08	12 X 12 1/2	725	275	0.75	0.25	0.01	No	15	20	Rows, Fluid Flow	550	140	55	2	2.39	528	696	19.4	87.6	123.5	16.49	2.01	1.19	0.19	0.3	10	0.875	WTR	0	-1
200	VAV-08		D30RW	D	W	6	06	10 X 10	200	75	0.75	0.25	0.01	No	15	19	Rows, Fluid Flow	150	140	55	2	0.65	216	288	6.5	94.9	119.8	20.24	0.55	0.07	0.04	0.07	10	0.875	WTR	0	-1
400	VAV-09		D30RW	D	W	6	06	10 X 10	400	150	0.75	0.25	0.01	No	15	20	Rows, Fluid Flow	300	140	55	2	1.3	432	576	10.8	88.2	123.2	16.83	1.09	0.26	0.13	0.22	10	0.875	WTR	0	-1
250	VAV-10		D30RW	D	W	6	06	10 X 10	250	100	0.75	0.25	0.01	No	15	20	Rows, Fluid Flow	200	140	55	2	0.87	288	360	8.1	92.2	121.2	18.8	0.73	0.12	0.07	0.1	10	0.875	WTR	0	-1
800	VAV-11		D30RW	D	W	10	10	14 X 12 1/2	800	300	0.75	0.25	0.01	No	15	15	Rows, Fluid Flow	600	140	55	2	2.6	493.7	658.29	22	88.8	122.9	17.11	2.19	1.52	0.17	0.27	10	0.875	WTR	0	-1
600	VAV-12		D30RW	D	W	8	08	12 X 12 1/2	600	200	0.75	0.25	0.01	No	15	19	Rows, Fluid Flow	450	140	55	2	1.95	432	576	16.9	89.7	122.4	17.6	1.64	0.8	0.13	0.22	10	0.875	WTR	0	-1
250	CV-01		D30RW	D	W	6	06	10 X 10	250	250	0.75	0.25	0.01	No	15	20	Rows, Fluid Flow	250	140	55	2	1	360	360	9.3	89.3	121.2	18.84	0.84	0.16	0.1	0.1	10	0.875	WTR	0	-1
250	CV-02		D30RW	D	W	6	06	10 X 10	250	250	0.75	0.25	0.01	No	15	20	Rows, Fluid Flow	250	140	55	2	1	360	360	9.3	89.3	121.2	18.84	0.84	0.16	0.1	0.1	10	0.875	WTR	0	-1

LOUVER SCHEDULE

TAG	MANUFACTURER	MODEL	LOCATION	SERVICE	MAX AIRFLOW (CFM)	VELOCITY (FPM)	MAX DELTA P (IN WG)	FRAME SIZE (W x H) (IN)	GROSS AREA (SQ FT)	FREE AREA (SQ FT)	MATERIAL	DAMPER MAT'L	ACCESSORIES
L-1	GREENHECK	ESD-435	WALL	EXHAUST	750	1050	0.2	16 X 16	1.78	0.7	ALUMINUM	N/A	

1. BRONXE FINISH
2. FLANGE FRAME
3. MESH BIRD SCREEN

HOT WATER UNIT HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	AREA SERVED	TYPE	AIRFLOW (CFM)	ELECTRICAL FLA	ELECTRICAL HP	ELECTRICAL VOLT/PH	EAT (DEG F)	LAT (DEG F)	EWT (DEG F)	LWT (DEG F)	GPM	HEATING INPUT (MBH)	ACCESSORIES
CUH-1	CARRIER	42CKA03VRCY8AYCW	ENTRY	CEILING/FLUSH	300	0.83		115/1/60	60	120	180	147	1.3	21.4	1,2,3

1. 2 WAY CONTROL VALVE 2. TELESCOPING CEILING MOUNT PANEL 3. FAN COIL OPEN CONTROLLER

EXHAUST FAN SCHEDULE

	TAG	MANUFACTURER	MODEL	AREA SERVED	LOCATION	FAN TYPE	BACKDRAFT DAMPER TYPE	BACKDRAFT DAMPER SIZE	AIRFLOW (CFM)	EXTERNAL SP (IN WG)	SONES	FAN MOTOR (RPM)	DRIVE TYPE	WEIGHT (LBS)	ELECTRICAL VOLT/PHASE	ELECTRICAL HP	ELECTRICAL WATTS	ELECTRICAL MCA	ELECTRICAL MOCP	ACCESSORIES
550	EF-1	GREENHECK	SQ-100-VG	LOCKER ROOM	LOCKER ROOM	INLINE	GRAVITY	14x14	750	0.5	6.8	1725	DD	44	115/1/60	1/4		4	15	1,2,3,4,5,6
	EF-2	TJERNLUND	CDB8	LAUNDRY	MEZZ	INLINE	GRAVITY	8" DIA	500	1.75			DD		115/1/60	1/2				7,8,9

1. VARIGREEN MOTOR
2. CONTROL DIAL FOR BALANCING
3. JUNCTION BOX MOUNTED AND WIRED
4. NEMA 1 SWITCH
5. BD-330-PB 10X10 BACKDRAFT DAMPER
7. IEK8 INLINE ELBOW KIT 8" DIA.
8. COP2DB CONSTANT OPERATING PRESSURE CONTROLLER.
9. DR10 DUCT PRESSURE SWITCH FOR AUTOMATIC OPERATION.

ROOFTOP UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	AREA SERVED	AIRFLOW (CFM)	VENTILATION AIR (CFM)	ESP (IN WG)	TONS	COOLING TOTAL (MBH)	COOLING SENSIBLE (MBH)	HEATING INPUT (MBH)	EFFICIENCY (%)	SUPPLY FAN HP	ENTERING AIR DB (DEG F)	ENTERING AIR WB (DEG F)	ELECTRICAL VOLT/PHASE	ELECTRICAL MCA	ELECTRICAL MOCP	ACCESSORIES
RTU-1	CARRIER	48LCEB26A3A6-1S0A0	OFFICE/CLASSROOMS	10,000	2000	1.5	25	285	210.5	310	81%	15	80	67	460/3/60	78.3	100	1,2,3,4,5

1. ROOF ADAPTER CURB
2. SMOKE DETECTOR
3. HIGH STATIC VAV BACNET OPTION
4. ECONOMIZER WITH POWER EXHAUST
5. FACTORY MOUNTED DISCONNECT.

COIL SCHEDULE

TAG	MANUFACTURER	MODEL	INDOOR UNIT	LOCATION	CFM	MIN FACE AREA (SF)	MAX AIR PD (IN WG)	FPM	EAT (DEG F)	LAT (DEG F)	FLUID TYPE	FLUID ENT TEMP (DEG F)	FLUID LVG TEMP (DEG F)	FLUID DELTA P (FT)	FLUID GPM	CAPACITY TOTAL (MBH)	CAPACITY SIZE (IN)	ROWS	FPI	WEIGHTS (POUNDS)	OVERALL DIMENSIONS	ACCESSORIES
HC-1	SFI COILS		AC-2	CEILING	500	0.97	0.1	514	55	99	WATER	180	158	1	2.2	23.8	0.75	2	8			

1. CASED COIL

AIR DEVICE SCHEDULE

TAG	DESIGN BASIS MANUFACTURER	DESIGN BASIS MODEL NUMBER	TYPE	NECK SIZE (IN)	FRAME SIZE (IN)	PATTERN	NUMBER OF SLOTS	MATERIAL	FINISH	REMARKS/NOTES
CD1	PRICE	SCD	SUPPLY	REF PLAN	24x24	4-WAY	N/A	STEEL	WHITE	1
SR1	PRICE	500 SERIES	SUPPLY	-	12x8	LOUVER	N/A	STEEL	WHITE	4,5
RG1	PRICE	80 SERIES	RETURN	-	24x24	EGGCRATE	N/A	STEEL	WHITE	1,2
RG2	PRICE	80 SERIES	RETURN	-	24x12	EGGCRATE	N/A	STEEL	WHITE	1,2
EG1	PRICE	80 SERIES	EXHAUST	-	12x12	EGGCRATE	N/A	STEEL	WHITE	1
EG2	PRICE	80 SERIES	EXHAUST	-	12x8	EGGCRATE	N/A	STEEL	WHITE	3
EG3	PRICE	80 SERIES	EXHAUST	-	10x10	EGGCRATE	N/A	STEEL	WHITE	3
EG4	PRICE	80 SERIES	EXHAUST	-	8x6	EGGCRATE	N/A	STEEL	WHITE	3
EG5	PRICE	80 SERIES	EXHAUST	-	12x6	EGGCRATE	N/A	STEEL	WHITE	3
ER1	PRICE	500 SERIES	EXHAUST	-	12x8	EGGCRATE	N/A	STEEL	WHITE	5,6

1. LAY-IN
2. PROVIDE SOUND BOOT ON TOP OF GRILLE. SEE PLANS FOR SIZE AND LOCATION
3. DRYWALL MOUNTING TRIM
4. WALL MOUNT
5. OPPOSED BLADE DAMPER
6. DUCT MOUNT

RTU-1 VENTILATION AIR SCHEDULE

ROOM NUMBER	ROOM NAME	Az AREA	OCCUPANCY CLASSIFICATION	TABLE 6.2.2.1 OCCUPANT DENSITY PEOPLE/1000 SF	Pz POPULATION	TABLE 6.2.2.1 Rp PEOPLE OUTSIDE AIR	TABLE 6.2.2.1 Ra AREA OUTSIDE AIR	TABLE 6.2.2.1 Ra AREA OUTSIDE AIR CALC	Vbz OUTSIDE AIR CFM	Voz OUTSIDE AIR REQUIRED	DESIGN CFM	OUTSIDE AIR % REQUIRED	SYSTEM % OUTSIDE AIR	ACTUAL OUTSIDE AIR CFM	NOTES
0	0	0													
C101/102	RECEPTION/WAITING	405	MAIN ENTRY LOBBIES	10	5	5	0.06	24.3	49	50	950	5%	30%	288	
C103	HALL	387	CORRIDORS	0	0	0	0.06	23.22	23	24	200	12%	30%	61	
C104	CLERKS	173	OFFICE SPACE	5	1	5	0.06	10.38	15	16	250	6%	30%	76	
C105	WORKROOM	468	OFFICE SPACE	5	3	5	0.06	28.08	43	44	600	7%	30%	182	
C106	ADMIN. ASST.	165	OFFICE SPACE	5	1	5	0.06	9.9	15	15	200	8%	30%	61	
C107	PRINCIPAL	245	OFFICE SPACE	5	2	5	0.06	14.7	25	25	400	6%	30%	121	
C108	ASST. PRINCIPAL	168	OFFICE SPACE	5	1	5	0.06	10.08	15	16	250	6%	30%	76	
C109	SMALL CONFERENCE	100	CONFERENCE/MEETING	50	3	5	0.06	6	21	21	100	21%	30%	30	
C110	OFFICE	100	OFFICE SPACE	5	1	5	0.06	6	11	11	100	11%	30%	30	
C111	OFFICE	100	OFFICE SPACE	5	1	5	0.06	6	11	11	100	11%	30%	30	
C112	OFFICE	100	OFFICE SPACE	5	1	5	0.06	6	11	11	100	11%	30%	30	
C114	LARGE CONFERENCE	507	CONFERENCE/MEETING	50	26	5	0.06	30.42	160	161	800	20%	30%	242	
C115	CORRIDOR	1,030	CORRIDORS	0	0	0	0.06	61.8	62	62	900	7%	30%	272	
C116	MEETING	114	CONFERENCE/MEETING	50	6	5	0.06	6.84	37	37	200	19%	30%	61	
C117	MEETING	114	CONFERENCE/MEETING	50	6	5	0.06	6.84	37	37	200	19%	30%	61	
C118	MEETING	114	CONFERENCE/MEETING	50	6	5	0.06	6.84	37	37	200	19%	30%	61	
C119	STEM LAB	1,100	CLASSROOMS (AGES 9 PLUS)	35	31	10	0.12	132	442	442	1460	30%	30%	442	
C120	STEM LAB	1,100	CLASSROOMS (AGES 9 PLUS)	35	31	10	0.12	132	442	442	1460	30%	30%	442	
C121	STEM LAB	1,100	CLASSROOMS (AGES 9 PLUS)	35	31	10	0.12	132	442	442	1460	30%	30%	442	
				0	0	0	0	0	0	0		0%	30%	0	
TOTALS		7,590			156				1,898	1,904	9,930			3,006	

OUTSIDE VENTILATION AIR DESIGN PER ASHRAE STANDARD 62.1-2016 IN ACCORDANCE WITH OMC SECTION 403.3 AND IMC SECTION 403.3

Vbz = (Rp * Pz) + (Ra * Az)

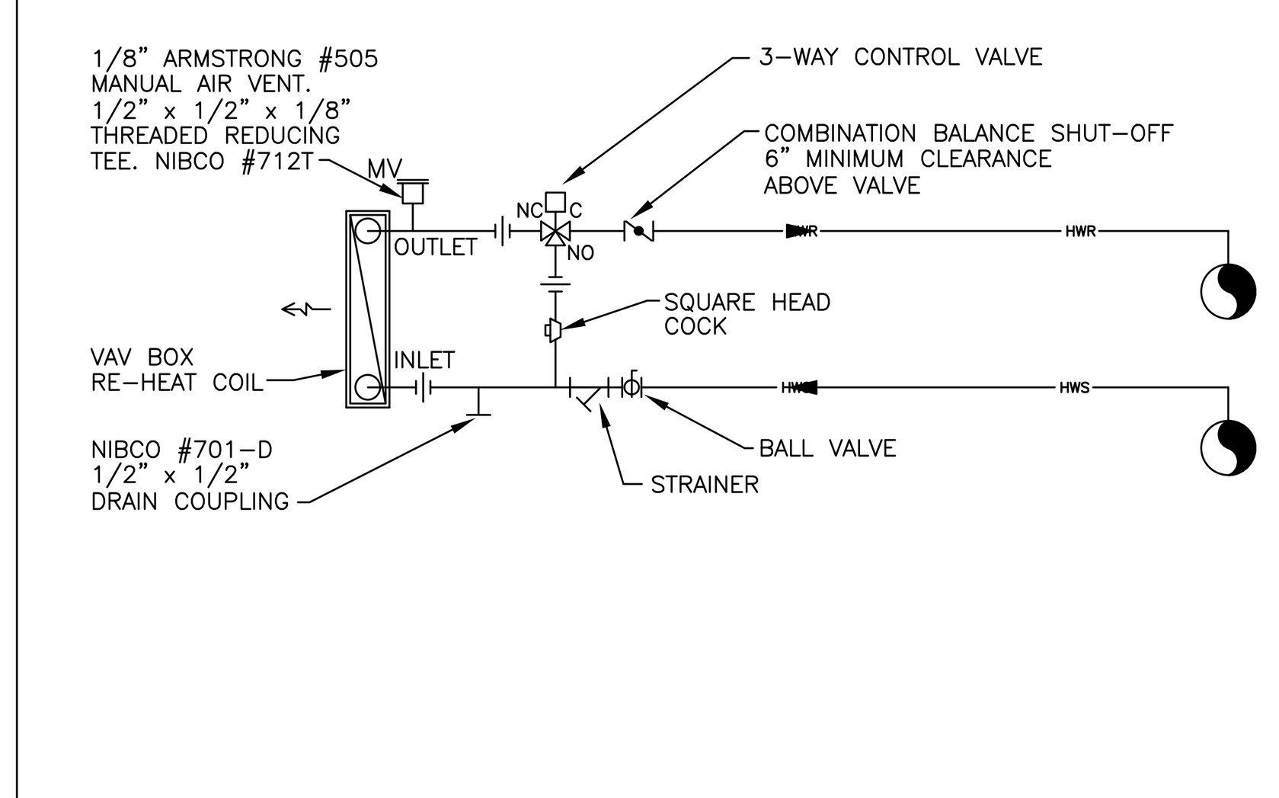
Vbz = BREATHING ZONE OUTDOOR AIR FLOW
Rp = OUTDOOR AIR FLOW RATE PER PERSON (TABLE 6-1)
Pz = ZONE POPULATION - MAXIMUM OCCUPANCY (TABLE 6-1)
Ra = OUTDOOR AIR FLOW RATE PER UNIT AREA (TABLE 6-1)
Az = ZONE FLOOR AREA

Voz = Vbz / Ez

Voz = ZONE OUTDOOR AIR FLOW
Vbz = BREATHING ZONE OUTDOOR AIR FLOW (CALCULATED)
Ez = ZONE AIR DISTRIBUTION EFFECTIVENESS (TABLE 6-2)
Ez = 0.80 (BASED ON CEILING SUPPLY, CEILING RETURN)
Ez = 1.0 (BASED ON CEILING SUPPLY, LOW RETURN)

** TRANSFER AIR IS PERMITTED TO PROVIDE MAKE-UP AIR TO KITCHENS, BATHS, TOILET ROOMS, ELEVATORS, AND SMOKING LOUNGES. THE AMOUNT OF TRANSFER AIR AND EXHAUST AIR SHALL BE SUFFICIENT TO PROVIDE FLOW RATES AS SPECIFIED IN TABLE 403.3. DOORS SHALL BE UNDERCUT 1", OR DOOR GRILLES OF SUFFICIENT SIZE SHALL BE PROVIDED BY GENERAL CONTRACTOR.

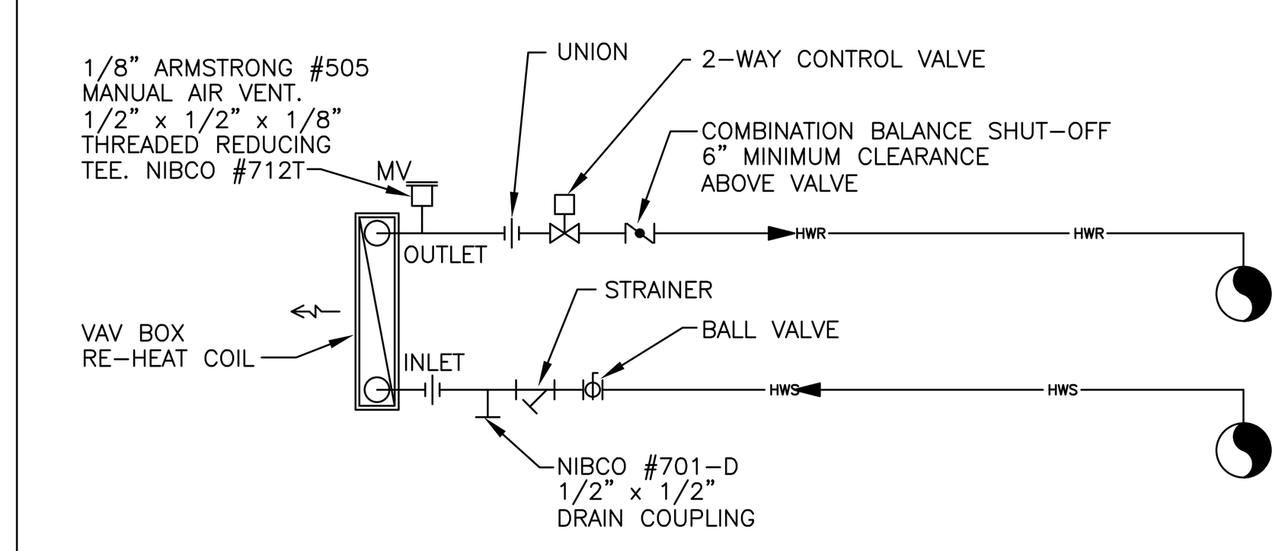
653.4 MINIMUM VENTILATION AIR REQUIRED FOR CO2 DEMAND CONTROLLED VENTILATION



NOTES

1. PIPE CONTROL VALVE PER VALVE SPEC. PURCHASED VALVE MAY NOT HAVE SAME ORIENTATION AS VALVE THAT IS SHOWN.
2. NO = NORMALLY OPEN
NC = NORMALLY CLOSED
C = COMMON
3. REFERENCE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.

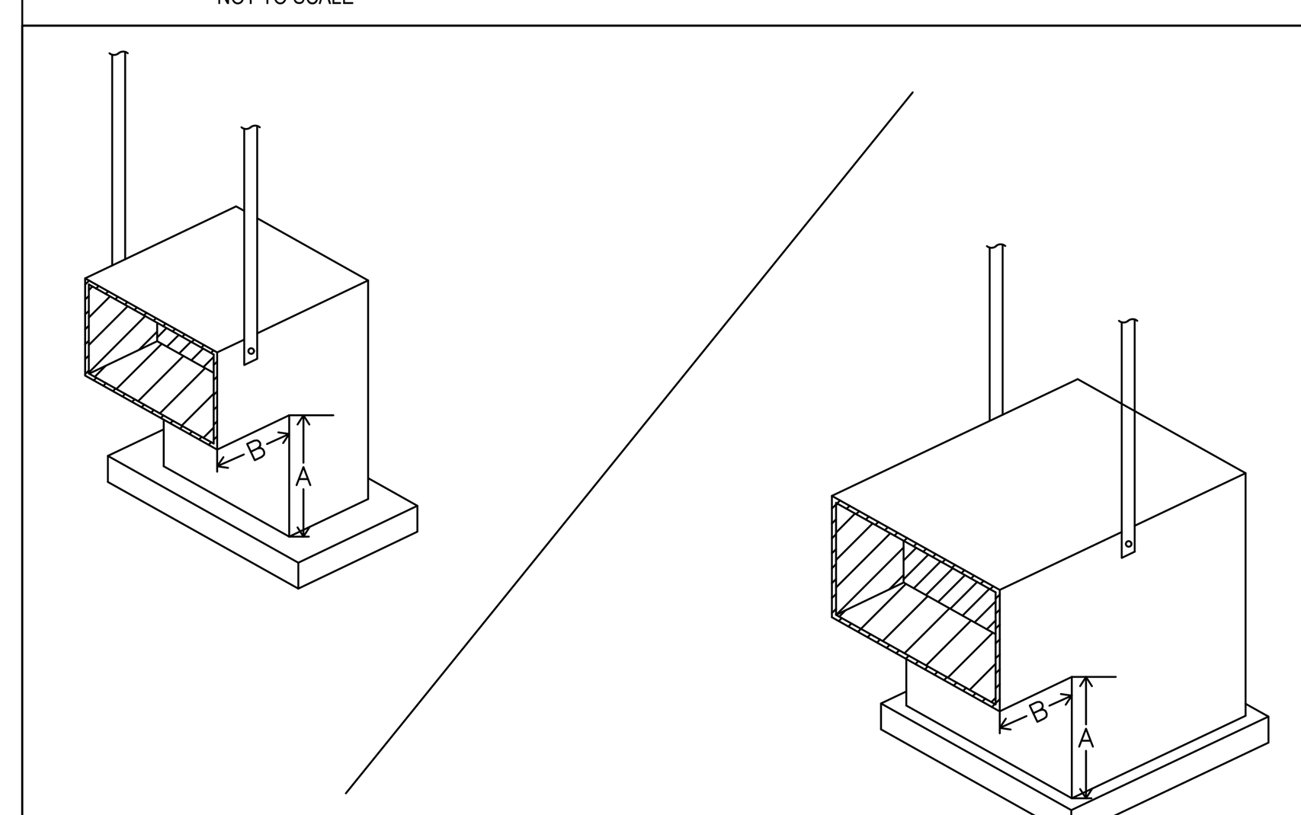
A / M-3 VAV RE-HEAT COIL PIPING SCHEMATIC
SINGLE COIL WITH THREE-WAY CONTROL VALVE
NOT TO SCALE



NOTES

1. REFERENCE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.

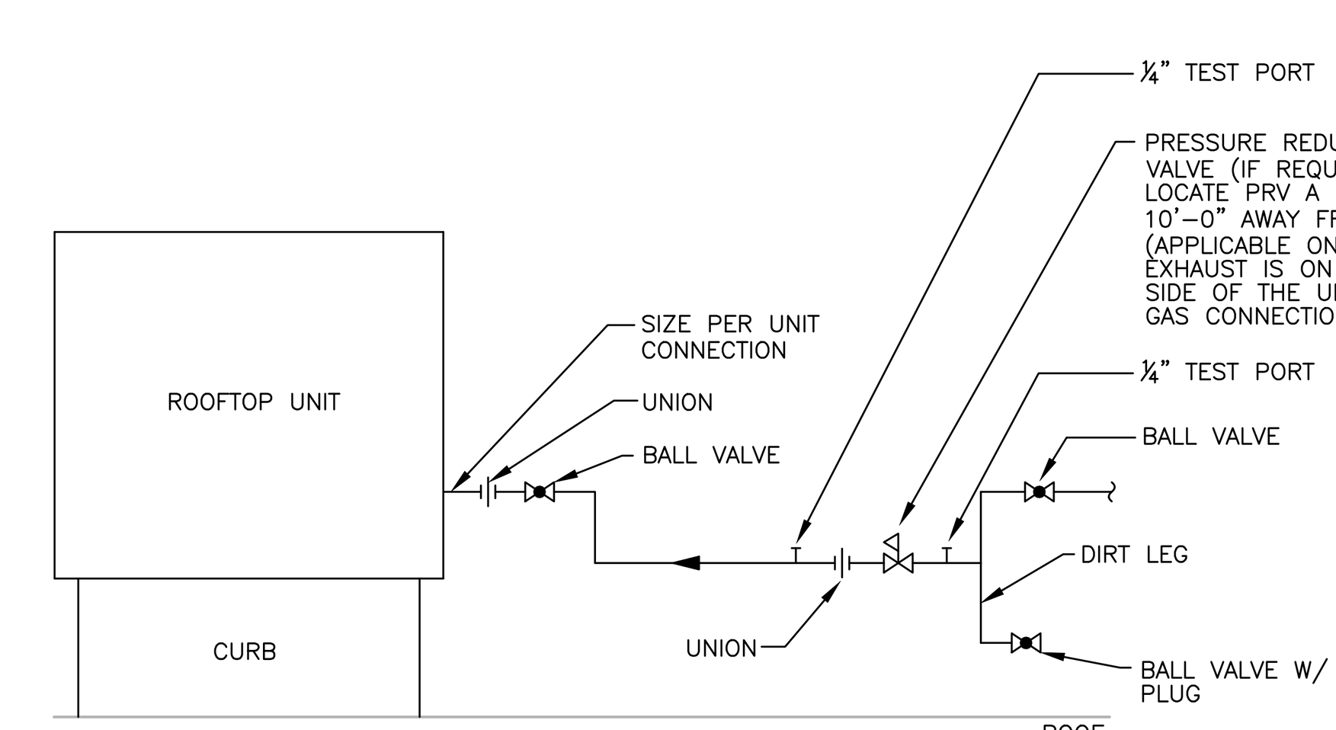
B / M-3 VAV RE-HEAT COIL PIPING SCHEMATIC
SINGLE COIL WITH TWO-WAY CONTROL VALVE
NOT TO SCALE



NOTES

1. DISTANCE A TO BE A MIN. 6"
2. DISTANCE B TO BE A MIN. 12"
3. SUPPORT RETURN AIR BOOT AS NEEDED.
4. RETURN BOOTS MADE OF SHEET METAL TO BE 1" LINED. RETURN BOOTS MADE OF FIBERGLASS BOARD DO NOT NEED TO BE LINED.
5.

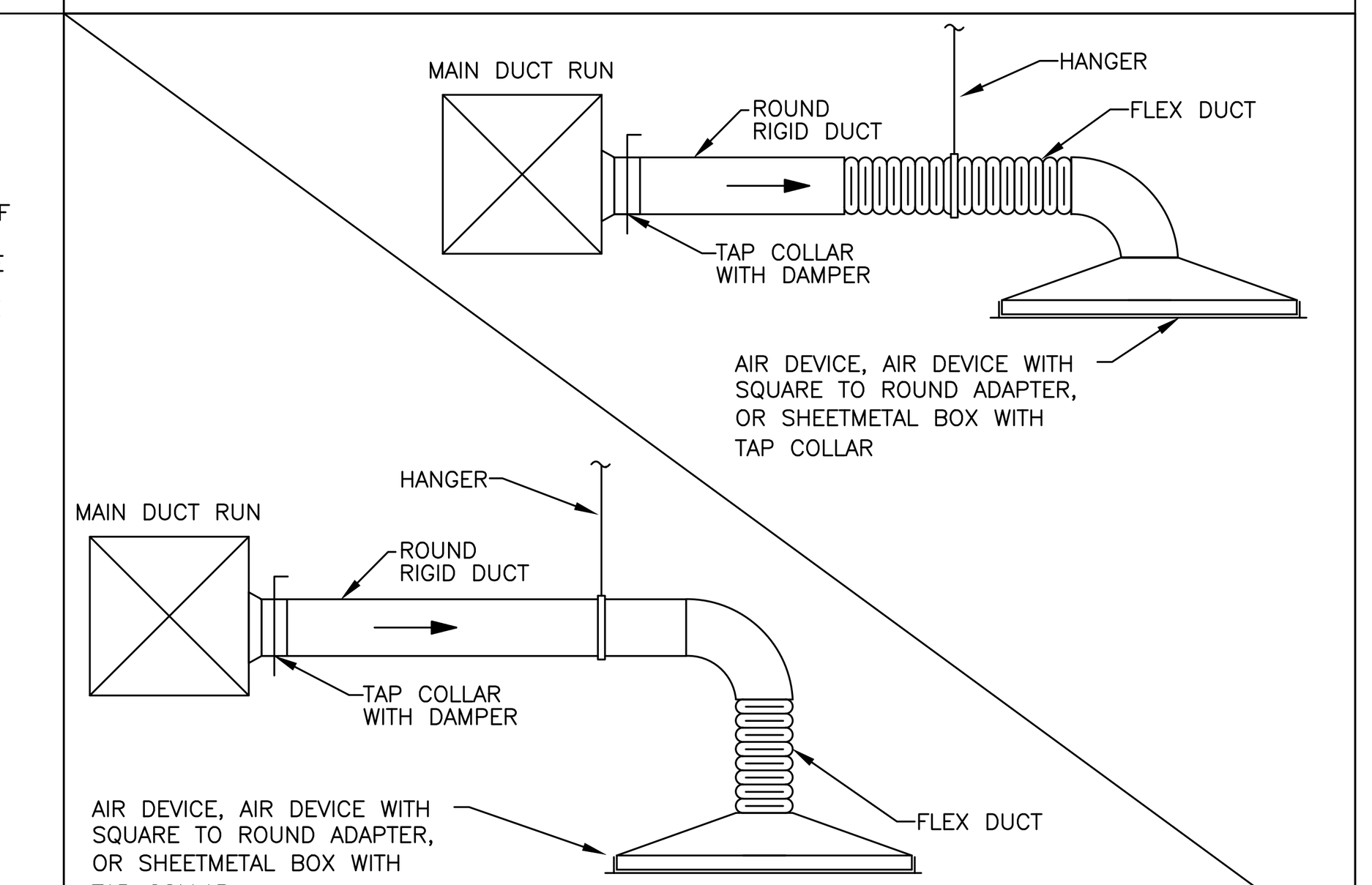
C / M-2 TYPICAL RETURN AIR W/ SOUND BOOT DETAIL
NOT TO SCALE



NOTES

1. SUPPORT PIPING AS REQUIRED.
2. REFERENCE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
3. FIELD VERIFY UNIT GAS CONNECTION PRIOR TO GAS LINE INSTALLATION.

E / M-2 ROOFTOP UNIT GAS HOOKUP
NOT TO SCALE



NOTES

1. PROVIDE HANGER(S) AS REQUIRED TO SUPPORT RIGID AND FLEXIBLE DUCTWORK.
2. HARD 90° ELBOW REQUIRED IF HEIGHT FROM ROUND PIPE TO AIR DEVICE EXCEEDS 5'-0".
3. MAXIMUM FLEX DUCT LENGTH 7'-0".
4. ENSURE FLEX DUCT IS NOT RESTRICTING AIR FLOW AT BEND.

D / M-2 AIR DEVICE HOOKUP
NOT TO SCALE

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WILLIAM JOHN ALBRECHT REGISTERED PE10607213 STATE OF INDIANA PROFESSIONAL ENGINEER

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SCHEDULES AND DETAILS

RIVER VALLEY MIDDLE SCHOOL
FACILITY IMPROVEMENTS
2220 VETERANS PKWY
JEFFERSONVILLE, IND. 47130

JOB NO.:
SCALE: AS NOTED
DATE: 5-12-23
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