

1. THE DRAWINGS ON THESE PLANS ARE DIAGRAMMATIC. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL HVAC WORK WITH OTHER TRADES AND THE BUILDING STRUCTURE. NO EXTRA PAYMENTS WILL BE AUTHORIZED FOR REROUTING OR REMOVAL OF INSTALLED WORK DUE TO LACK OF COORDINATION WITH OTHER SYSTEMS.
2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF HIS WORK.
3. ACCESS PANELS SHALL BE PROVIDED IN CEILINGS, WALLS, FLOORS, ETC., AS REQUIRED TO MAINTAIN ACCESSIBILITY TO VALVES, DAMPERS, TRAPS, COILS, ETC.
4. PROVIDE DUCT ACCESS DOORS AT ALL MOTORIZED DAMPERS, FIRE DAMPERS, AND SMOKE DAMPERS.
5. ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL BE SEALED FIRE AND SMOKE TIGHT WITH AN APPROPRIATE U.L. LISTED FIRESTOPPING MATERIAL AND OR SYSTEM.
6. ALL DUCTWORK PASSING THROUGH A FIRE RATED PARTITION SHALL BE PROVIDED WITH A FIRE DAMPER TO MAINTAIN THE FIRE RATING OF THE PARTITION.
7. LOCATIONS OF DIFFUSERS AND GRILLES ARE APPROXIMATE. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
8. ALL BRANCHES AND TAKE-OFFS SHALL BE EQUIPPED WITH VOLUME CONTROL DAMPERS. DAMPERS TO BE OPPOSED BLADE TYPE, 4" MAX. BLADE HEIGHT. VOLUME DAMPERS TO BE LOCATED AS NEAR TO THE POINT OF TAKE-OFF AS PRACTICAL.
9. FLEXIBLE DUCT CONNECTIONS SHALL BE LIMITED TO A MAXIMUM LENGTH OF FIVE (5) FEET AND SUPPORTED AT MID-POINT.
10. ALL SUPPLY & RETURN AIR DUCTWORK SHALL BE INSULATED.
11. PROVIDE SHUT-OFF VALVES AT ALL PIPING BRANCH TAKE-OFFS AND AT ALL CONNECTIONS TO EQUIPMENT.
12. PROVIDE DRAINS WITH HOSE ADAPTERS AND CAPS ON PIPING AT ALL LOW POINTS. PROVIDE MANUAL VENTS ON PIPING AT ALL HIGH POINTS.
13. COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR.
14. ALL MOTOR STARTERS SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
15. ALL REQUIRED CONTROL EQUIPMENT AND WIRING SHALL BE FURNISHED & INSTALLED BY THE HVAC CONTRACTOR.
16. THE TERMS "PROVIDE" OR "FURNISH", AS USED ON THESE PLANS, INDICATE THAT THE CONTRACTOR IS TO PURCHAS AND INSTALL THE REFERENCED EQUIPMENT OR SYSTEMS IN THEIR ENTIRETY AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
17. CONTRACTOR SHALL PROVIDE AND INSTALL ALL COMPONENTS INDICATED ON DETAIL SHEETS, PLANS, SPECIFICATIONS AND ALL PERTINENT EQUIPMENT REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM.
18. CONTRACT CLOSE OUT: IN THE PRESENCE OF THE OWNER, ENGINEER OR ARCHITECT, DEMONSTRATING OPERATION OF SYSTEMS AND THAT ALL SPECIFICATIONS HAVE BEEN MET TO THE SATISFACTION OF ALL PARTIES.
19. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO PROVIDE NEW CONSTRUCTION AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS TO PROVIDE COMPLETE NEW SYSTEMS IN EVERY RESPECT, CAPABLE OF OPERATING AS DESIGNED. IT IS NOT INTENDED THAT EVERY FITTING, MINOR DETAIL OR FEATURE TO BE PLAIN OR DRINKINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DETAIL NECESSARY FOR COMPLETION OF THESE SYSTEMS IN ACCORDANCE WITH GOOD PRACTICE.

-----	EXISTING EQUIPMENT/DUCT TO BE REMOVED
-----	EXISTING EQUIPMENT/DUCT TO REMAIN
-----	NEW EQUIPMENT / DUCT
-----GLYS-----	GLYCOL SUPPLY PIPE
-----GLYR-----	GLYCOL RETURN PIPE
-----GLYRR-----	GLYCOL REVERSE RETURN PIPE
-----HWR-----	LOW TEMPERATURE HOT WATER RETURN
-----HWS-----	LOW TEMPERATURE HOT WATER SUPPLY
-----RL-----	REFRIGERANT LIQUID
-----RS-----	REFRIGERANT SUCTION
-----HPWS-----	HEAT PUMP SUPPLY PIPE
-----HPWR-----	HEAT PUMP RETURN PIPE

	DUCTWORK DOUBLE LINE REPRESENTATION: "A" INDICATES DUCT WIDTH; "B" INDICATES DUCT DEPTH.
	DUCTWORK SINGLE LINE REPRESENTATION: "A" INDICATES DUCT WIDTH; "B" INDICATES DUCT DEPTH.
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	EXHAUST AIR DUCT UP
	EXHAUST AIR DUCT DOWN
	FLEXIBLE DUCTWORK
	SUPPLY AIR FLOW
	RETURN/EXHAUST AIR FLOW
	VOLUME DAMPER
	MOTORIZED DAMPER w/ ACCESS DOOR
	FIRE DAMPER w/ ACCESS DOOR
	SUPPLY AIR TERMINAL
	RETURN/EXHAUST AIR TERMINAL
	EXHAUST AIR TERMINAL

	DIRECTION OF FLOW
	ANCHOR
	PIPE GUIDE
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	CAPPED OUTLET
	PIPE DOWN TURN
	PIPE RISE
	UNION
	DIRECTION OF PIPE PITCH (DOWN)

	OR		OR		GATE VALVE - THREADED/FLANGED GATE VALVE WITH 3/4" HOSE ADAPTER
	OR		OR		GLOBE VALVE - THREADED/FLANGED
	OR		OR		CHECK VALVE
	OR		OR		STRAINER
					WYE STRAINER (WITH BALL VALVE & HOSE CONNECTION)
					STRAINER WITH VALVED DRAIN AND QUICK-COUPLE HOSE CONNECTOR
	OR				FLEXIBLE CONNECTION
					ANGLE GLOBE VALVE
	OR		OR		BUTTERFLY VALVE
	OR		OR		BALL VALVE
					CONTROL VALVE (CV) - FLOAT-OPERATED
	OR		OR		MODULATING CONTROL VALVE
					MODULATING CONTROL BUTTERFLY VALVE
					TWO POSITION CONTROL VALVE
	OR		OR		THREE-WAY MODULATING CONTROL VALVE
					THREE-WAY TWO POSITION CONTROL VALVE
	OR		OR		PRESSURE REGULATING VALVE
	OR		OR		PRESSURE REDUCING VALVE (PRV)
	OR		OR		TEMPERATURE & PRESSURE RELIEF VALVE
					SAFETY OR PRESSURE RELIEF VALVE
	OR		OR		AUTOMATIC BALANCING CONTROL VALVE
	OR		OR		CIRCUIT SETTER VALVE
	OR		OR		TRIPLE DUTY VALVE
	OR		OR		COMBINATION BALANCING AND SHUT-OFF VALVE
					MANUAL AIR VENT

	AC	AIR CONDITIONING UNIT	HP	HORSEPOWER
ACT		ACOUSTIC CEILING TILE	HRP	HYDRONIC RADIANT CEILING PANEL
ACCU		AIR COOLED CONDENSING UNIT	HV	HEATING AND VENTILATING UNIT
AD		ACCESS DOOR	IV	INLET VANES
AF		AFTER FILTER	LCD	LINEAR CEILING DIFFUSER
AFF		ABOVE FINISHED FLOOR	LFD	LAMINAR FLOW DIFFUSER
AFM		AIR FLOW MEASURING DEVICE	LF	LINEAR FEET
AHU		AIR HANDLING UNIT	MA	MIXED AIR
AP		ACCESS PANEL	MB	MIXING BOX
BDD		BACK DRAFT DAMPER	M.C.	MECHANICAL CONTRACTOR
BG		BOTTOM GRILLE (WALL TYPE)	MD	MOTORIZED DAMPER
BR		BOTTOM REGISTER (WALL TYPE)	MER	MECHANICAL EQUIPMENT ROOM
BTUH		BRITISH THERMAL UNITS/HOUR	MAX.	MAXIMUM
CC		COOLING COIL	MBH	ONE THOUSAND BTUH
CD		CEILING DIFFUSER	MIN.	MINIMUM
CFM		CUBIC FEET PER MINUTE	NOM.	NOMINAL
CG		CEILING GRILLE	OA	OUTSIDE AIR
CLG		CEILING	P	PUMP
CO		CLEAN OUT	P.C.	PLUMBING CONTRACTOR
CR		CEILING REGISTER	PD	PRESSURE DROP (FEET OF WATER)
CW		COLD WATER	PF	PRE-FILTER
D		DRAIN	PGW	PROPYLENE GLYCOL—WATER SOLUTION
dB		DRY BULB TEMPERATURE, °F	PH	PREHEAT
db		DECIBELS	PRV	PRESSURE REDUCING VALVE
DN		DOWN	PSI	POUNDS PER SQUARE IN.
DP		DIFFERENTIAL PRESSURE	RA	RETURN AIR
Dp		DEW POINT TEMPERATURE, °F	RF	RETURN FAN
DS		DUCT SMOKE DETECTOR	RHC	REHEAT COIL
DX		DIRECT EXPANSION	Rh	RELATIVE HUMIDITY
EA		EXHAUST AIR	RPZ	REDUCED PRESSURE ZONE
EAT		ENTERING AIR TEMP	SA	SUPPLY AIR
E.C.		ELECTRICAL CONTRACTOR	SD	SMOKE DAMPER
EER		ENERGY EFFICIENCY RATIO	Sp. Gr.	SPECIFIC GRAVITY
EF		EXHAUST FAN	SH	STEAM HUMIDIFIER
ERC		ELECTRIC REHEAT COIL	SP	STATIC PRESSURE
ET		EXPANSION TANK	SPD	SPLITTER DAMPER
EUH		ELECTRIC UNIT HEATER	SPS	STATIC PRESSURE SENSOR
EXIST		EXISTING	S.S.	STAINLESS STEEL
F.A.I.		FRESH AIR INTAKE	TG	TOP GRILLE (WALL TYPE)
FC		FLEXIBLE CONNECTION	TR	TOP REGISTER (WALL TYPE)
FCU		FAN COIL UNIT	UH	UNIT HEATER
FD		FIRE DAMPER	U.N.O.	UNLESS NOTED OTHERWISE
FLR		FLOOR	V	VALVE
FPC		FIRE PROTECTION CONTRACTOR	VD	VOLUME DAMPER
F/SD		COMBINATION FIRE/SMOKE DAMPER	VE	VOLUME EXTRACTOR
G.C.		GENERAL CONTRACTOR	VI	VIBRATION ISOLATOR
GH		GRAVITY HOOD	VIF	VERIFY IN FIELD
GPM		GALLONS PER MINUTE	Wb	WET BULB TEMPERATURE, °F
H.C.		HVAC CONTRACTOR	WFM	WATER FLOW MEASURING DEVICE
HF		HEPA FILTER	WMS	WIRE MESH SCREEN

DOOR UNDERCUT

INDICATES SECTION LETTER

INDICATES DRAWING NUMBER WHERE LOCATED

INDICATES TYPE OF AIR OUTLET

INDICATES AIR FLOW REQUIREMENTS

ADJUSTABLE ANGLE THERMOMETER

DIAL THERMOMETER

PRESSURE GAUGE WITH NEEDLE VALVE

WALL MOUNT THERMOSTAT

PUMP

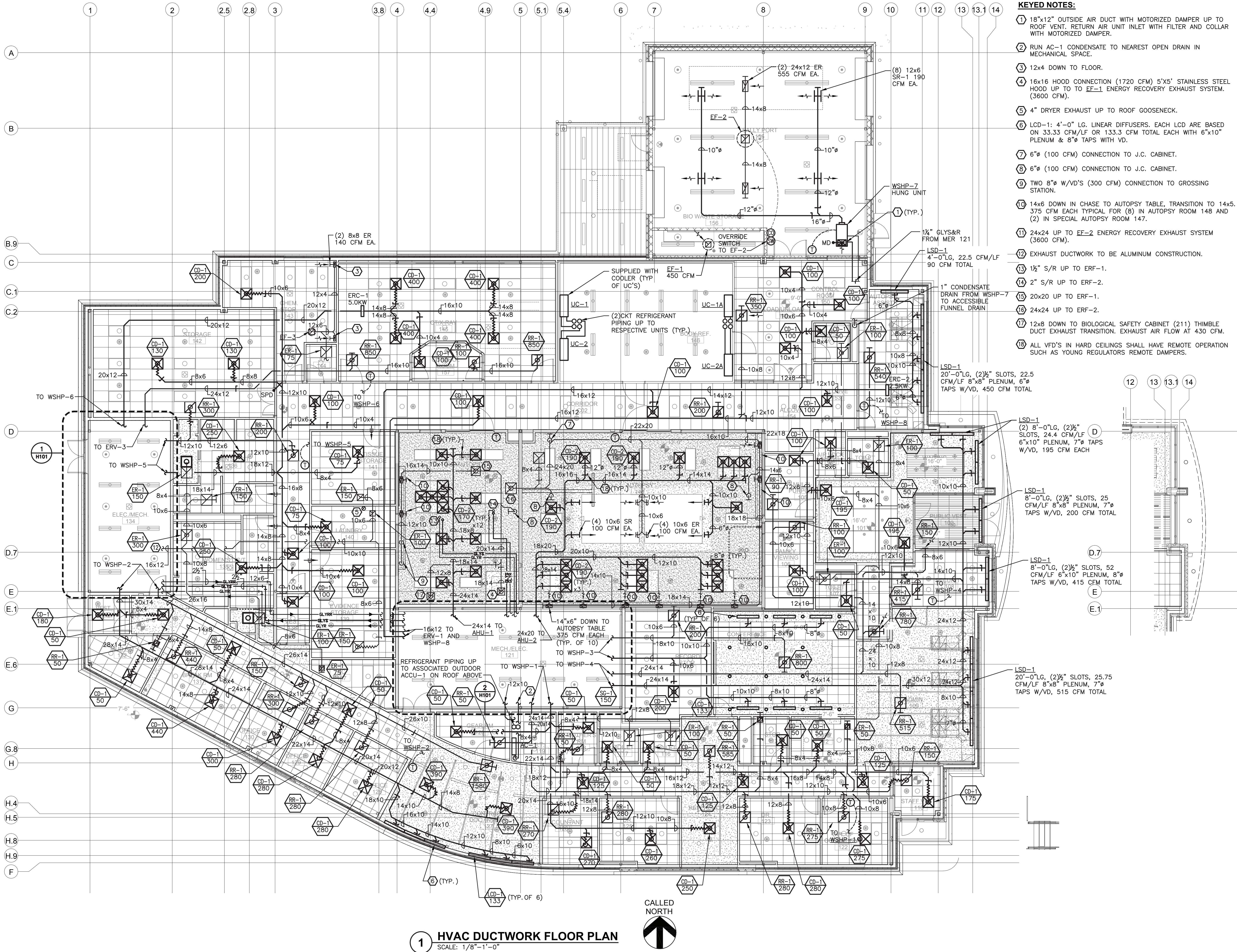
DUCT SMOKE DETECTOR, SUPPLIED AND WIRED BY E.C. INSTALLED BY M.C.

SHEET NUMBER

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF
AND PROFESSIONAL JUDGMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN
COMPLIANCE WITH THE 2020 ENERGY CODE.

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF
AND PROFESSIONAL JUDGMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN
COMPLIANCE WITH THE 2020 UNIFORM CODE.

H001



KEYED NOTES:

- 18"x12" OUTSIDE AIR DUCT WITH MOTORIZED DAMPER UP TO ROOF VENT. RETURN AIR UNIT INLET WITH FILTER AND COLLAR WITH MOTORIZED DAMPER.
- RUN AC-1 CONDENSATE TO NEAREST OPEN DRAIN IN MECHANICAL SPACE.
- 12x4 DOWN TO FLOOR.
- 16x16 HOOD CONNECTION (1720 CFM) 5'X5' STAINLESS STEEL HOOD UP TO TO EF-1 ENERGY RECOVERY EXHAUST SYSTEM. (3600 CFM).
- 4" DRYER EXHAUST UP TO ROOF GOOSENECK.
- LCD-1: 4'-0" LG. LINEAR DIFFUSERS. EACH LCD ARE BASED ON 33.33 CFM/LF OR 133.3 CFM TOTAL EACH WITH 6"x10" PLENUM & 8" TAPS WITH VD.
- 6" (100 CFM) CONNECTION TO J.C. CABINET.
- 6" (100 CFM) CONNECTION TO J.C. CABINET.
- TWO 8" W/VD'S (300 CFM) CONNECTION TO CROSSING STATION.
- 14x6 DOWN IN CHASE TO AUTOPSY TABLE, TRANSITION TO 14x5. 375 CFM EACH TYPICAL FOR (8) IN AUTOPSY ROOM 148 AND (2) IN SPECIAL AUTOPSY ROOM 147.
- 24x24 UP TO EF-2 ENERGY RECOVERY EXHAUST SYSTEM (3600 CFM).
- EXHAUST DUCTWORK TO BE ALUMINUM CONSTRUCTION.
- 1 1/2" S/R UP TO ERF-1.
- 2" S/R UP TO ERF-2.
- 20x20 UP TO ERF-1.
- 24x24 UP TO ERF-2.
- 12x8 DOWN TO BIOLOGICAL SAFETY CABINET (211) THIMBLE DUCT EXHAUST TRANSITION. EXHAUST AIR FLOW AT 430 CFM.
- ALL VFD'S IN HARD CEILINGS SHALL HAVE REMOTE OPERATION SUCH AS YOUNG REGULATORS REMOTE DAMPERS.

1 HVAC DUCTWORK FLOOR PLAN
SCALE: 1/8"-1'-0"



REVISION SCHEDULE		DATE	
#	DESCRIPTION	#	DATE
ARCHITECT/STRUCTURAL ENGINEER		HYMAN HAYES ASSOCIATES	
MEP CONSULTANT		FELTZNER III	
FORENSIC CONSULTANT		crime lab	
CIVIL CONSULTANT		FELTZNER III	
LIT/SECURITY CONSULTANT		FELTZNER III	
FRE CONSULTANT		FELTZNER III	
COST CONSULTANT		STUART LYNN COMPANY	

PROJECT TITLE
HVAC DUCTWORK FLOOR PLAN

ORANGE COUNTY MEDICAL EXAMINER'S OFFICE
22 WELLS FARM RD.
GOSHEN, NY 10924

DATE
11/18/2022

SCALE
AS SHOWN

DRAWN BY
ZP

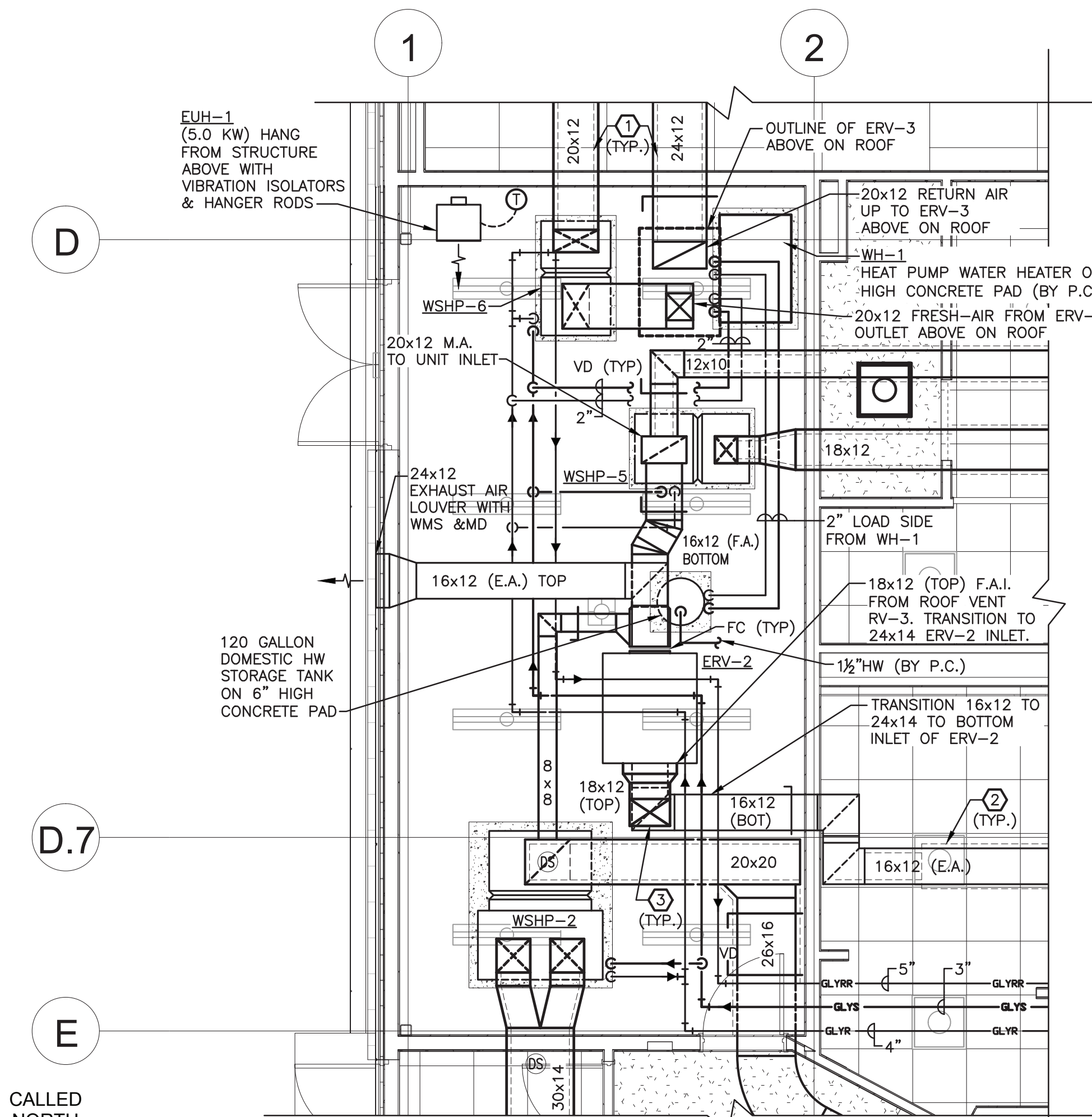
CHECKED BY
DSS

APPROVED
MDF

CLIENT APPROVAL
HHA PROJ. NO. 20071

CLIENT PROJ. NO.
20071

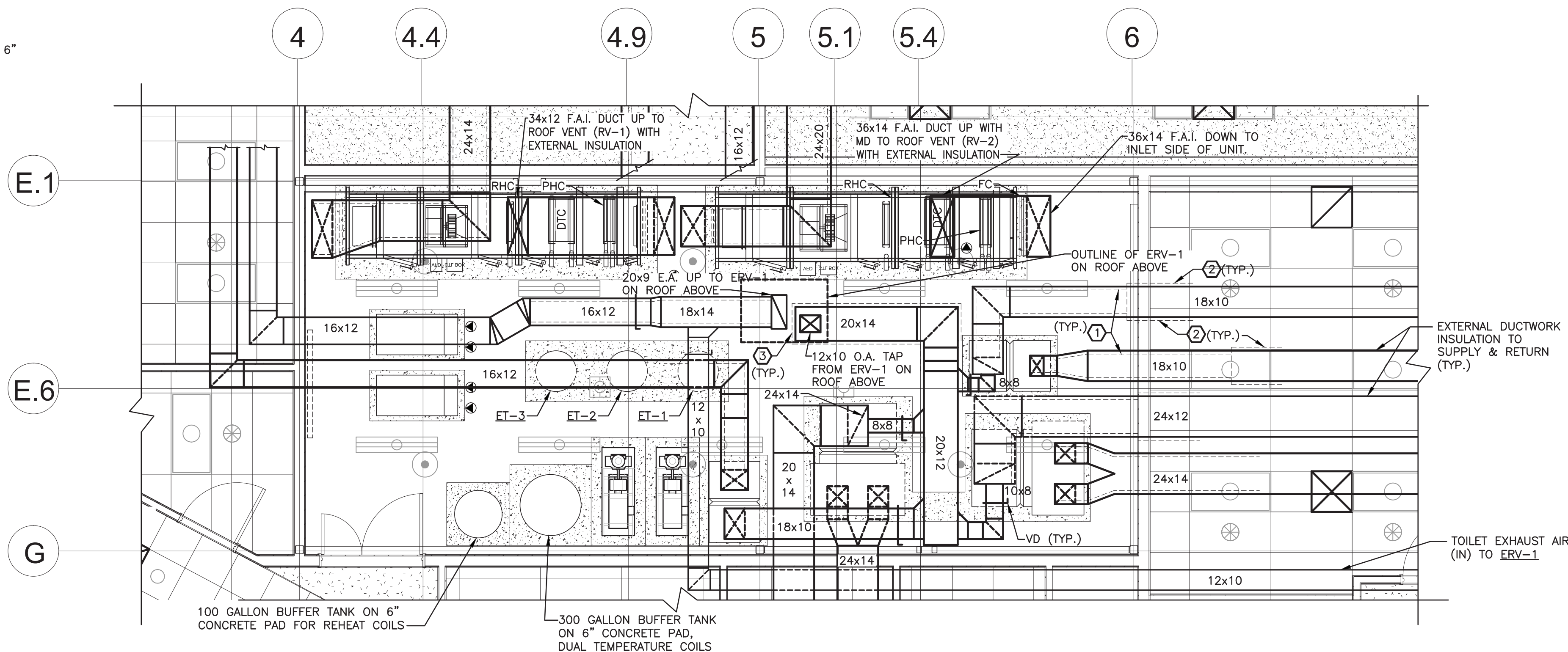
SHEET NUMBER
H100



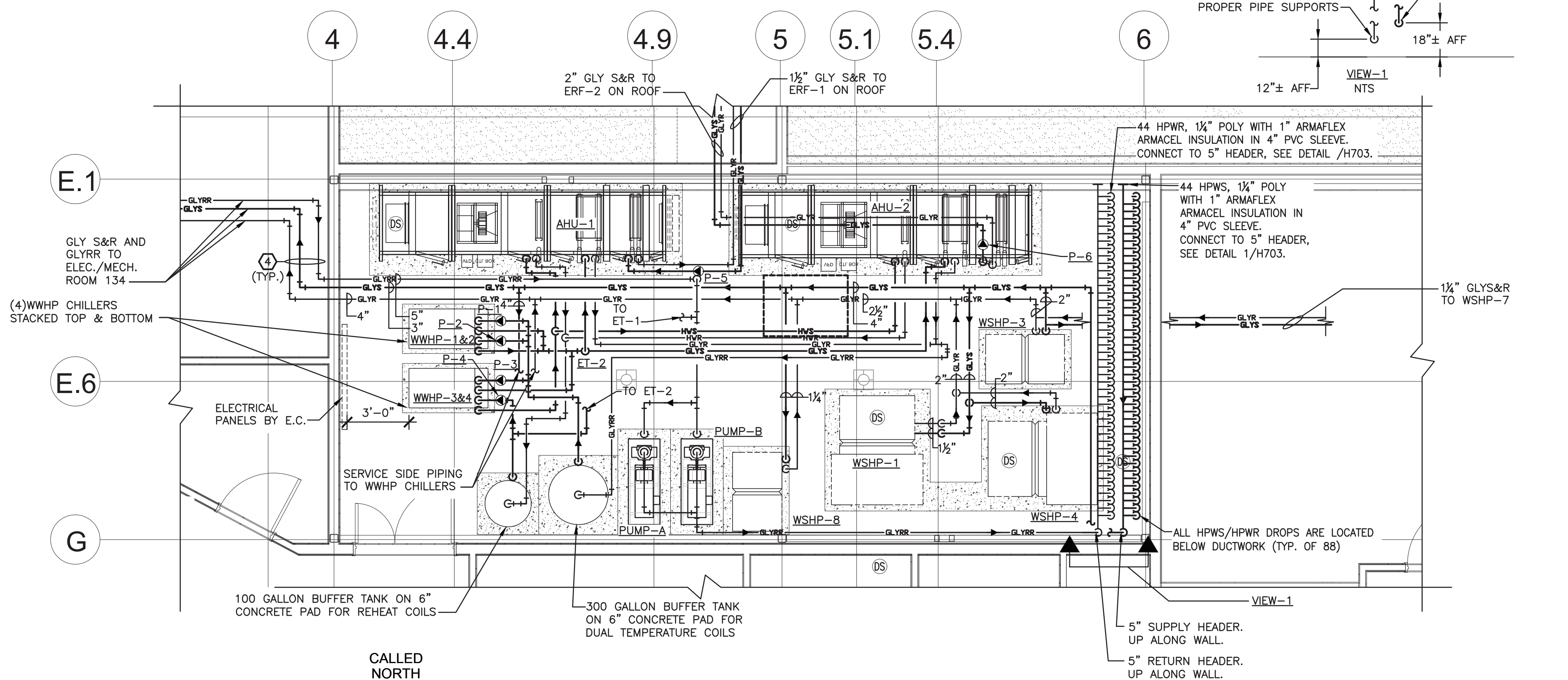
1 HVAC DUCTWORK FLOOR PLAN @ ELEC./MECH. RM. 134
SCALE: 1/4"=1'-0"

KEYED NOTES:

- 1 ALL SUPPLY & RETURN DUCTWORK SHALL BE ACOUSTICALLY INSULATED (APPROXIMATELY 10") INTERNAL LINING SHALL BE 1" THICK WITH ANTIMICROBIAL COATING.
- 2 ALL SUPPLY & RETURN DUCTWORK TO BE EXTERNALLY INSULATED. REFER TO COMMERCIAL DUCT INSULATION SCHEDULE.
- 3 ALL OUTSIDE AIR DUCTWORK TO BE EXTERNALLY INSULATED. REFER TO COMMERCIAL DUCT INSULATION SCHEDULE.
- 4 ALL PIPING TO BE INSULATED AS PER PIPE INSULATION SCHEDULE.



2 HVAC DUCTWORK FLOOR PLAN @ MECH./ELEC. RM. 121
SCALE: 1/4"=1'-0"



3 HVAC PIPING FLOOR PLAN @ MECH./ELEC. RM. 121
SCALE: 1/4"=1'-0"

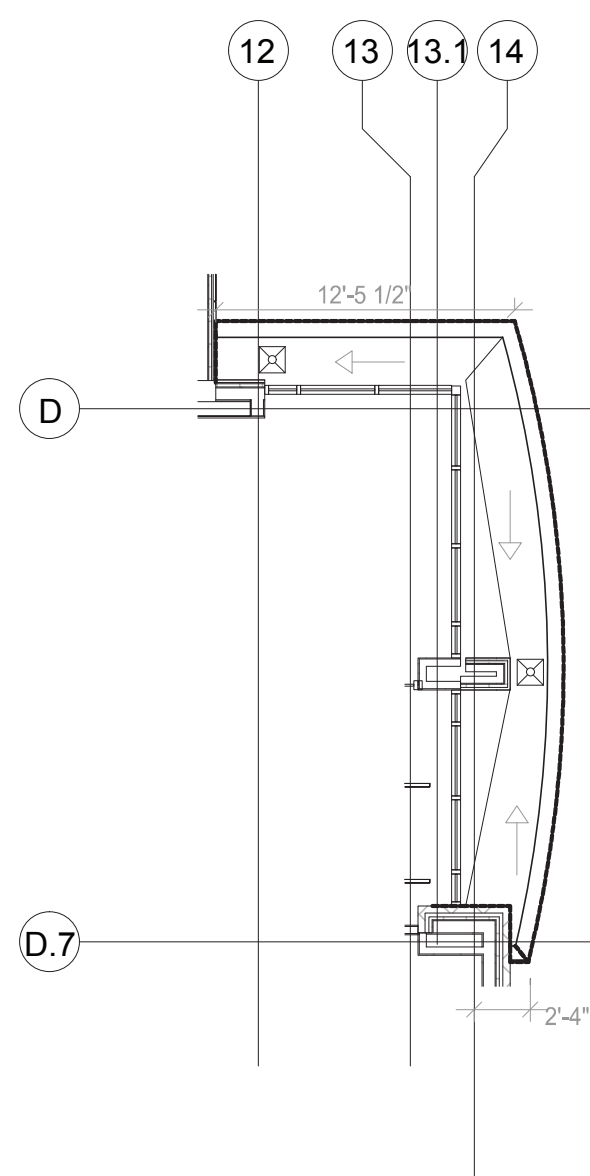
REVISION SCHEDULE		DATE	
#	DESCRIPTION		
1			

DANIEL STEINBERG, P.E. 800 Troy Street Suite 100 Larchmont, NY 10538 (914) 462-5470 www.dansteenberg.com		STUART LYNN 800 Troy Street Suite 100 Larchmont, NY 10538 (914) 462-5470 www.dansteenberg.com	
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MEP CONSULTANT	FELEZENBERG	CLASS CONTRACT INSURANCE LLC	
FORENSIC CONSULTANT	CRIME LAB	IT/SECURITY CONSULTANT	SECURITY
CIVIL CONSULTANT	FELEZENBERG	CLASS CONTRACT INSURANCE LLC	
IT/SECURITY CONSULTANT	SECURITY	CLASS CONTRACT INSURANCE LLC	
MEP CONSULTANT	FELEZENBERG	CLASS CONTRACT INSURANCE LLC	
CIVIL CONSULTANT	FELEZENBERG	CLASS CONTRACT INSURANCE LLC	
FORENSIC CONSULTANT	CRIME LAB	CLASS CONTRACT INSURANCE LLC	

		ORANGE COUNTY, NEW YORK	
ORANGE COUNTY MEDICAL EXAMINER'S OFFICE 22 WELLS FARM RD. GOSHEN, NY 10924			

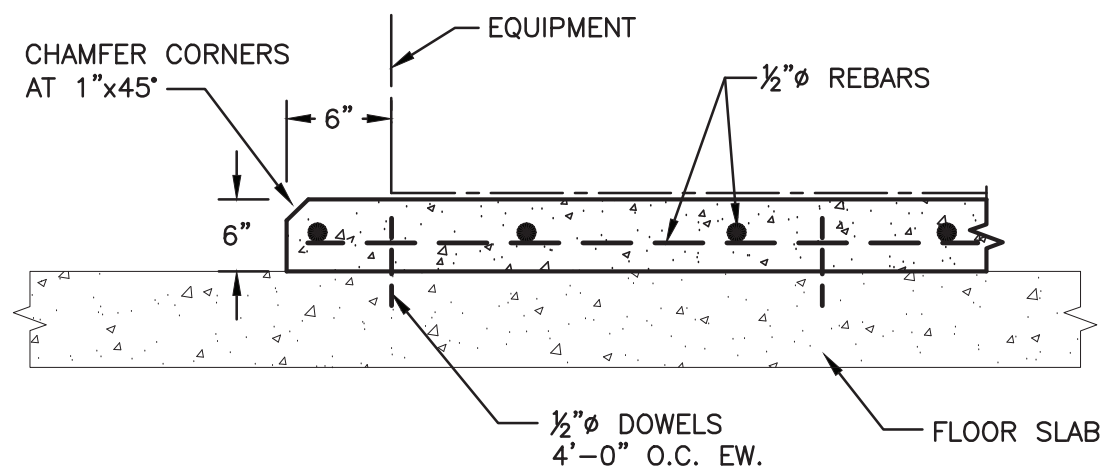
SHEET TITLE HVAC DUCTWORK FLOOR PLAN @ ROOMS 134 & 121			
DATE	SCALE	DRAWN BY	CHECKED BY
11/18/2022	AS SHOWN	ZR	DSS
SHEET NUMBER		APPROVED	CLIENT APPROVAL
		20071	
		HH4 PROJ. NO.	CLIENT PROJ. NO.

H101

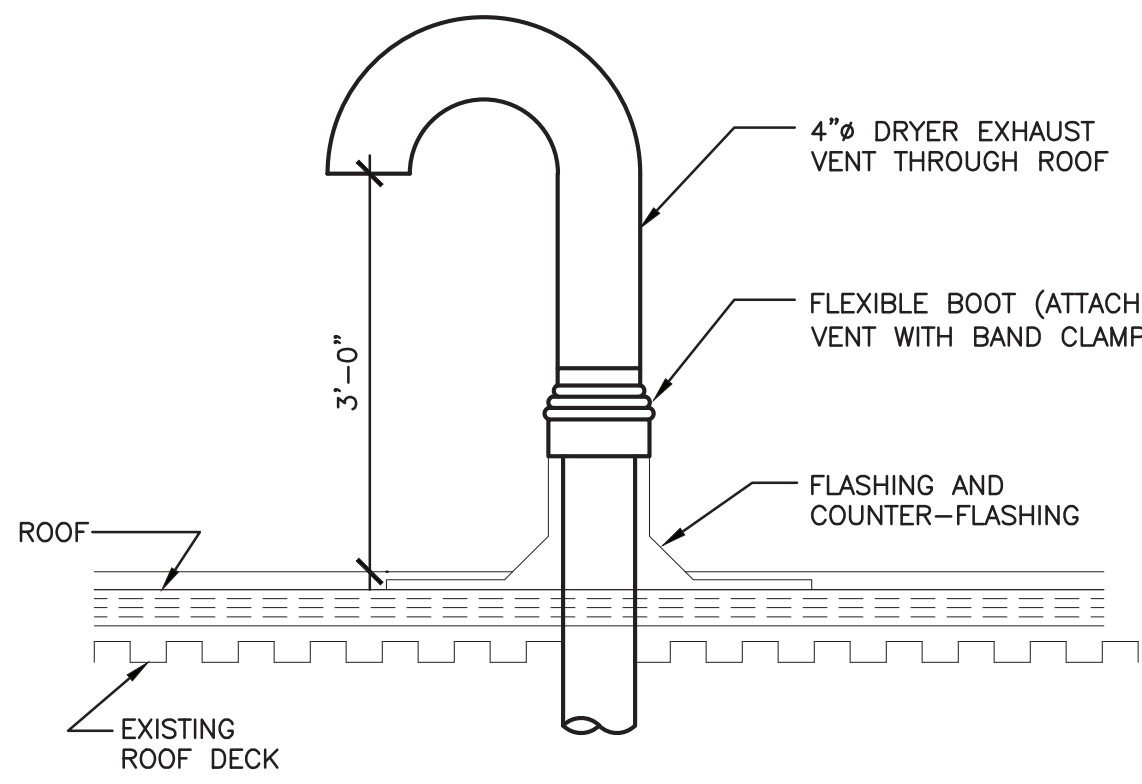


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 NORTH

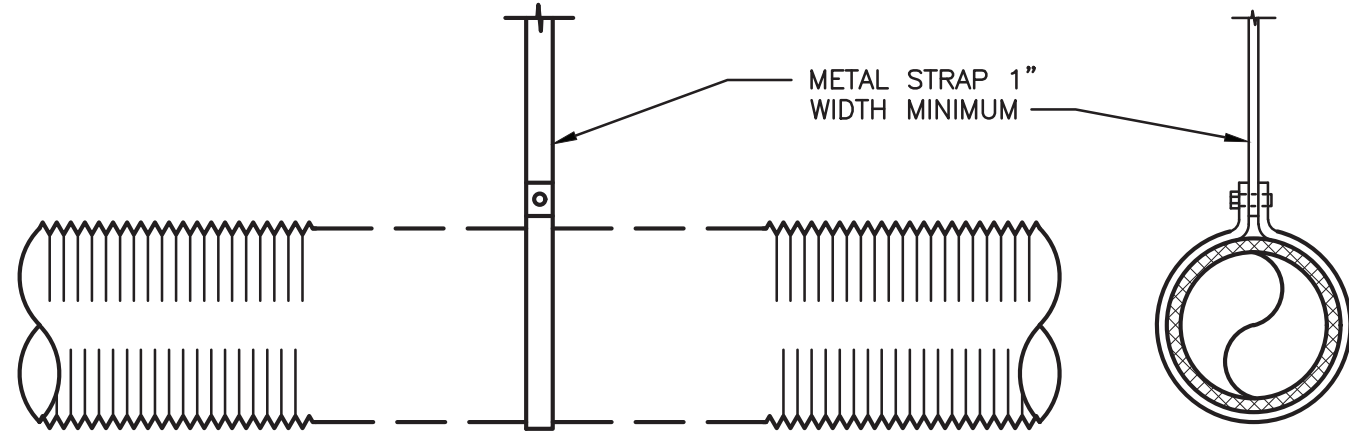

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1 CONCRETE PAD DETAIL
N.T.S.



2 DRYER EXHAUST VENT ROOF TERMINATION DETAIL
N.T.S.

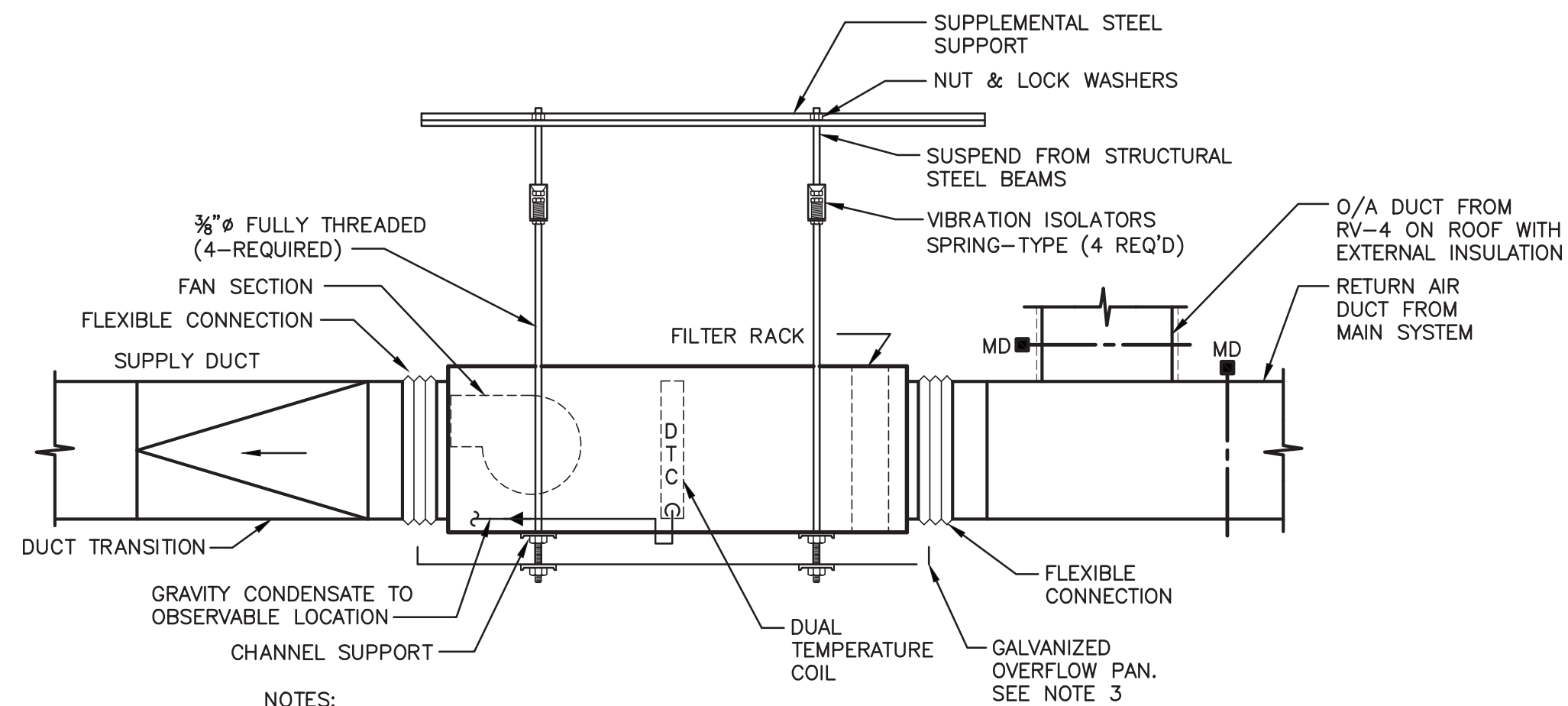


- NOTES:
- DUCT SHOULD EXTEND STRAIGHT FOR A MINIMUM OF 3 DUCT DIAMETERS BEFORE BENDING.
 - SUPPORT SYSTEM MUST NOT BEND DUCT OR CAUSE OUT OF ROUND SHAPE.
 - MAXIMUM SAG 1/2" PER FOOT OR SUPPORT SPACING.
 - 5'-0" MAXIMUM FLEX DUCT LENGTH.

3 FLEX DUCT SUPPORT
N.T.S.

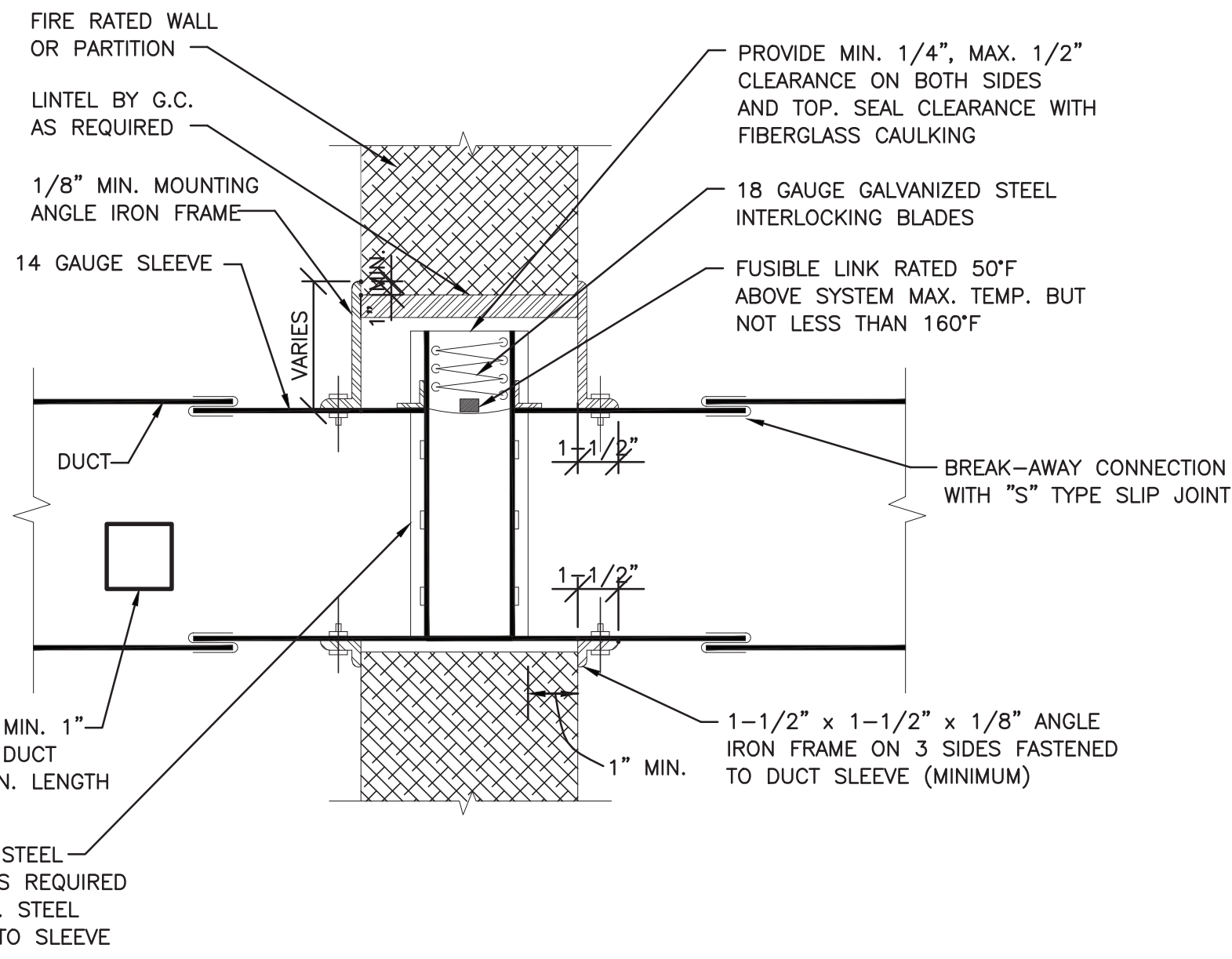
COMMERCIAL DUCT INSULATION SCHEDULE			
	FACING	R VALUE INSIDE BUILDING ENVELOPE	R VALUE OUTSIDE BUILDING ENVELOPE
SUPPLY AIR	FSK*	R-6	R-12
RETURN AIR	FSK*	R-6	R-12

* - FOIL-SCRIM KRAFT

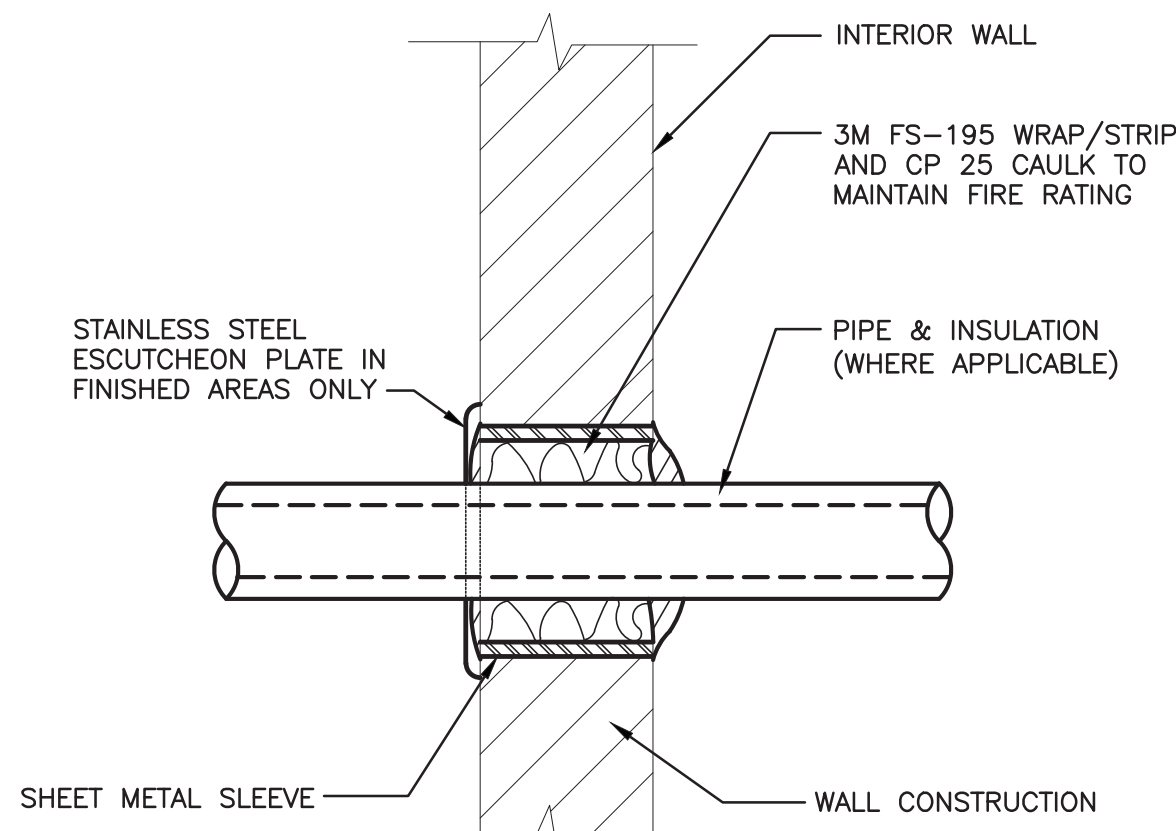


- NOTES:
- TYPICAL FOR INDOOR HORIZONTAL AIR HANDLER.
 - ALL ANCHORS, CLAMPS, BOLTS, CHANNELS, ETC., SHALL BE RATED TO SUPPORT THE OPERATING WEIGHT OF THE SUSPENDED EQUIPMENT.
 - PROVIDE FLOAT SWITCH LEAK DETECTOR CABLE IN OVERFLOW PAN WITH UNIT SHUT DOWN CAPABILITY.

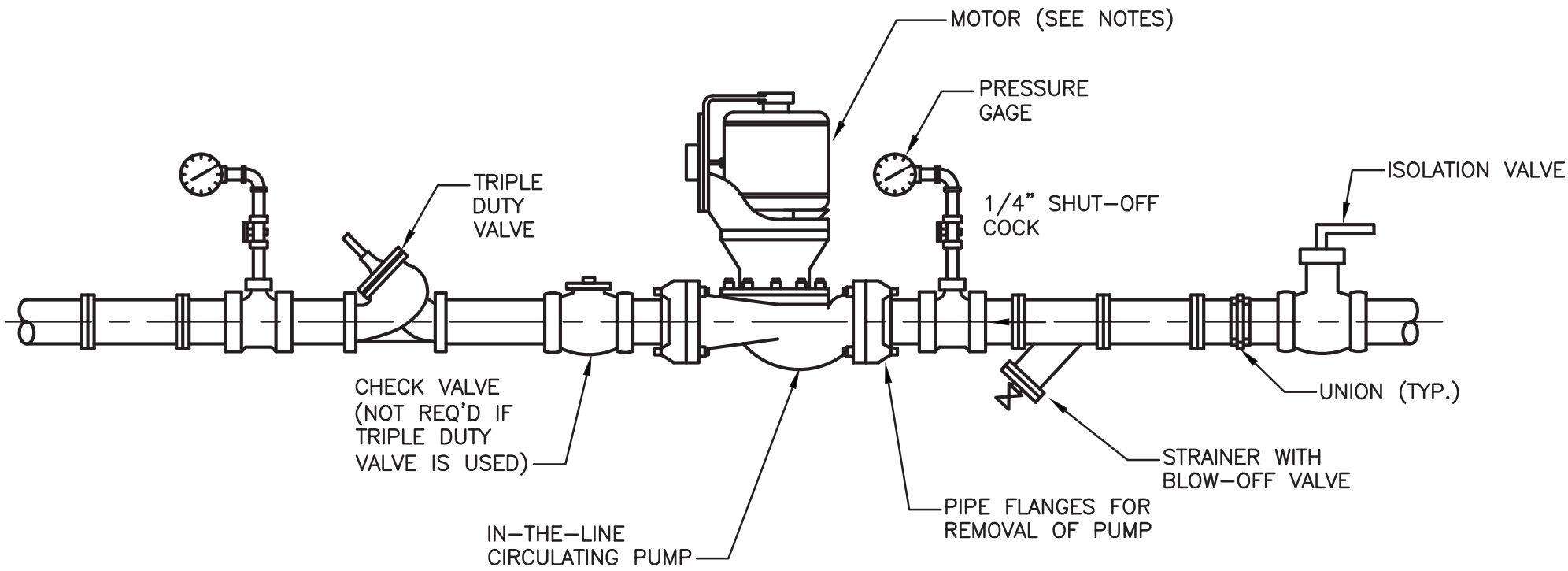
4 HORIZONTAL AIR HANDLING UNIT HANGING DETAIL - WSHP-7
N.T.S.



5 SHUTTER TYPE FIRE DAMPER FOR LOW PRESSURE SYSTEMS DETAIL
N.T.S.

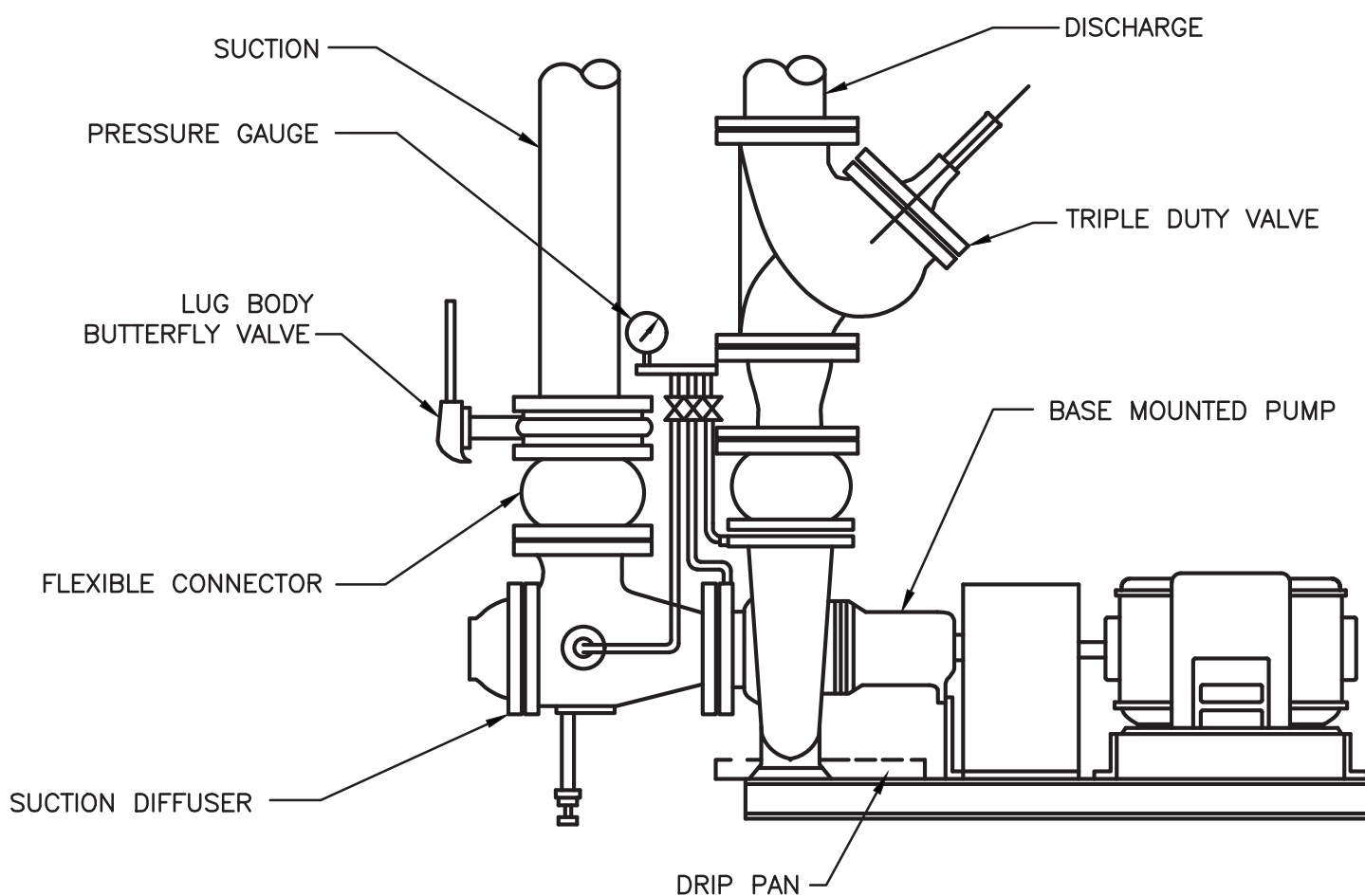


6 RATED WALL PENETRATION DETAIL
N.T.S.



- NOTES
- SHUT-OFF COCK GAGE TO BE LEFT SHUT OFF EXCEPT WHEN ACTUALLY CHECKING SYSTEM PRESSURE.
 - PROVIDE REDUCER/INCREASER AT PUMP AS REQUIRED.
 - MOTOR TO BE IN THE HORIZONTAL POSITION WITH THE APPROPRIATE BEARINGS.

7 PUMP DETAIL IN-LINE CIRCULATOR
N.T.S.



8 TYPICAL END SUCTION PUMP DETAIL
N.T.S.

REVISION SCHEDULE

#	DESCRIPTION	DATE
---	-------------	------

SEAL

DANIEL STEINBERG, P.E.

800 Troy Surrogate Road
Suite 100
Larchmont, NY 10538
(914) 462-5470
www.hymanhayes.com

HYMAN HAYES ASSOCIATES

ARCHITECT/STRUCTURAL ENGINEER

COST CONSULTANT	STUART LYNN COMPANY
FREE CONSULTANT	CLASS CONTRACT INTERIORS LLC
IT/SECURITY CONSULTANT	XC TECHNOLOGIES
CIVIL CONSULTANT	Fines Engineering & Land Surveying PC
MEP CONSULTANT	FELEZEN III
FORENSIC CONSULTANT	crime lab design

FE PROJECT # 20-335

ORANGE COUNTY, NEW YORK

SHEET TITLE

HVAC DETAILS

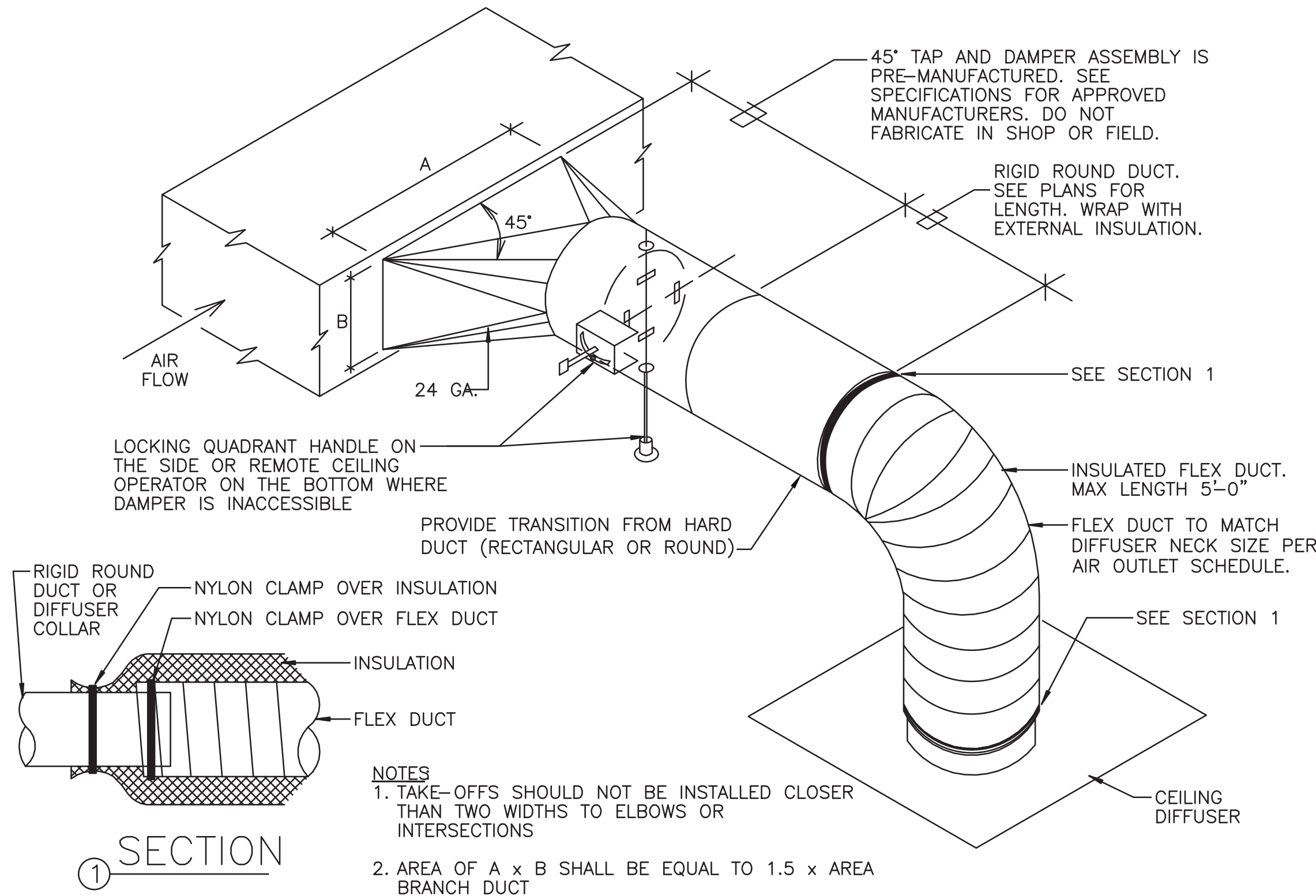
ORANGE COUNTY MEDICAL EXAMINER'S OFFICE

22 WELLS FARM RD.
GOSHEN, NY 10924

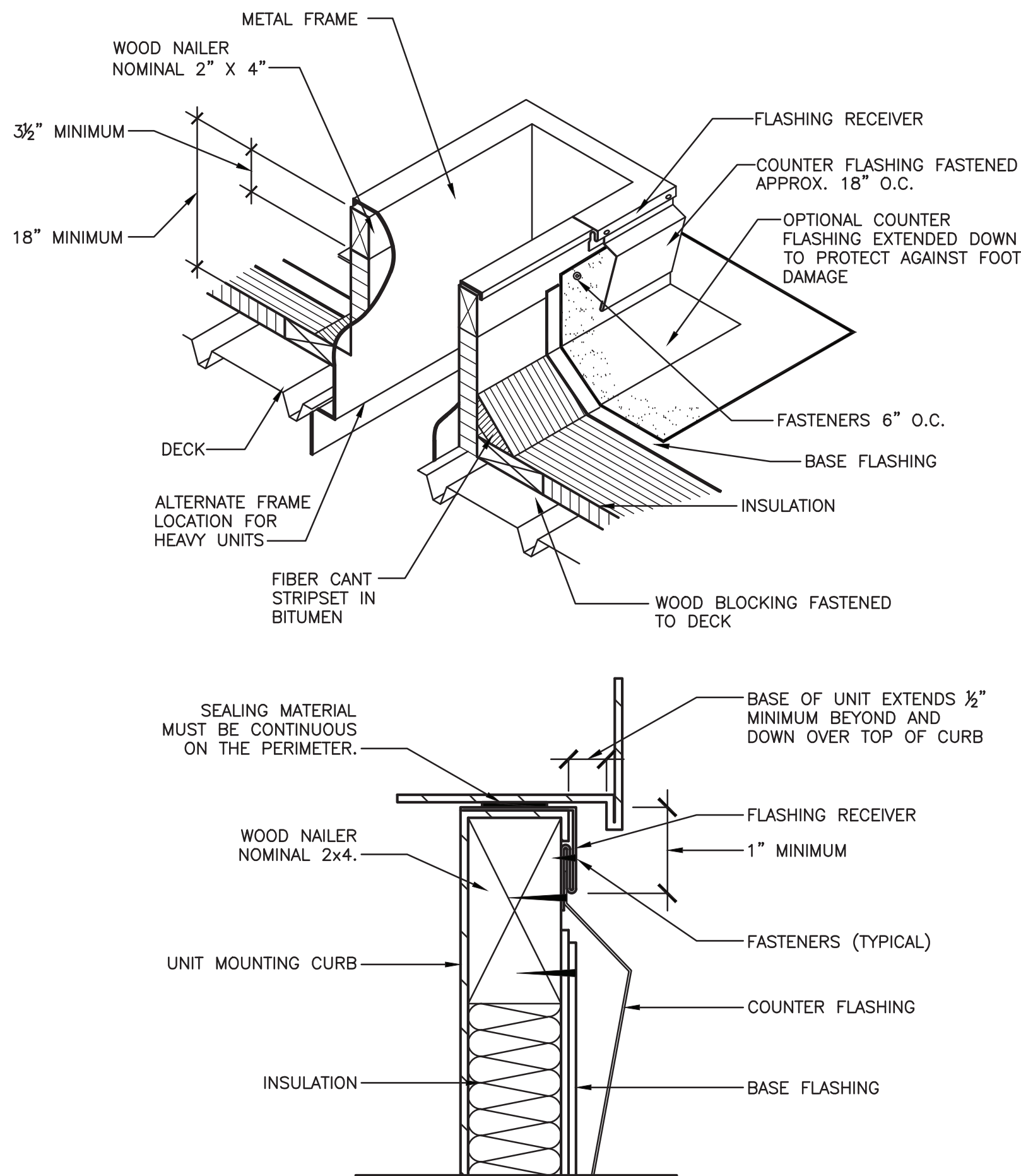
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SCALE:	AS SHOWN
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APPROVED:	MBF
CLIENT APPROVAL	20071
HHA PROJ. NO.:	
CLIENT PROJ. NO.:	

SHEET NUMBER

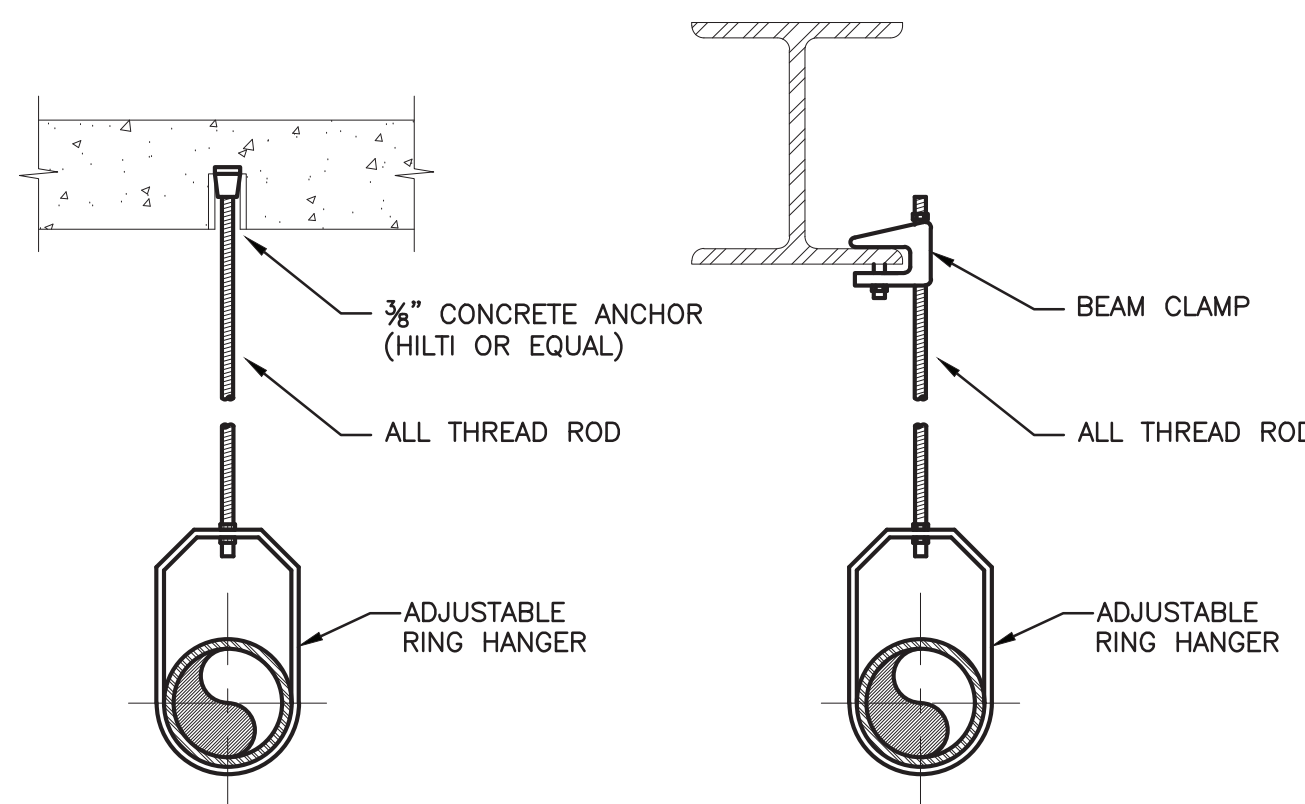
H700



1 SQUARE TO ROUND TAKE-OFF DETAIL
N.T.S.

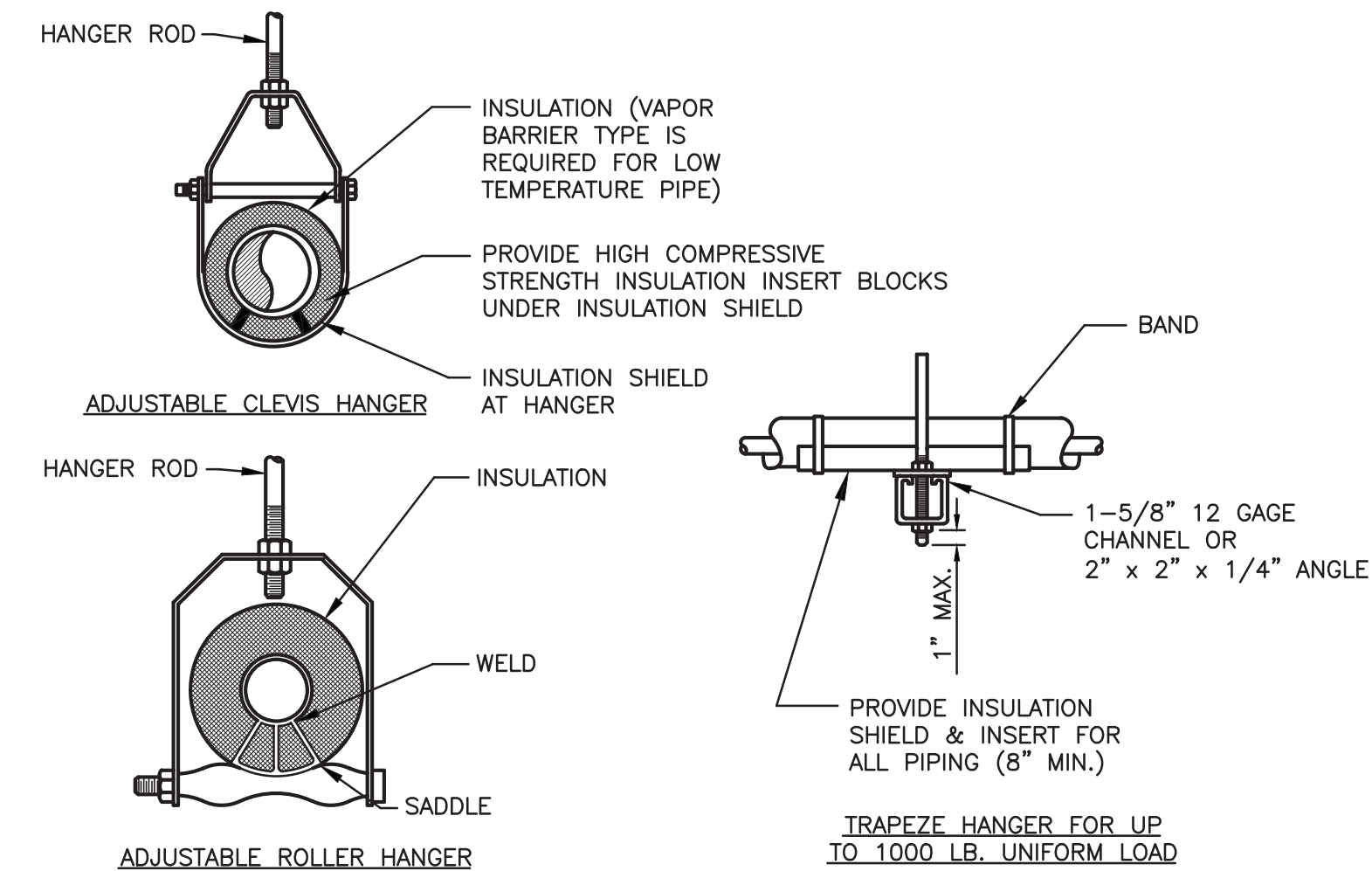


3 ROOFTOP CURB DETAIL
N.T.S.



HANGER DETAIL - CONCRETE DECK
N.T.S.

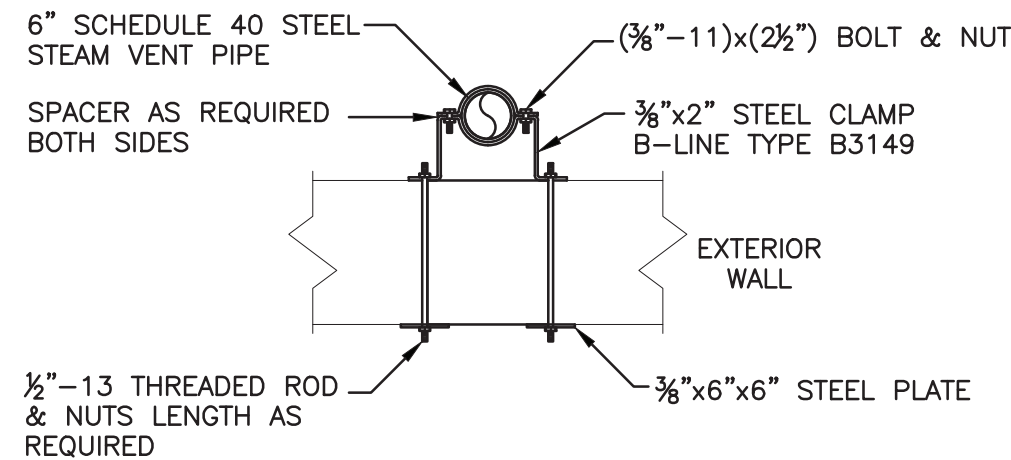
BEAM CLAMP HANGER DETAIL
N.T.S.



INDIVIDUAL PIPE HANGER ROD & SPACING SCHEDULE										
NOMINAL PIPE DIAMETER (IN.)	3/4	1	1 1/2	2	2 1/2	3	4	5	6	-
HANGER ROD SIZE (IN.)	3/8	3/8	3/8	3/8	1/2	1/2	5/8	5/8	7/8	-
MAXIMUM SUPPORT SPACING (FT.)										
STEEL PIPE	6	7	9	10	11	12	14	16	17	-
COPPER TUBE	6	6	8	9	10	10	12	14	14	-

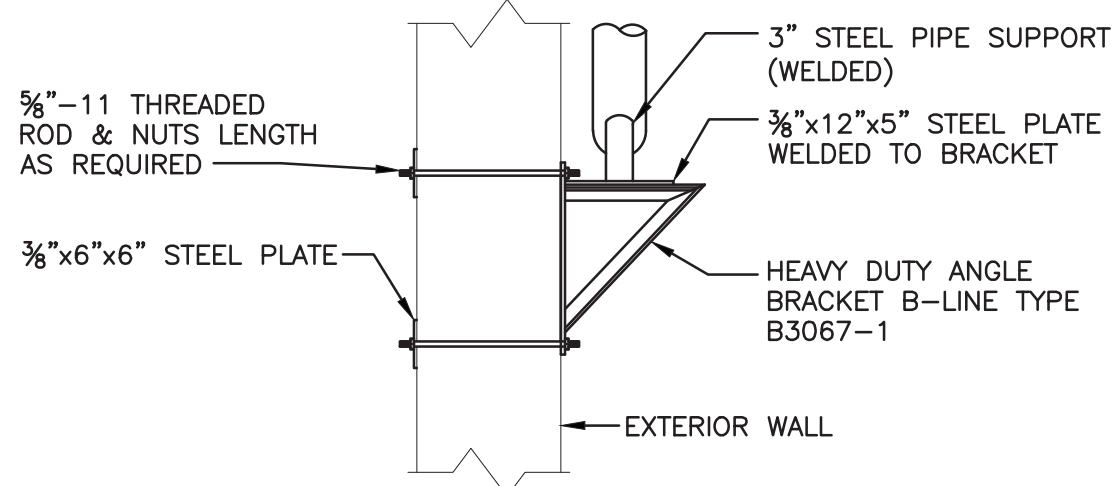
NOTE: TRAPEZE HANGER SPACING SHALL BE BASED ON SPACING OF SMALLEST PIPE ON TRAPEZE. TRAPEZE SHALL BE DESIGNED WITH A FACTOR OF SAFETY OF 5 FOR CENTER OF SPAN CONCENTRATED LOAD

2 PIPE HANGER DETAIL
N.T.S.

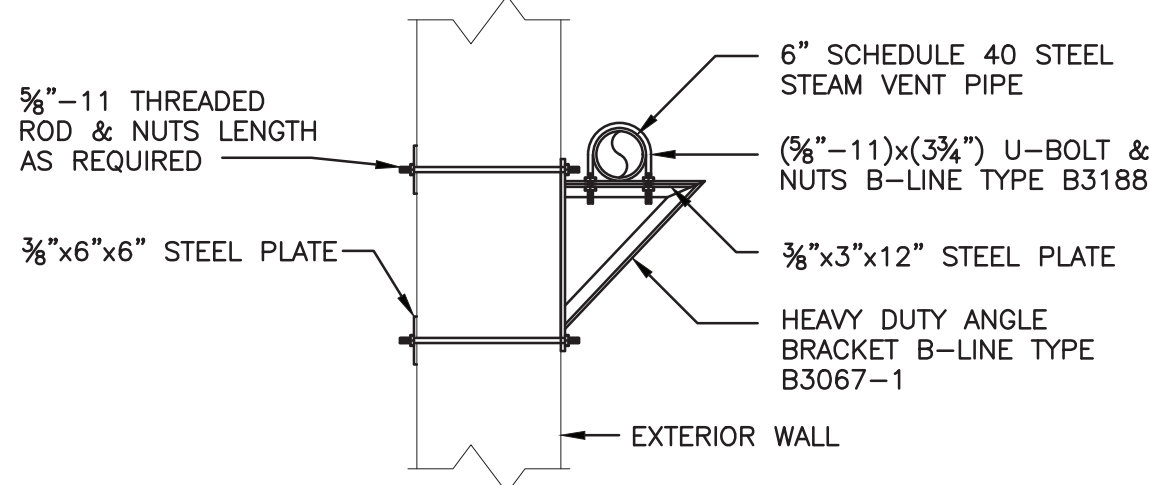


NOTE: SUPPORTS MUST BE INSTALLED TO ALLOW FOR VERTICAL PIPE EXPANSION. PIPE SHALL NOT BE ANCHORED AT THESE LOCATIONS. INSTALL TO SUPPORT PIPE LATERALLY AND GUIDE VERTICALLY.

VERTICAL PIPE SUPPORT

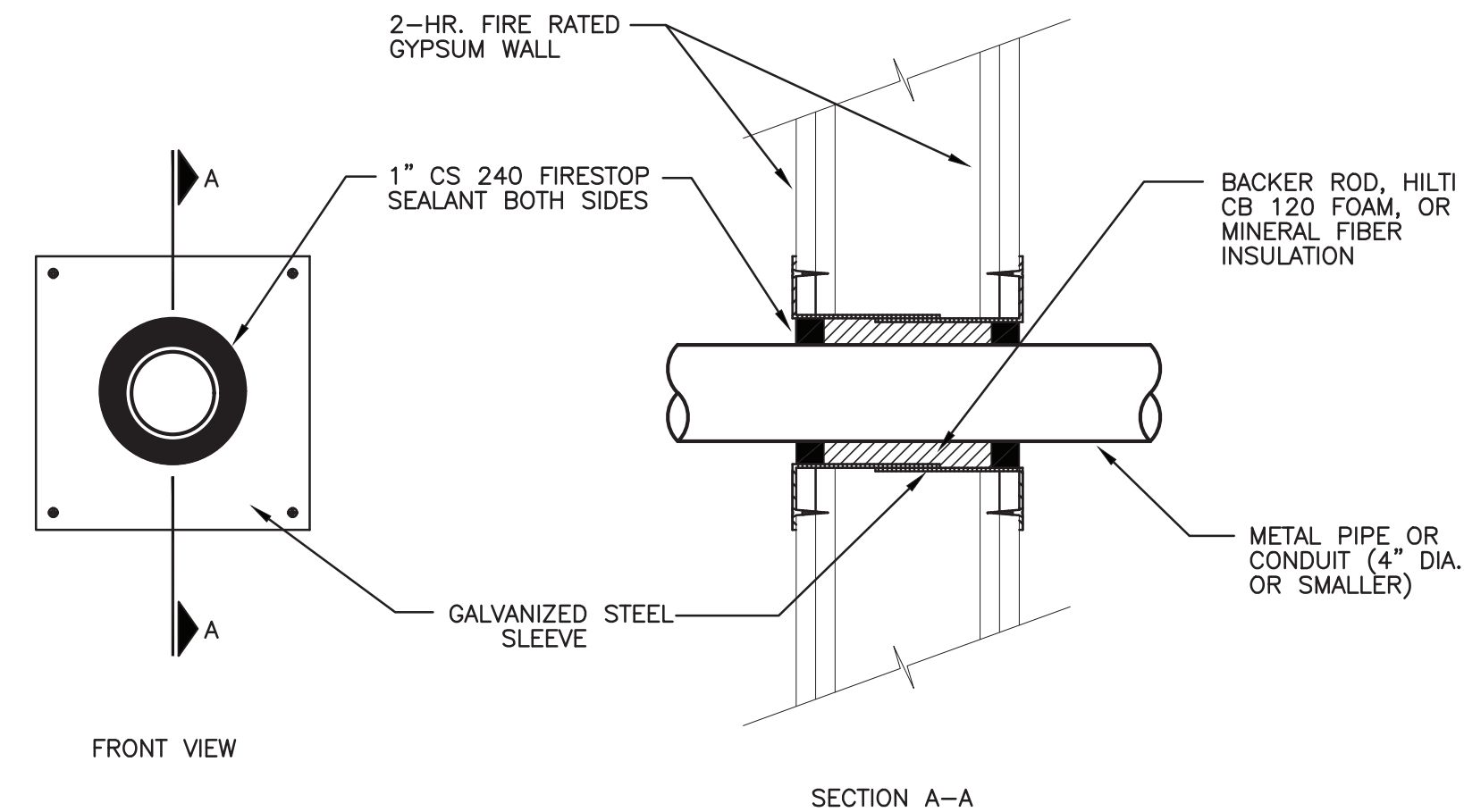


HORIZONTAL PIPE SUPPORT



HORIZONTAL PIPE SUPPORT

4 PIPE SUPPORT DETAILS
N.T.S.



NOTE: IF MINERAL FIBER INSULATION IS USED AS THE BACKING MATERIAL, SEALANT DEPTH MAY BE REDUCED TO 1/2".

ALL SURFACES SHOULD BE CLEANED, SOUND AND DRY PRIOR TO APPLICATION OF FIRESTOPPING MATERIALS. IF THE OPENING IS NOT SLEEVED, INSTALL A GALVANIZED STEEL SLEEVE AROUND THE PIPE AND ANCHOR IT IN PLACE.

INSTALL BACKER ROD, CB 120 FOAM, OR PACK MINERAL WOOL BETWEEN THE PIPE SLEEVE, LEAVING APPROPRIATE SPACE ON EACH SIDE OF THE WALL FOR THE FIRESTOP SEALANT.

APPLY THE REQUIRED DEPTH OF CS 240 FIRESTOP SEALANT TO BOTH SIDES OF THE WALL AND TOOL IT WITH A PUTTY KNIFE UNTIL FLUSH WITH THE SURFACE. LEAVE COMPLETE SEAL UNDISTURBED FOR 48 HOURS.

5 FIREWALL PENETRATION DETAIL
N.T.S.

REVISION SCHEDULE		DESCRIPTION		DATE	
#					

SEAL

DANIEL STEINBERG, P.E.

NY PROFESSIONAL ENGINEER
NO. 079975-1

HYMAN HAYES ASSOCIATES

800 Troy-Schenectady Road
Suite 100
Lewiston, NY 14109
(518) 462-5470
www.hymanhayes.com

ARCHITECT/STRUCTURAL ENGINEER

HYMAN HAYES ASSOCIATES

MEP CONSULTANT

FORENSIC CONSULTANT

CRIME LAB DESIGN

COST CONSULTANT

STUART LYNN COMPANY

CLASSIC CONTRACTING INC.

INFRASTRUCTURE

FE PROJECT # 20-355

ORANGE COUNTY, NEW YORK

SHEET TITLE

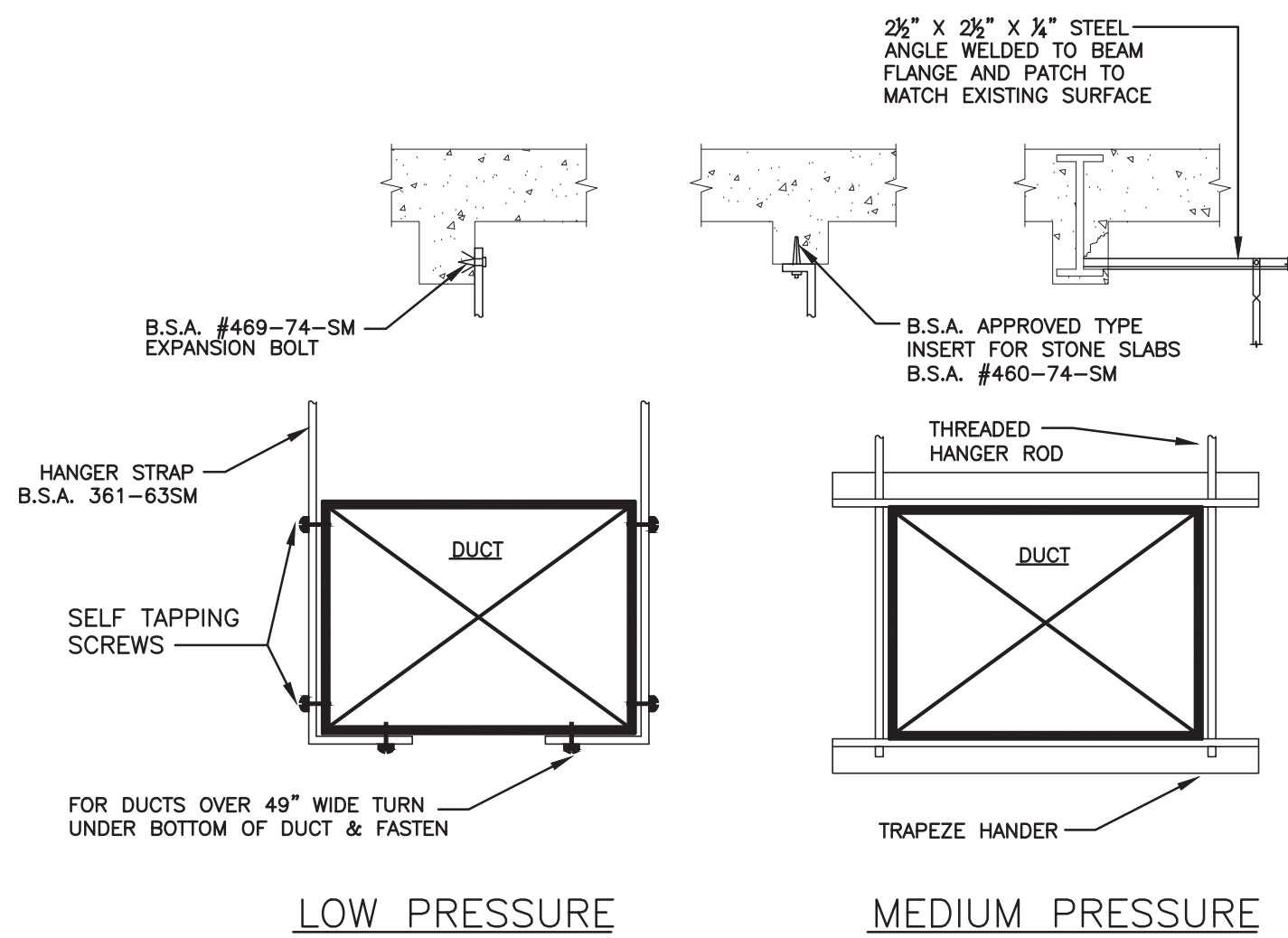
HVAC DETAILS

ORANGE COUNTY MEDICAL EXAMINER'S OFFICE

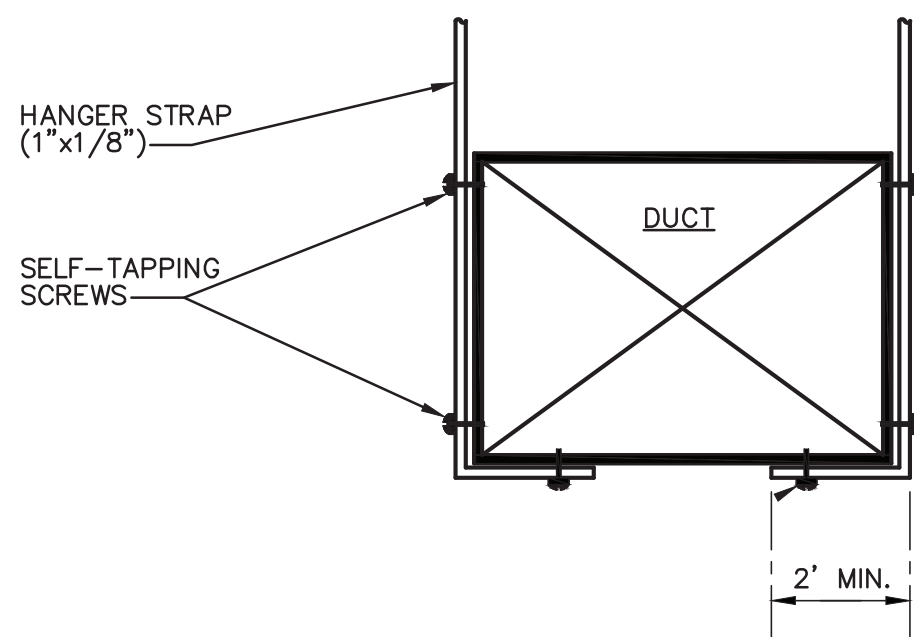
22 WELLS FARM RD.
GOSHEN, NY 10924

DATE	11/18/2022	SCALE	AS SHOWN	DRAWN BY	ZR	CHECKED BY	DSS	APPROVED	MBF	CLIENT APPROVAL		HH-A PROJ. NO.	20071	CLIENT PROJ. NO.	
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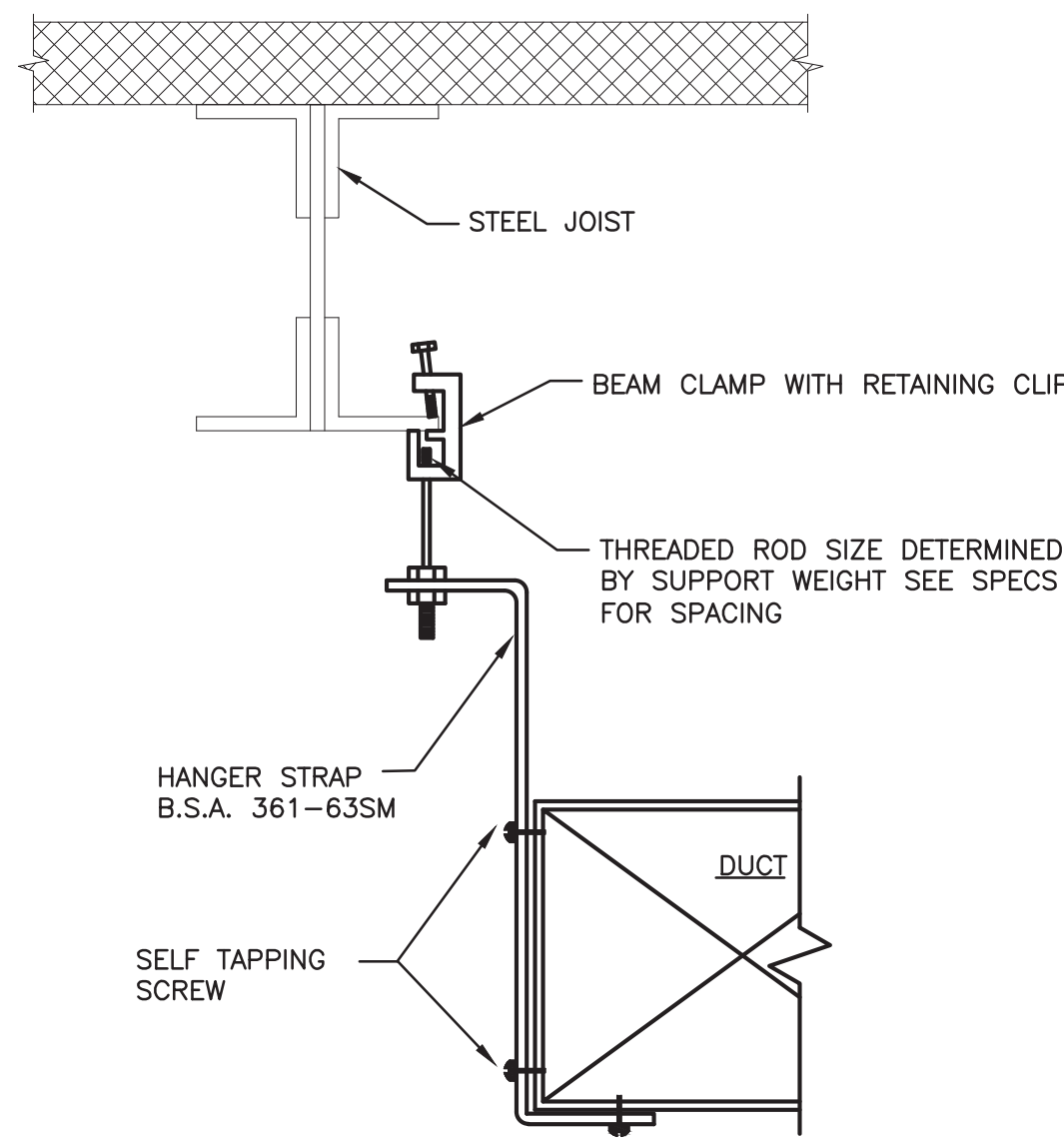


1 **METHOD OF HANGING DUCTWORK**
CONCRETE/WOOD DETAIL
N.T.S.



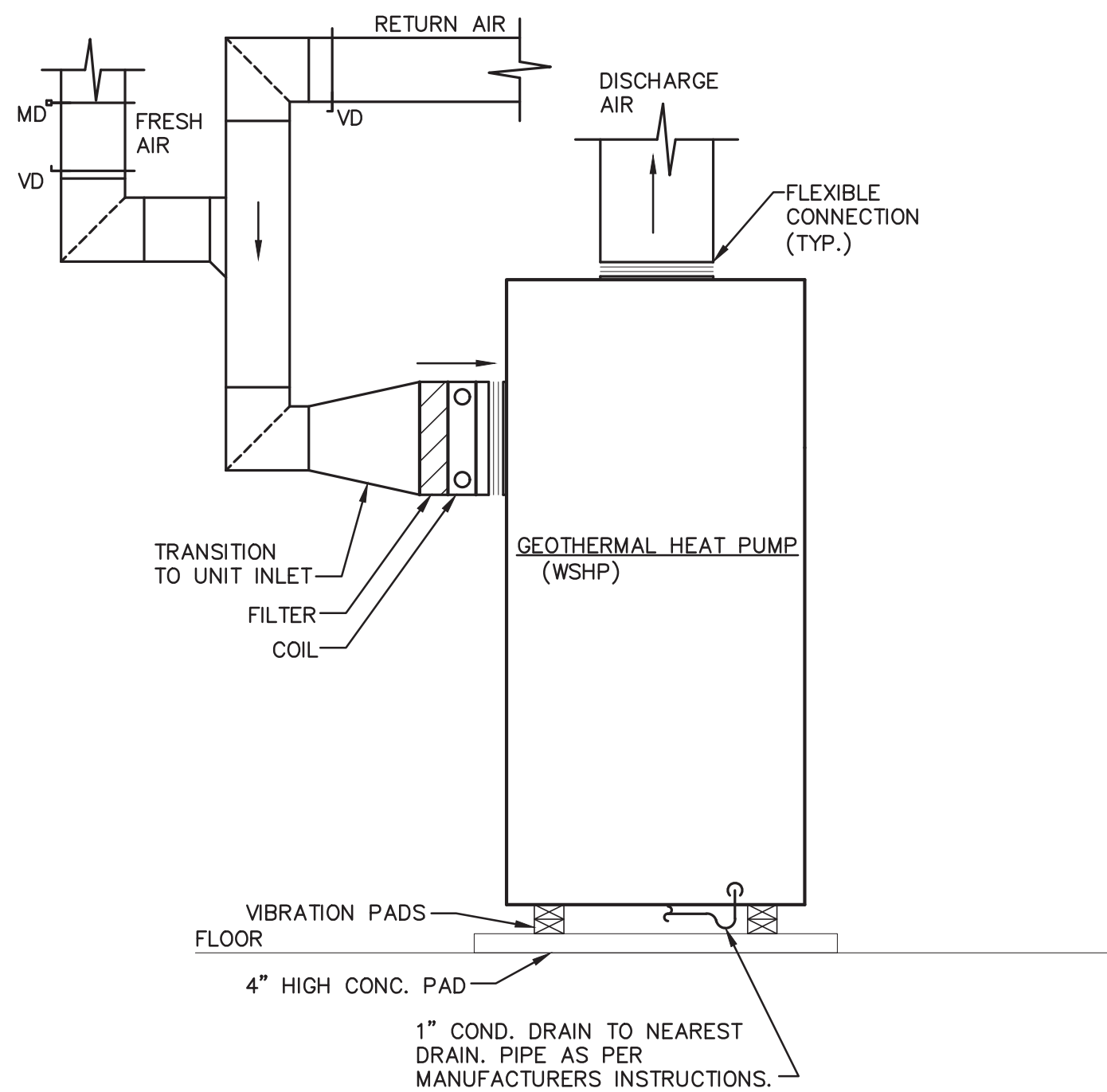
- NOTES:**
1. PROVIDE BRACING TO LIMIT THE AMPLITUDE OF WALL VIBRATION AND WALL DEFLECTION TO SPECIFIED MAXIMUMS.
 2. MINIMUM DUCT SUPPORT REQUIREMENTS:
- | DUCT SIZE (SQ. FT.) | HANGER SIZE (IN.XGA.) | MAX. SPACING (FT.) |
|---------------------|-----------------------|--------------------|
| <2 | 1"x20 GA. | 8 |
| 2<x≤4 | 1"x20 GA. | 8 |
| 4<x≤10 | 1"x20 GA. | 6 |
| 10<x | 1"x18 GA. | 4 |
3. INSULATION: ALL SUPPLY AIR DUCTWORK SHALL BE INSULATED WITH 1 1/2" FIBERGLASS INSULATION OF 1 LB./C.F. DENSITY AND INTEGRAL VAPOR BARRIER JACKET. ALL EDGES, SEAMS, ETC. SHALL BE TAPED TO MAINTAIN VAPOR BARRIER.
 4. ALL EXTERIOR STAINLESS STEEL DUCT SHALL BE SUPPORTED FROM THE BLDG. WALL PER SMACNA STANDARDS.

4 **DUCT HANGERS/REINFORCEMENT**
N.T.S.



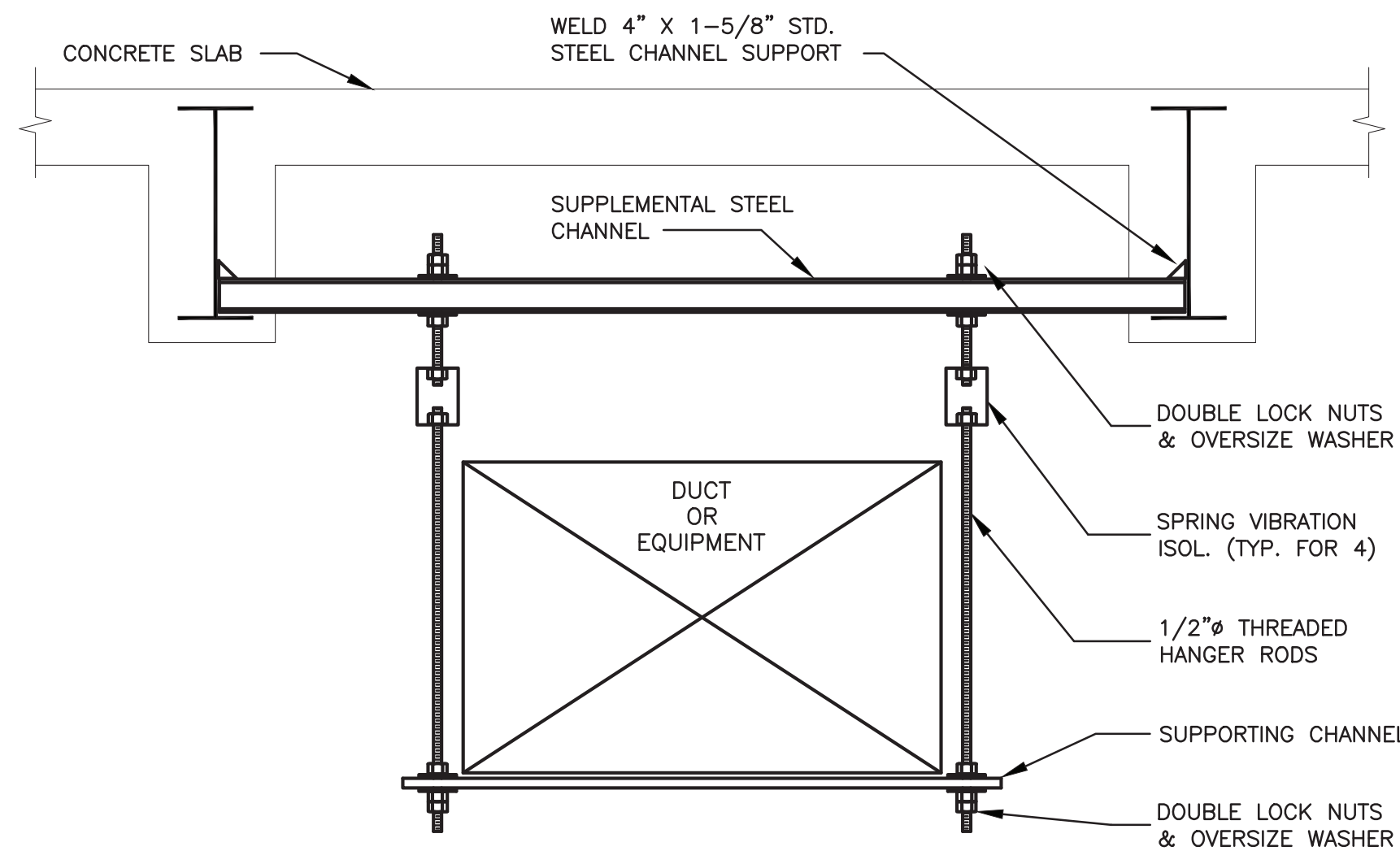
- NOTES:**
1. DUCTS SHALL NOT BE HUNG FROM OR SUPPORTED BY HUNG CEILING.
 2. FOR DUCTS NOT EXCEEDING 2 SQ. FT. IN CROSS-SECTIONAL AREA, HANGERS SHALL BE OF METAL NOT LESS THAN 1/16".
 3. FOR DUCTS LARGER THAN 2 SQ. FT. IN CROSS-SECTIONAL AREA, HANGERS SHALL BE OF METAL NOT LESS THAN 1" BY 1/8".
 4. FOR ALL DUCTS, HANGERS SHALL BE TURNED UNDER AND FASTENED TO THE BOTTOM OF DUCT AS SHOWN ABOVE.
 5. WHERE CROSS-SECTIONAL AREA OF DUCT EXCEEDS 8 SQ. FT., HANGERS SHALL BE NOT MORE THAN 4 FT. ON CENTER.

2 **METHOD OF HANGING DUCTWORK**
N.T.S.

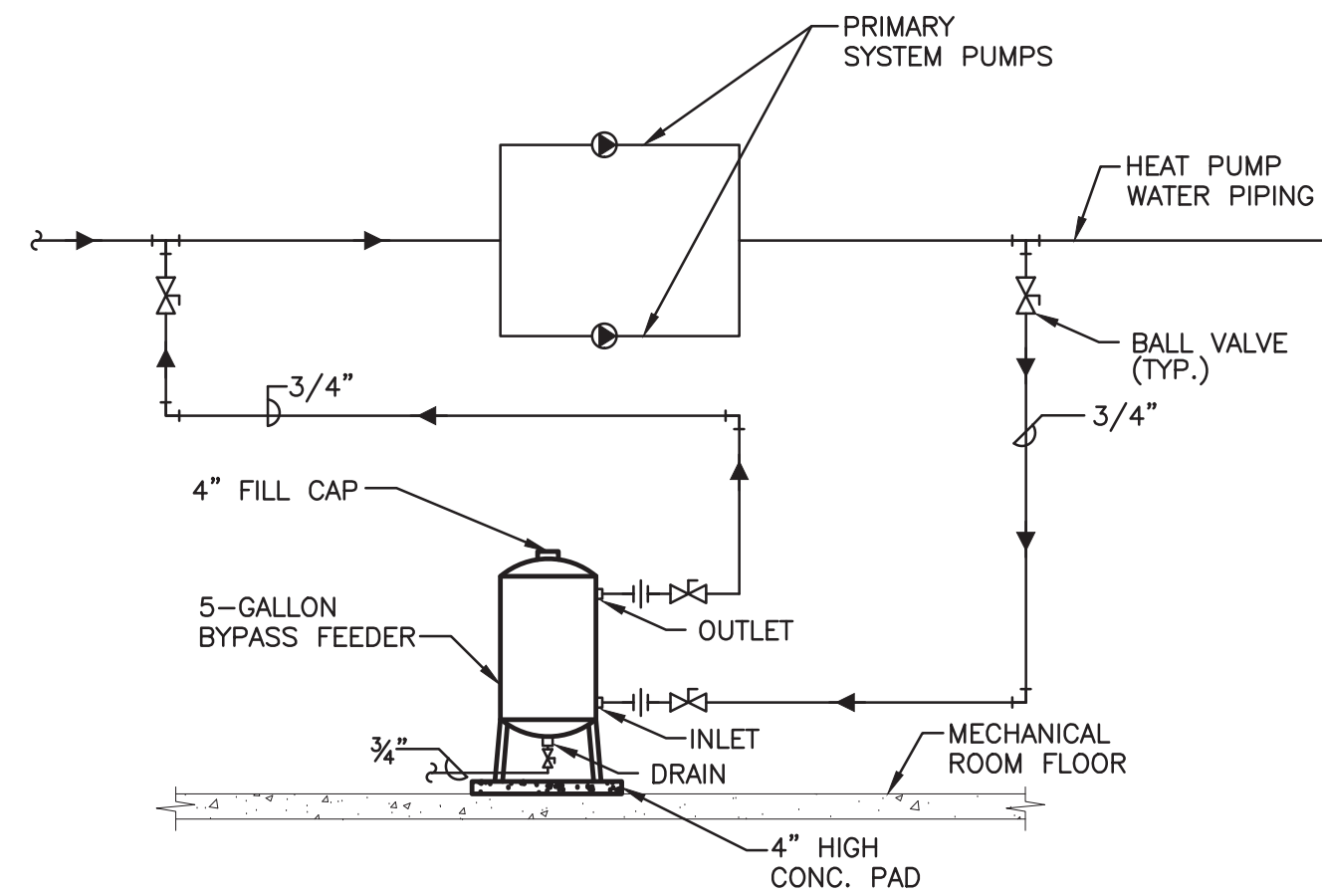


- NOTES:**
1. TYPICAL FOR INDOOR FLOOR MOUNTED HEAT PUMP UNITS.
 2. ALL ANCHORS, CLAMPS, BOLTS, CHANNELS, ETC., SHALL BE RATED TO SUPPORT THE EQUIPMENT OPERATING WEIGHT.

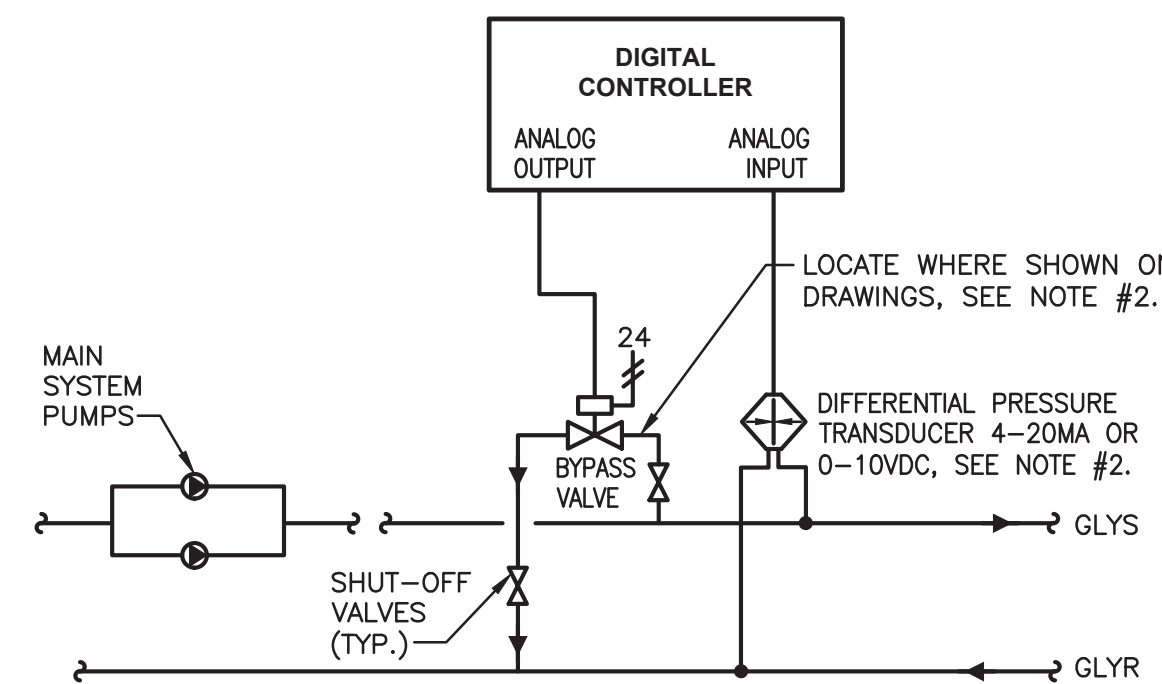
5 **FLOOR MOUNTED VERTICAL WATER SOURCE HEAT PUMP DETAIL (TYPICAL)**
N.T.S.



3 **EQUIPMENT HANGING DETAIL**
N.T.S.



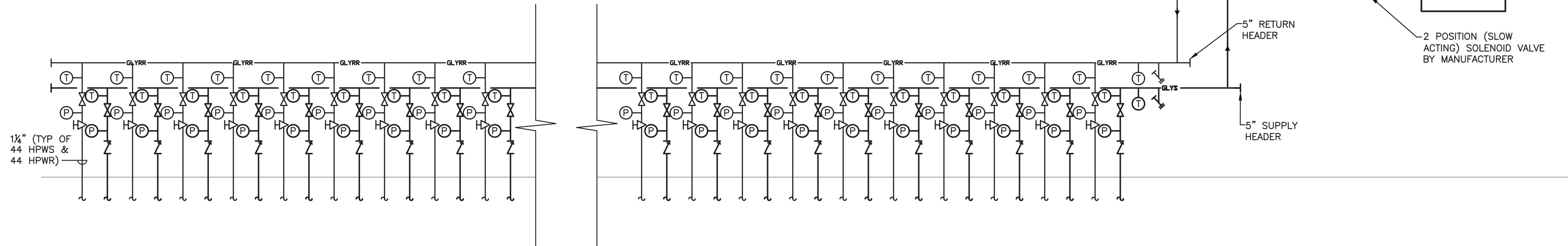
6 **CHEMICAL POT FEEDER DETAIL**
N.T.S.



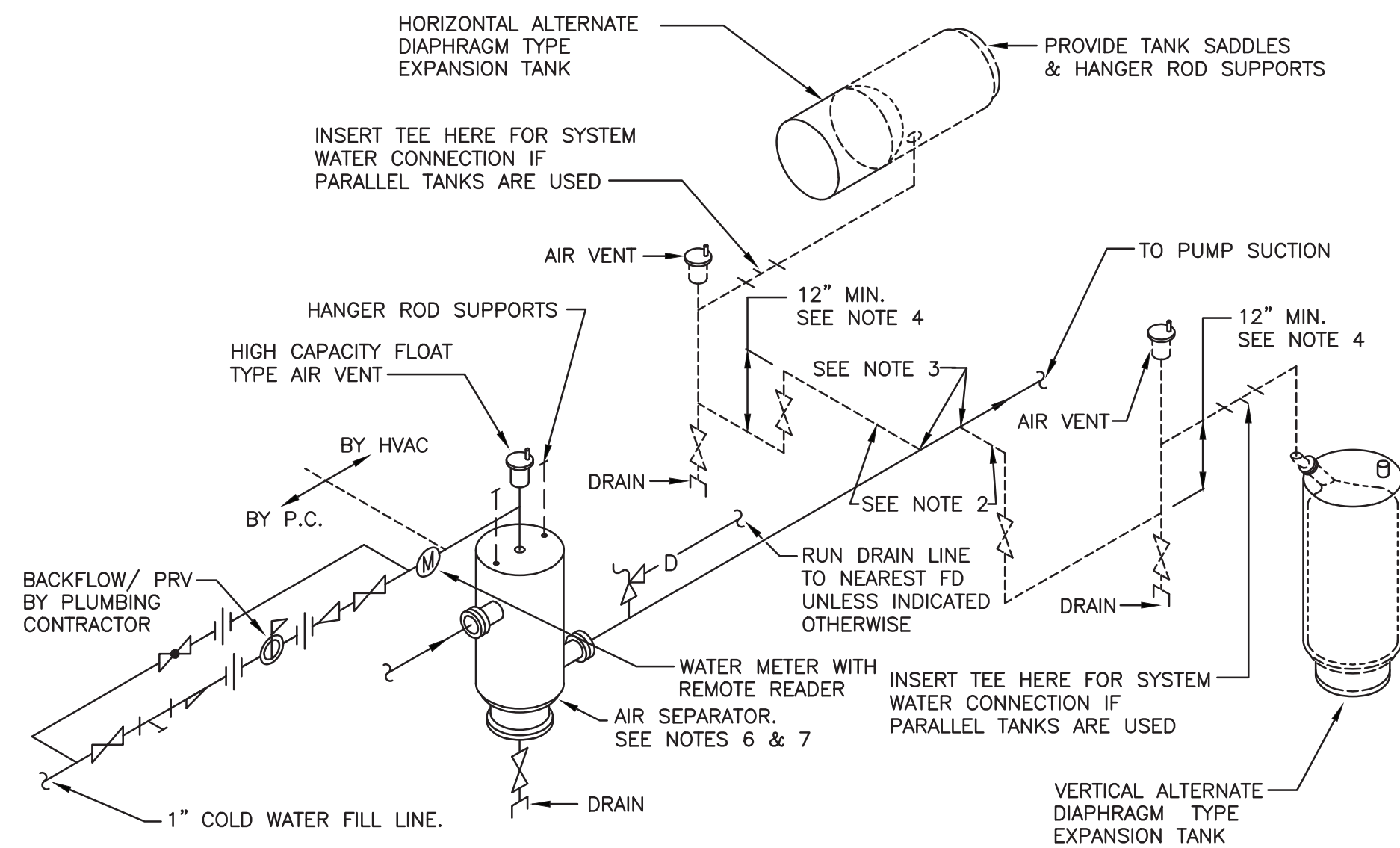
- NOTES:**
1. TO BE PROVIDED TO GLYCOL HEAT PUMP SOURCE AND LOAD SYSTEM.
 2. SEVERAL DIFFERENTIAL PRESSURE SENSORS TO BE PROVIDED IN VARIOUS LOCATIONS AS SHOWN. SEE PIPING FLOOR PLANS.

7 **TYPICAL DIFFERENTIAL PRESSURE BY-PASS VALVE ARRANGEMENT**
N.T.S.

REVISION SCHEDULE		DESCRIPTION		DATE	
#					
DANIEL STEINBERG, P.E.					
SEAL					
800 Troy Surrogate Road Suite 100, Troy, NY 12180 (518) 462-5470 www.hymanhayes.com					
HYMAN HAYES ASSOCIATES					
ARCHITECT/STRUCTURAL ENGINEER					
COST CONSULTANT					
FRE CONSULTANT					
CLASS CONTRACT INTERIORS LLC					
LIT/SECURITY CONSULTANT					
"XG" TECHNOLOGIES					
CIVIL CONSULTANT					
Fuses Engineering & Land Surveying PC					
MEP CONSULTANT					
FELEZEN III					
FORENSIC CONSULTANT					
crime lab design					
ORANGE COUNTY					
ORANGE COUNTY, NEW YORK					
SHEET TITLE					
HVAC DETAILS					
ORANGE COUNTY MEDICAL EXAMINER'S OFFICE					
22 WELLS FARM RD. GOSHEN, NY 10924					
DATE: 11/18/2022					
SCALE: AS SHOWN					
DRAWN BY: ZR					
CHECKED BY: DSS					
APPROVED: MRF					
CLIENT APPROVAL					
HHA PROJ. NO.: 20071					
CLIENT PROJ. NO.:					
SHEET NUMBER					
H702					



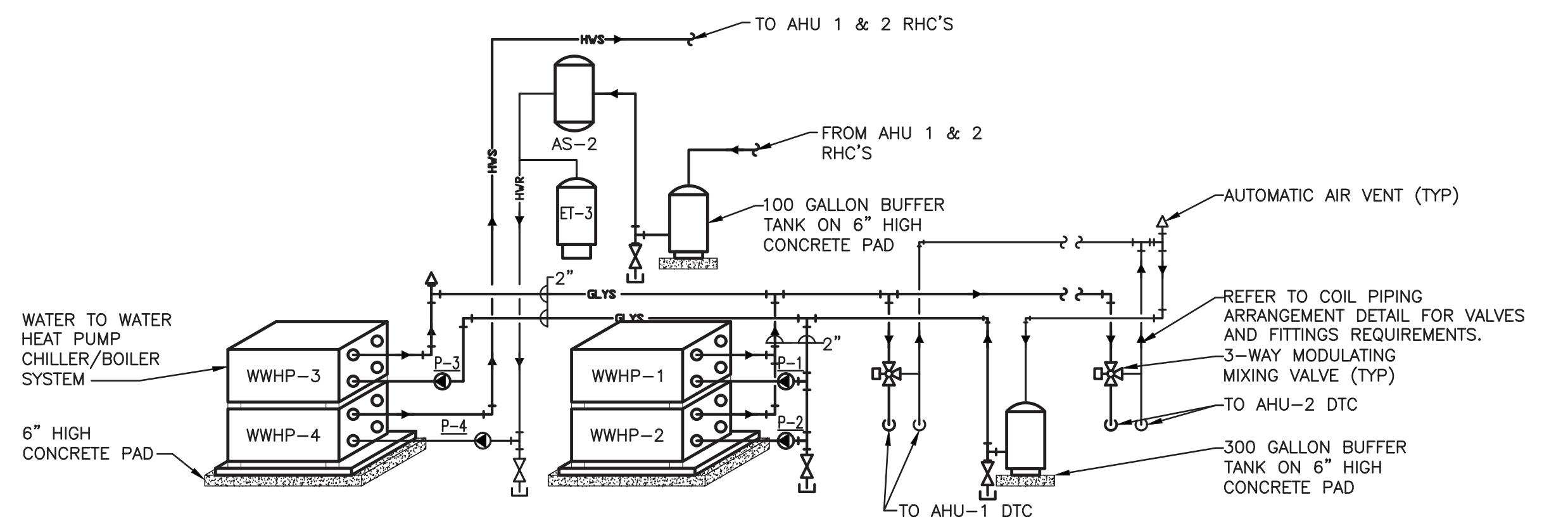
1 HEAT PUMP WATER PIPING MAIN PUMP SCHEMATIC
N.T.S.



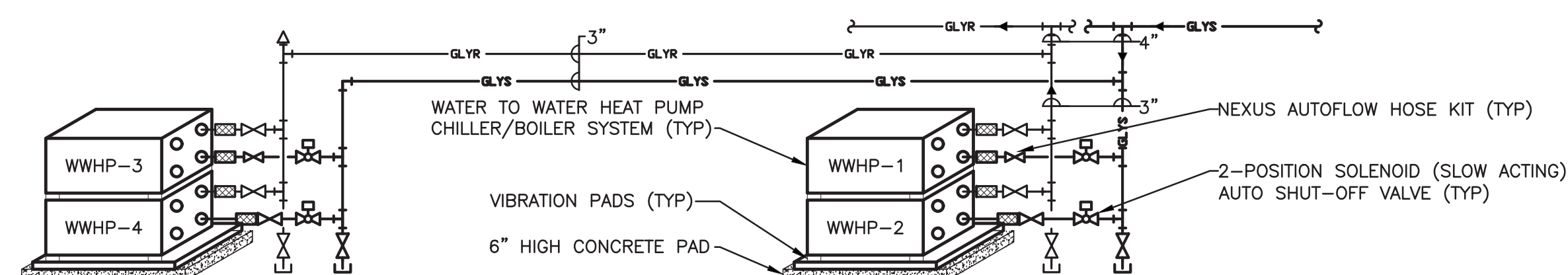
2 AIR CONTROL & PIPING CONNECTIONS FOR WATER SYSTEMS DIAPHRAGM TYPE EXPANSION TANK
N.T.S.

NOTES:

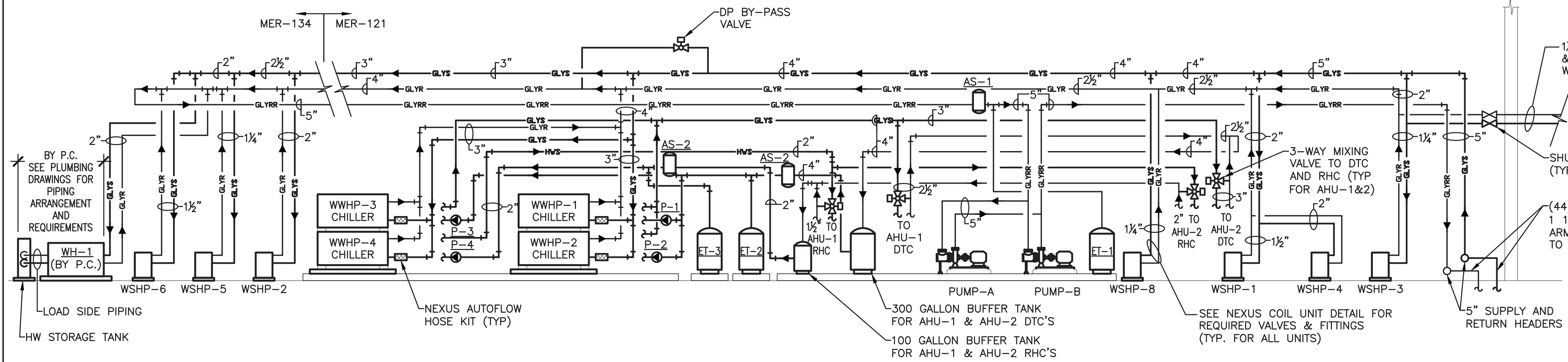
1. DETAIL IS TYPICAL FOR CONNECTIONS TO THE DUAL TEMPERATURE WATER SYSTEM AND THE ENERGY RECOVERY SYSTEM.
2. DASHED PIPING SHOWS BOTH HORIZONTAL AND VERTICAL DIAPHRAGM TYPE EXPANSION TANKS. PROVIDE ONLY THE DASHED PIPING FOR TYPE OF TANK FURNISHED.
3. CONNECT TO SIDE OF MAIN TO PREVENT AIR OR DEBRIS FROM ENTERING PIPE TO TANK. TOP OR BOTTOM CONNECTION NOT PERMITTED.
4. PROVIDE 12" MINIMUM DROP ANTI-THERMOSYPHON LOOP TO PREVENT GRAVITY HEATING OF TANK.
5. SEE EXPANSION TANK SYSTEM SCHEDULE FOR COMPONENT SIZES.
6. RELIEF VALVE FOR CHILLED WATER IS SHOWN. OMIT WHEN RELIEF VALVE IS SHOWN ON CONVERTER OR BOILER DETAIL & SYSTEM IS USED ONLY FOR HOT WATER HEATING. COMBINATION HEATING & COOLING SYSTEMS WILL REQUIRE THE RELIEF VALVE SET 10% ABOVE SYSTEM PRESSURE.
7. PROVIDE STRAINER IN AIR SEPARATOR WHEN INDICATED IN EXPANSION TANK SCHEDULE.
8. FOR HOT WATER SYSTEMS 2" AND SMALLER AND ALL CHILLED WATER SYSTEMS USE IN-LINE AIR PURGER IN LIEU OF AIR SEPARATOR.
9. SET PRESSURE REDUCING VALVE SO PRESSURE AT HIGH POINT IN SYSTEM HAS A MINIMUM OF 4 PSIG.



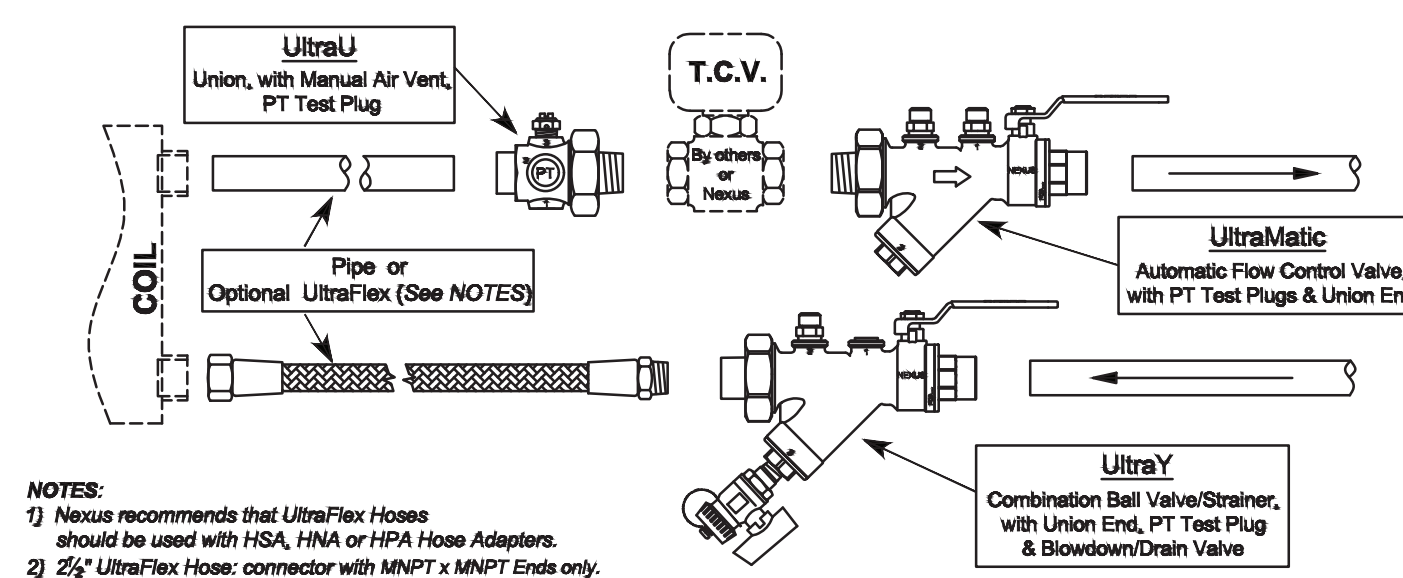
3 LOAD SIDE PIPING ARRANGEMENT
N.T.S.



4 SOURCE SIDE PIPING ARRANGEMENT
N.T.S.



5 GEOTHERMAL RISER SCHEMATIC DIAGRAM
N.T.S.



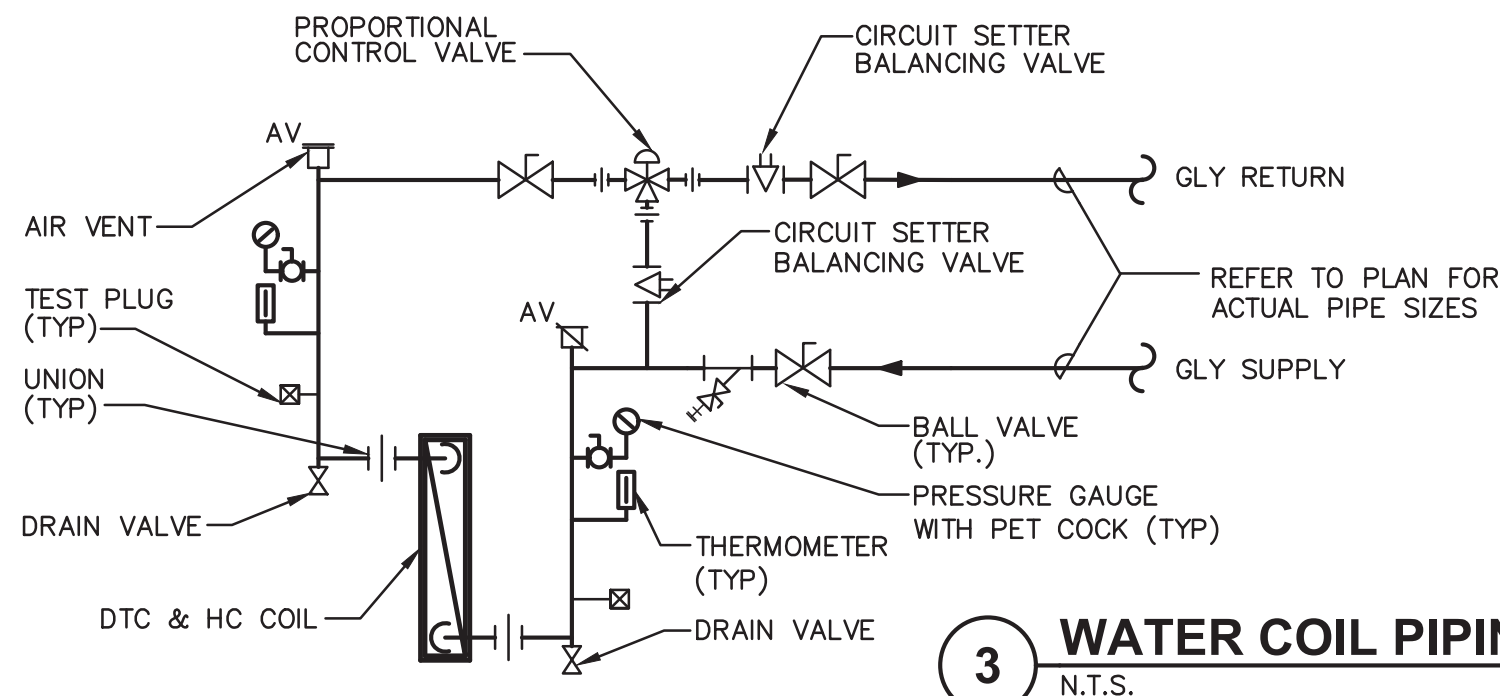
- NOTES:**
- 1) Nexus recommends that UltraFlex Hoses should be used with HSA, HNA or HPA Hose Adapters.
 - 2) 2 1/2" UltraFlex Hoses: connector with MNPT x MNPT Ends only.

NOTE:

1. TYPICAL FOR ALL WSHP AND WWHP.

6 COIL PAK A2Y DETAIL
N.T.S.

DATE: 1/16/2022		SHEET TITLE: HVAC DETAILS		ORANGE COUNTY MEDICAL EXAMINER'S OFFICE		ORANGE COUNTY, NEW YORK		SEAL: DANIEL STEINBERG, P.E.	
SCALE: AS SHOWN		DRAWN BY: ZR		CHECKED BY: DSS		APPROVED: MUF		ARCHITECT/STRUCTURAL ENGINEER	
CLIENT APPROVAL:		HHA PROJ. NO.: 20071		CLIENT PROJ. NO.:		FORENSIC CONSULTANT: crime lab design		HYMAN HAYES ASSOCIATES	
						FELLENZER III		HYMAN HAYES ASSOCIATES	
						MEP CONSULTANT		HYMAN HAYES ASSOCIATES	
						CIVIL CONSULTANT		HYMAN HAYES ASSOCIATES	
						IT/SECURITY CONSULTANT		HYMAN HAYES ASSOCIATES	
						IFR/EE CONSULTANT		HYMAN HAYES ASSOCIATES	
						COST CONSULTANT		HYMAN HAYES ASSOCIATES	
						STUART LYNN COMPANY		STUART LYNN COMPANY	
						GLASSC CONTRACTING INTERIORS, LLC		GLASSC CONTRACTING INTERIORS, LLC	
						FF 500-677 # 20-194		FF 500-677 # 20-194	
						ORANGE COUNTY, NEW YORK		ORANGE COUNTY, NEW YORK	
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NOTES:

1. CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT OR DISCHARGE AIR SETPOINT.
2. HYDRONIC WATER SYSTEM IS CONSTANT VOLUME.
3. CONTROL VALVES SHALL BE NORMALLY OPEN.
4. CIRCUIT SETER BALANCE VALVE ON BYPASS PIPE TO BE ADJUSTED TO MATCH COIL PRESSURE DROP, VALVE SHALL BE HALF SIZE TO BE VERIFIED BY MFTR. FOR PRESSURE DROP.

WHEN A WATER SOURCE HEAT PUMP UNIT OPERATES, THE FOLLOWING FUNCTIONS OCCUR:

STARTING SEQUENCE – THE THERMOSTAT ACTIVATES THE HEATING OR COOLING FUNCTION

1. THE THERMOSTAT OPENS THE WATER FLOW CONTROL VALVE TO HEAT PUMP CONDENSER UNIT AND STARTS THE FAN TO ESTABLISH AIR FLOW OVER THE COMBINED HEATING/ COOLING COIL.
2. THE HEAT UNIT COMPRESSOR THEN STARTS IN HEATING OR COOLING MODE OF OPERATION AT ANY TIME OF DAY, YEAR ROUND BASED ON THE SUITE THERMOSTAT TEMPERATURE SET POINT.
3. ASSOCIATED ERV'S SHALL OPEN THEIR RESPECTIVE OA, RA, EA DAMPERS AND START THEIR ASSOCIATED FANS.

STOPPING THE SEQUENCE – THE THERMOSTAT DEACTIVATES THE HEATING OR COOLING FUNCTION AS FOLLOWS:

1. STOPS THE HEAT PUMP COMPRESSOR.
2. CLOSE THE WATER FLOW TO THE HEAT PUMP CONDENSER UNIT.
3. STOPS THE AIR FLOW OVER THE COMBINED HEATING/COOLING COIL.
4. ASSOCIATED ERV'S SHALL STOP OR MODULATE TO SUPPLY UNITS THAT ARE STILL OPERATING.

ELECTRIC DUCT HEATERS – SEE ELECTRIC DUCT REHEAT COIL DETAIL ON DRAWING H705 FOR CONTROLS REQUIREMENTS.

1. REHEAT COIL OPERATES DURING THE HEATING SEASON VIA 3 STAGE ROOM THERMOSTAT WITH CONTROL RELAY TO INTERLOCK COIL CONTROL SIGNAL WITH HEAT PUMP (WSHP-6) CONTROL SIGNAL.

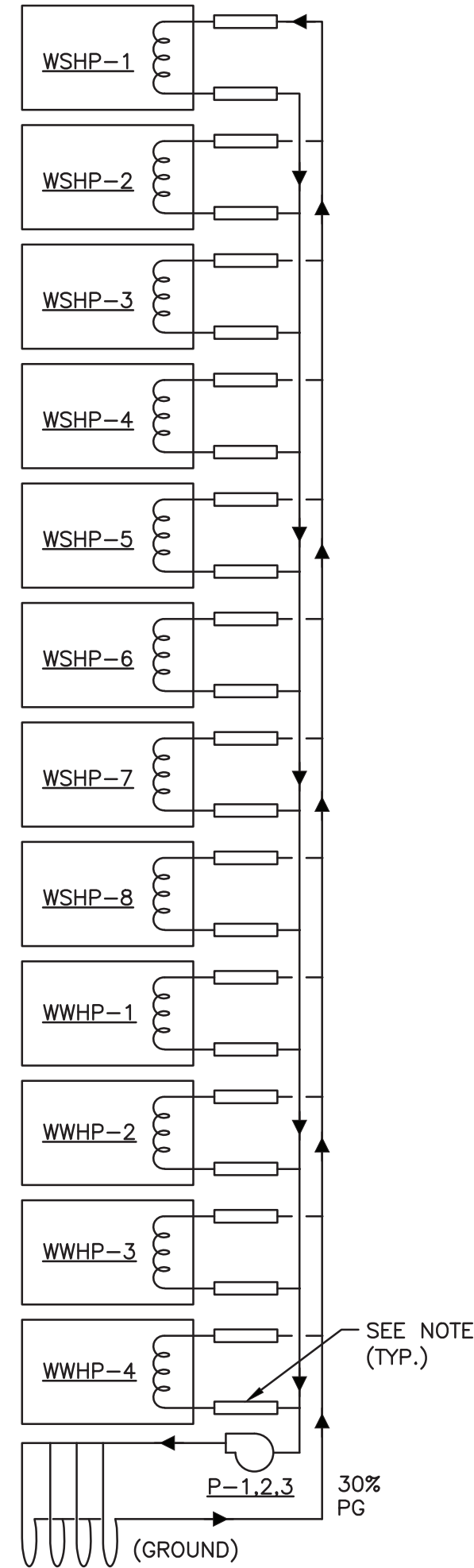
- NOTES:
1. FOR SYSTEMS WITH WINTER DESIGN CONDITIONS $\leq 32^{\circ}\text{F}$, PROVIDE APPROPRIATE PROPYLENE GLYCOL SOLUTION.

AAD	AUTOMATIC AIR DAMPER
AFMS	AIR FLOW MEASURING STATION EBTRON FAN
	ARRAY MEASURING DEVICE PROVIDE & INSTALLED BY AHU VENDOR. CONTROL WIRING BY CONTROLS CONTRACTOR.
AFS	AFTER FILTER (SUPPLY SIDE)
AHU	AIR HANDLING UNIT
BWT	BOILER WATER TEMPERATURE
CCV	COOLING COIL CONTROL VALVE
DTCT	DUAL TEMPERATURE COIL
DTCT	DUAL TEMPERATURE COIL (EWT/LWT)
EAT	EXHAUST AIR TEMPERATURE
ECO2	EXHAUST CO2
EF	EXHAUST FAN
EF-ST5	EXHAUST FAN STATUS
ELP	EXHAUST LOW PRESSURE LIMIT
ET	EXPANSION TANK
EWI	ENTERING WATER TEMPERATURE
F.I.D.	FIELD INTERFACE DEVICE
HC	GLYCOL HEATING COIL
HCP	HEATING COIL PUMP (STATUS BY CURRENT SENSOR)
HHWV	HEATING HOT WATER CONTROL VALVE
LWT	LEAVING WATER TEMPERATURE
PFE	PREFILTER (EXHAUST SIDE)
SAH	SUPPLY AIR HUMIDITY
SAHRT	SUPPLY AIR HEAT RECOVERY TEMPERATURE
SAT	SUPPLY AIR TEMPERATURE
SASP	SUPPLY AIR STATIC PRESSURE
SF	SUPPLY FAN
VFD	VARIABLE FREQUENCY DRIVE

1. AHU-1 & 2 TO HAVE PIEZO RING ON THE SUPPLY FAN WITH DIFFERENTIAL PRESSURE TRANSDUCERS TO INDICATE SYSTEM AIRFLOW VOLUME.
2. AHU-1 TO DELIVER A CONSTANT VOLUME OF 2300 CFM VIA BMS SWITCHED VFD AND PIEZO RING AIRFLOW INDICATOR.
3. AHU-2 TO DELIVER A CONSTANT VOLUME OF 3700 CFM VIA BMS SWITCHED VFD AND PIEZO RING AIRFLOW INDICATOR.
4. ENERGY RECOVERY FAN ERF-1 SHALL BE SET UP AND CONTROLLED VIA VFD WITH DIFFERENTIAL PRESSURE INPUTS FROM THE SPECIAL AUTOPSY AND CORRIDOR TO MAINTAIN NEGATIVE 0.12 WC IN SPECIAL AUTOPSY. SUCH THAT THE SPECIAL AUTOPSY ROOM IS ALWAYS NEGATIVE TO THE CORRIDOR.
5. ENERGY RECOVERY FAN ERF-2 SHALL BE SET UP AND CONTROLLED VIA VFD WITH DIFFERENTIAL PRESSURE INPUTS FROM THE AUTOPSY AND CORRIDOR TO MAINTAIN NEGATIVE 0.12 WC IN AUTOPSY. SUCH THAT THE AUTOPSY ROOM IS ALWAYS NEGATIVE TO THE CORRIDOR.
6. SAT POINT SCHEDULE FOR ALL SYSTEM FUNCTIONS. START/STOP, STATUS, CONTROL, ALARMS, ETC.
7. WHEN THE SYSTEM SHUTDOWN THE SUPPLY FAN, EXHAUST FAN, INTAKE DAMPER, DISCHARGE DAMPER, HEAT RECOVERY PUMP, HEATING COIL PUMP, GLYCOL WATER CONTROL VALVE, SHALL TURN OFF.
8. THE SUPPLY AIR TEMPERATURE SHALL BE RESET INVERSELY WITH THE OUTSIDE AIR TEMPERATURE BY ENERGIZING OR DENERGIZING THE HEAT RECOVERY SYSTEM. THE WATER TO WATER HEAT PUMPS (WWHP) AND THE COOLING CONTROL VALVE, SUBJECT TO THE RETURN AIR THERMOSTAT, ACCORDING TO THE FOLLOWING SAMPLE SCHEDULE AND EXACT TEMPERATURE REQUIREMENTS AS INDICATED ON HB01 EQUIPMENT SCHEDULE.

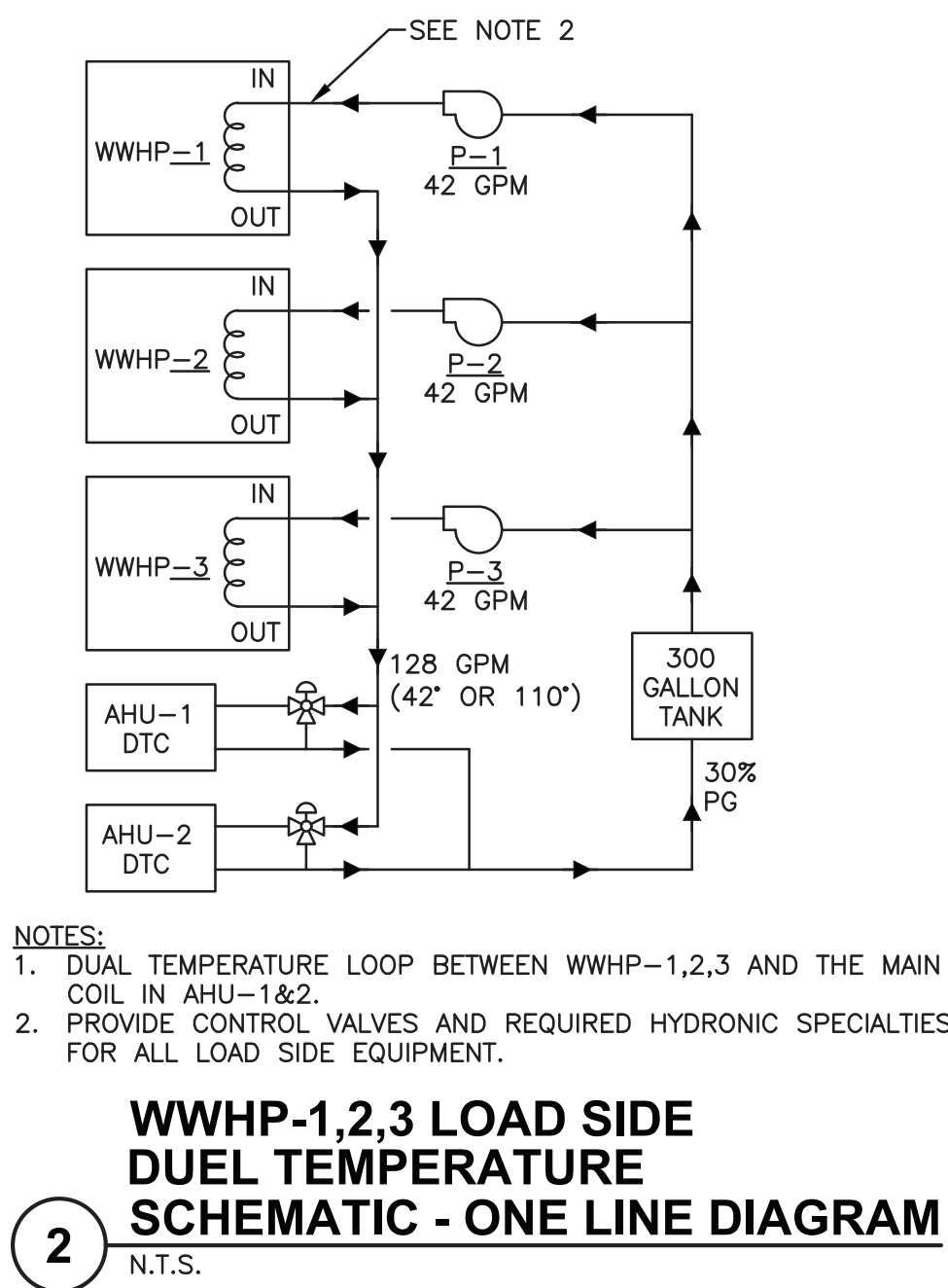
9. THE SUPPLY FAN AND EXHAUST FAN SHALL NOT START UNTIL THE SWITCHES AT THE INTAKE AND DISCHARGE DAMPERS HAVE INDICATED THAT THE DAMPERS ARE FULLY OPEN.
10. THE SMOKE DETECTOR LOCATED IN THE SUPPLY DUCTWORK SHALL SHUT-DOWN THE SYSTEM UPON SENSING SMOKE, AN ALARM SHALL BE REGISTERED AT THE BMS AND SHALL INDICATE FAN SYSTEM AND LOCATION.
11. THE SYSTEM FREEZE/STALL SHALL STOP THE SYSTEM AND CLOSE THE OUTSIDE AIR DAMPER IF THE TEMPERATURE SENSED DROPS BELOW ITS RATING OF 40°F.
12. THE SUPPLY FAN AND EXHAUST FAN SHALL START, VIA THEIR ASSOCIATED VFD. THE VFD SHALL BE MODULATED TO MAINTAIN REQUIRED SYSTEM STATIC. LOCATE STATIC PRESSURE SENSOR APPROXIMATELY 2/3 DISTANCE OF THE PRIMARY DUCT RUN.
13. NORMAL OPERATION – 24 HOUR CONTINUOUS.
 - A. HEATING – HEAT RECOVERY PUMP SHALL OPERATE BELOW 55° OAT. THE GLYCOL HEATING COIL PUMP SHALL OPERATE BELOW 45°F. HSV SHALL MODULATE TO MAINTAIN DATSP IF BOILER HOT WATER IS UNAVAILABLE AS DETERMINED BY THE BWI.
 - B. COOLING – ABOVE 75°F (ADJ.) OUTSIDE AIR TEMPERATURE THE HEAT RECOVERY PUMP SHALL BE OFF.

SHEET NUMBER										DATE: 11/18/2022										SHEET TITLE HVAC DETAILS										ORANGE COUNTY MEDICAL EXAMINER'S OFFICE										ORANGE COUNTY, NEW YORK										ARCHITECT/STRUCTURAL ENGINEER										HYMAN HAYES ASSOCIATES										800 Troy-Schenckway Road Suite 105 Larchmont, NY 10538 914-842-3470 www.hymanshayes.com										SEAL DANIEL STEINBERG, P.E.										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NO.:										FORNINGS CONSULTANT										MEP CONSULTANT										CIVIL CONSULTANT										IT SECURITY CONSULTANT										FEEL CONSULTANT										GOST CONSULTANT										chmp Engineering										FELLENZER III										CONCURRENT TECHNOLOGIES										CLASSIC CONSULTING INTERIORS, LLC										STUART LYNN COMPANY										NY PROFESSIONAL ENGINEER NO. 070975-1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	



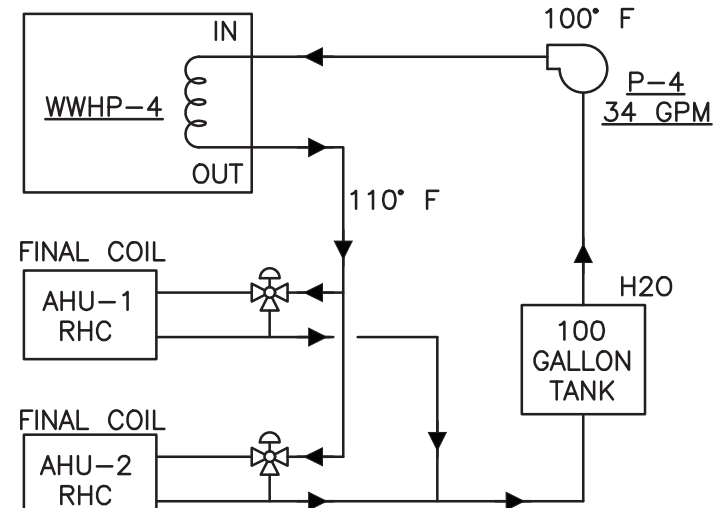
NOTE: INSTALL NEXUS AUTOFLOW HOSE KIT ON EVERY UNIT.

1 ALL SYSTEMS GEOTHERMAL LOOP SCHEMATIC - ONE LINE DIAGRAM
N.T.S.



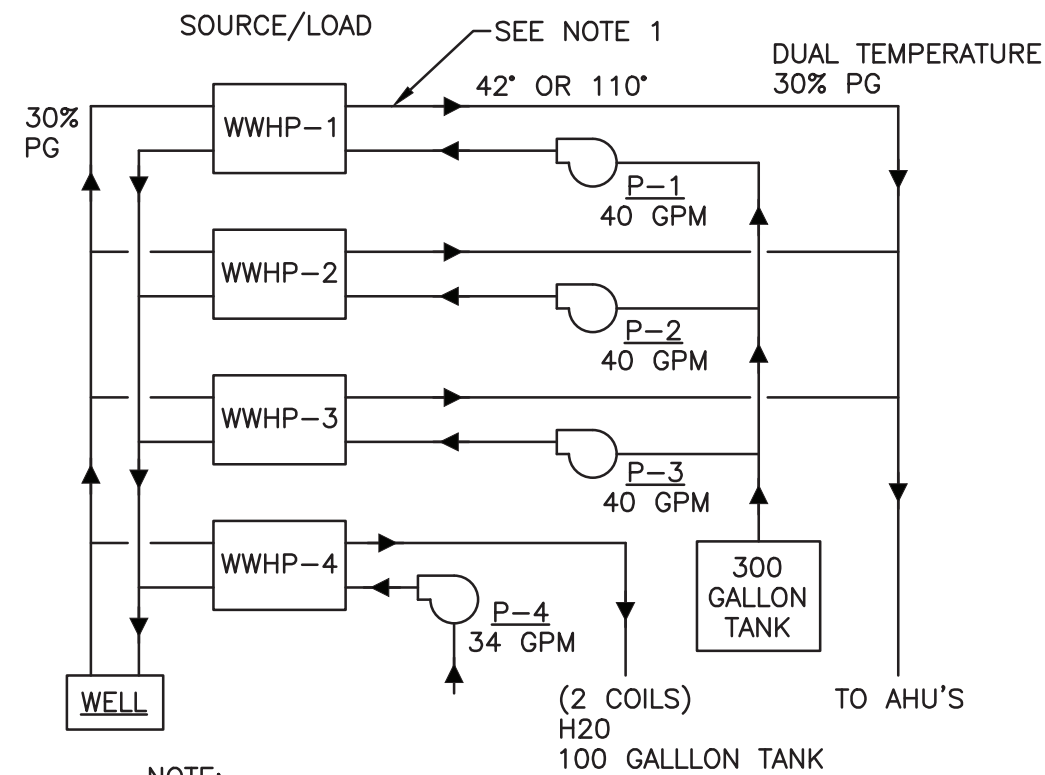
NOTES:
1. DUAL TEMPERATURE LOOP BETWEEN WWHP-1,2,3 AND THE MAIN COIL IN AHU-1&2.
2. PROVIDE CONTROL VALVES AND REQUIRED HYDRONIC SPECIALTIES FOR ALL LOAD SIDE EQUIPMENT.

2 WWHP-1,2,3 LOAD SIDE DUAL TEMPERATURE SCHEMATIC - ONE LINE DIAGRAM
N.T.S.



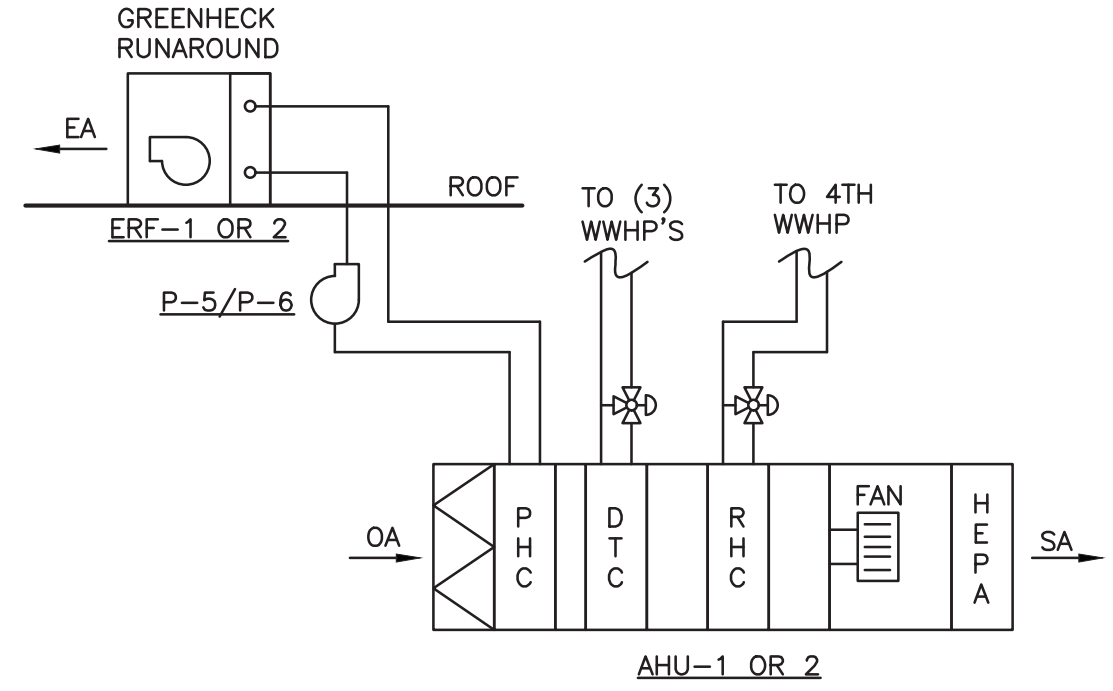
NOTES:
1. REHEAT COIL IN AHU-1 & AHU-2.
2. PROVIDE CONTROL VALVES AND REQUIRED HYDRONIC SPECIALTIES FOR ALL LOAD SIDE EQUIPMENT.

3 WWHP-4 LOAD SIDE SCHEMATIC - ONE LINE DIAGRAM
N.T.S.

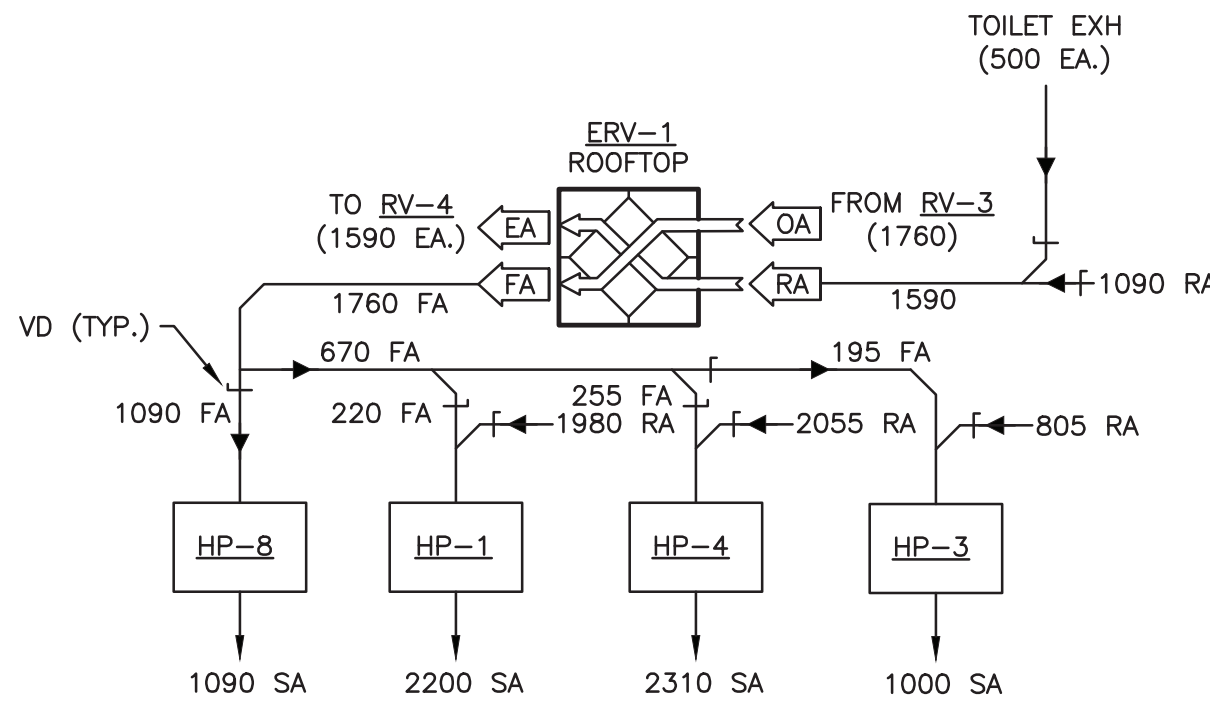


NOTE:
1. PROVIDE CONTROL VALVES AND REQUIRED HYDRONIC SPECIALTIES FOR ALL LOAD SIDE EQUIPMENT.

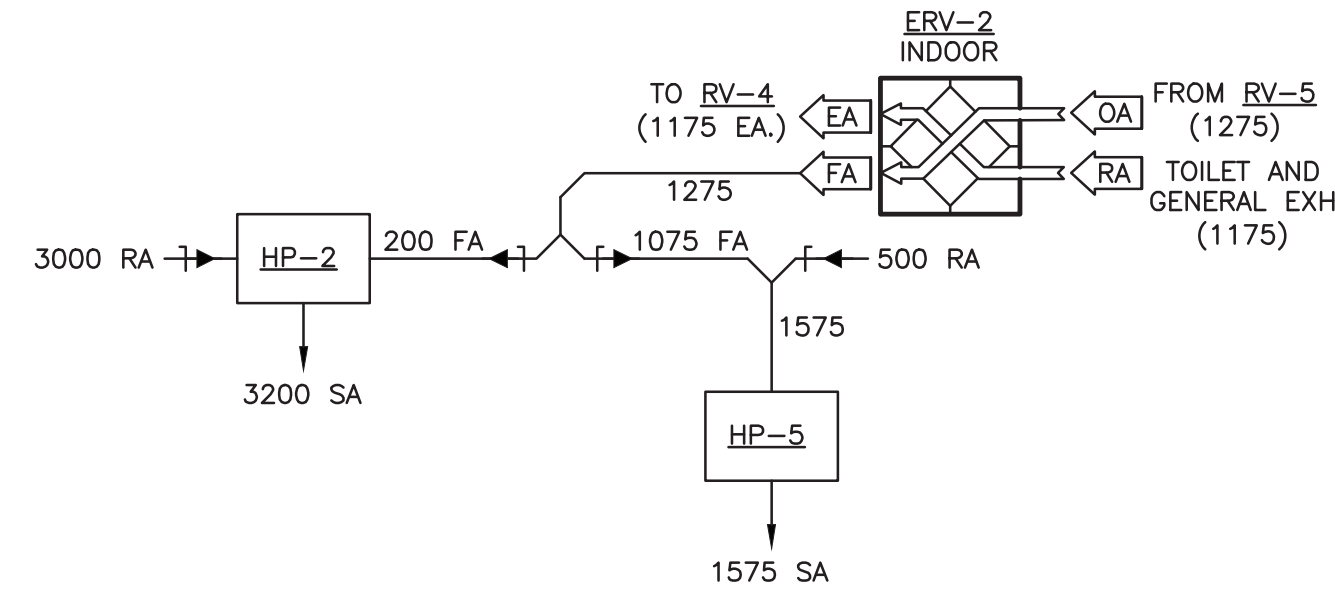
4 WATER TO WATER HEAT PUMP SCHEMATIC - ONE LINE DIAGRAM
N.T.S.



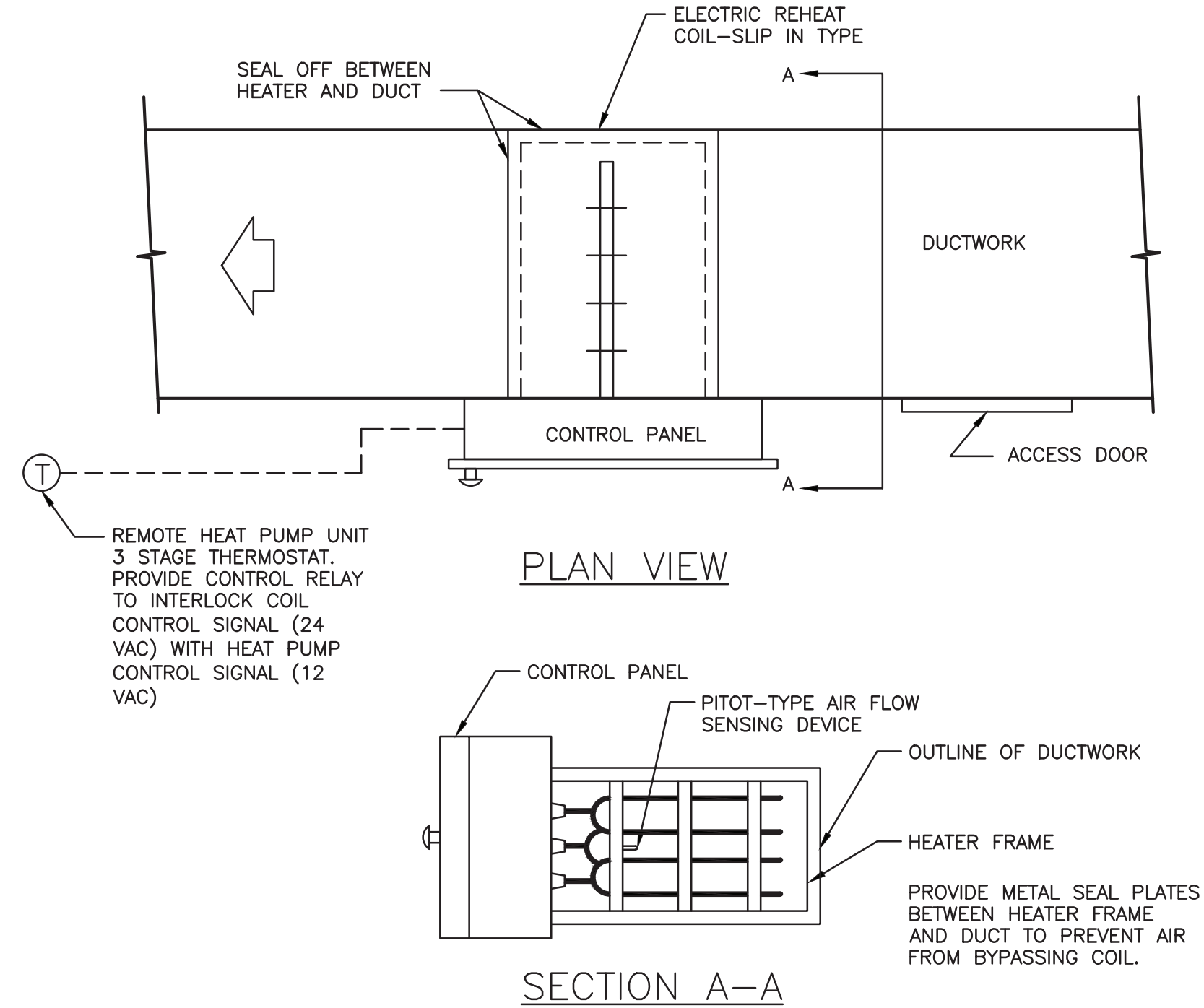
5 ENERGY RECOVERY EXHAUST SCHEMATIC - ONE LINE DIAGRAM
N.T.S.



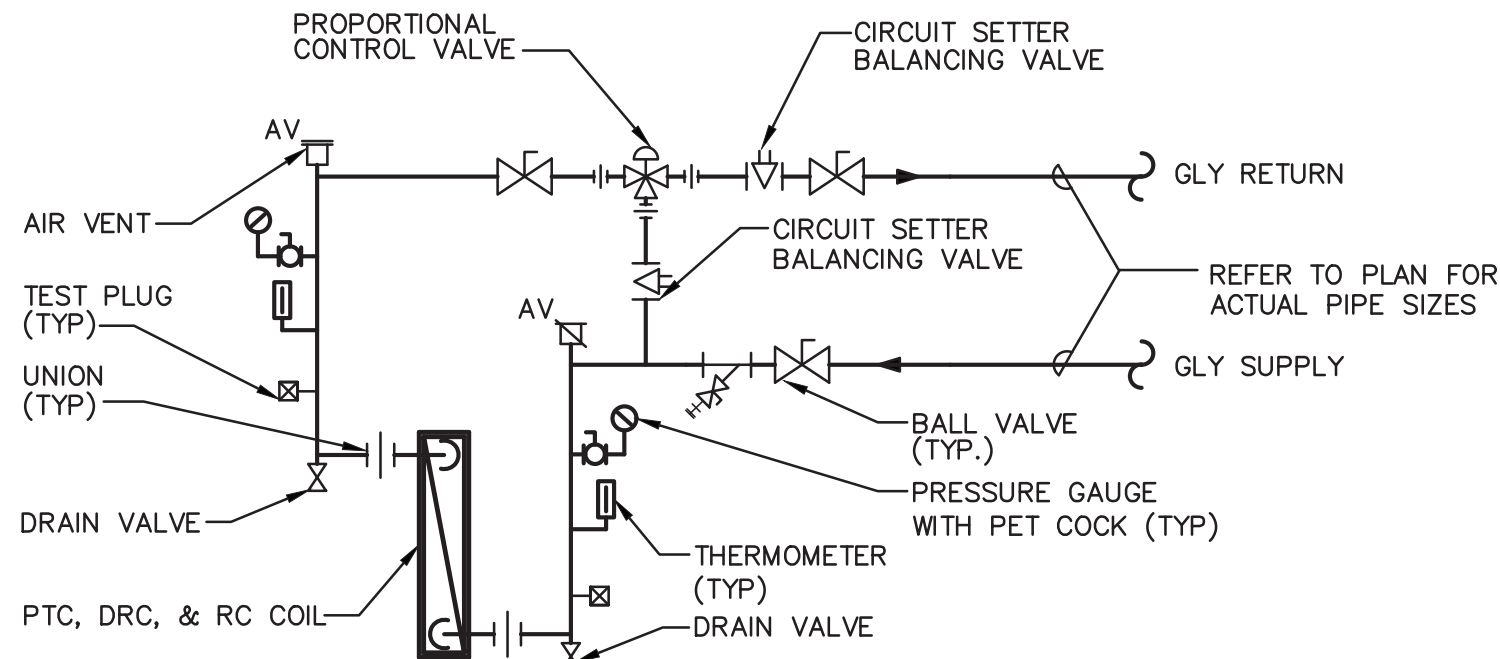
6 ERV-1 AIRFLOW ORIENTATION
N.T.S.



7 ERV-2 AIRFLOW ORIENTATION
N.T.S.

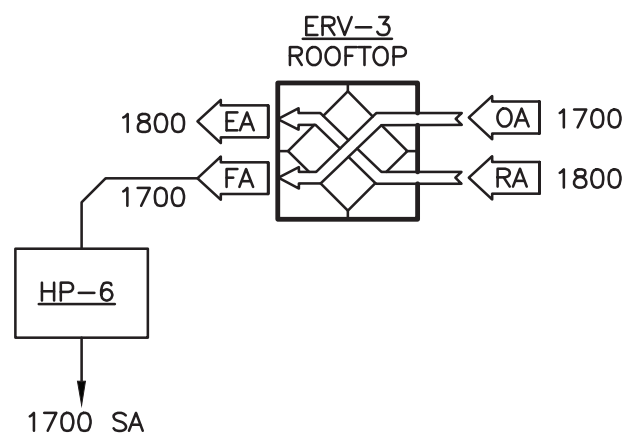


8 ELECTRIC DUCT REHEAT COIL
N.T.S.



NOTES:
1. CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT OR DISCHARGE AIR SETPOINT.
2. HYDRONIC WATER SYSTEM IS CONSTANT VOLUME.
3. CONTROL VALVES SHALL BE NORMALLY OPEN.
4. CIRCUIT SETER BALANCE VALVE ON BYPASS PIPE TO BE ADJUSTED TO MATCH COIL PRESSURE DROP, VALVE SHALL BE HALF SIZE TO BE VERIFIED BY MFR. FOR PRESSURE DROP.

9 WATER COIL PIPING SCHEMATIC FOR ALL LOAD SIDE COILS
N.T.S.



10 ERV-3 AIRFLOW ORIENTATION
N.T.S.

DATE: 11/18/2022		SHEET TITLE HVAC DETAILS		ORANGE COUNTY MEDICAL EXAMINER'S OFFICE		ORANGE COUNTY, NEW YORK		HYMAN HAYES ASSOCIATES		ARCHITECT/STRUCTURAL ENGINEER		SEAL DANIEL STEINBERG, P.E.		REVISION SCHEDULE					
SCALE: AS SHOWN		DRAWN BY: ZR		CHECKED BY: DSS		APPROVED: MDF		CLIENT APPROVAL		HHA PROJ. NO.: 20271		CLIENT PROJ. NO.:		#		DESCRIPTION		DATE	
SHEET NUMBER		H705		ORANGE COUNTY MEDICAL EXAMINER'S OFFICE		ORANGE COUNTY, NEW YORK		HYMAN HAYES ASSOCIATES		ARCHITECT/STRUCTURAL ENGINEER		SEAL DANIEL STEINBERG, P.E.		REVISION SCHEDULE					

WATER TO WATER AIR HANDLING SCHEDULE																																																					
Unit					Initial Filter					Hot Water Coil (1) (Preliminary Runaround Loop Data) - 30% PG										Dual Temperature Coil - Cooling Performance (30%PG)												Dual Temperature Coil - Heating Performance (30%PG)										Hot Water Reheat Coil - for Dehumidification											
Tag	Model	Length (in)	Weight (lb)	External Dimensions* Supply		Type	Filter Qty - Sizes	Depth	Mean PD (inH2O)	Total Capacity (Btu/hr)	EAT-DB °F	LAT-DB °F	F.V. (ft/min)	A.P.D. (inH2O)	EWT °F	LWT °F	Flow Rate (GPM)	W.P.D. (ftH2O)	Rows	FPI	Sensible Capacity (Btu/hr)	Total Capacity (Btu/hr)	EAT-DB °F	EAT-WB °F	LAT-DB °F	LAT-WB °F	A.P.D. (inH2O)	EWT °F	LWT °F	Flow Rate (GPM)	W.P.D. (ftH2O)	Rows	FPI	Total Capacity (Btu/hr)	EAT-DB °F	LAT-DB °F	A.P.D. (inH2O)	EWT °F	LWT °F	Flow Rate (GPM)	W.P.D. (ftH2O)	Rows	FPI	Total Capacity (Btu/hr)	EAT-DB °F	LAT-DB °F	A.P.D. (inH2O)	EWT °F	LWT °F	Flow Rate (GPM)	W.P.D. (ftH2O)	Rows	FPI
				Height (in)	Width (in)																																																
AHU-1 SPEC Autospay 2300	CAH009GDGM	174	2549.34	58	38	Pleated (MERV 8)	2 - 24.00 x 24.00	2	0.56	-9		315	0.43				12.5	2.4	6	10	115671	191374	92	73	46	45.8	0.75	42	50.3	48	11.9	10	12	266831	2	108	0.51	110	94.4	35.9	5.7	10	12	56854	48	70.6	0.05	110	101.9	14	0.4	2	7
AHU-2 HP-5 Autospay 3700	CAH010GDGM	178	2745.27	58	40	Pleated (MERV 8)	2 - 24.00 x 12.00 2 - 24.00 x 24.00	2	0.57	-9		470	0.85				19.5	5.4	6	10	179257	293219	92	73	47.7	47.5	1.41	42	49.6	80	15.5	10	12	388092	2	106	0.86	110	94.6	53.1	5.9	10	12	90600	48	70.4	0.11	110	100.9	20	0.8	2	9

Supply Fan																			Combination Filter							
Fan						Motor				Panel Filter					Bag Filter											
Type	Airflow (CFM)	RPM	BHP	E.S.P. (inH2O)	T.S.P. (inH2O)	Voltage	Power (HP)	RPM	Control	Type	Filter Qty - Sizes	Depth	Mean PD (inH2O)	Type	Filter Qty - Sizes	Depth	Efficiency	Mean PD (inH2O)								
DDPL15-12BL	2300	3286	3.6	1.5	5.64	200/60/3	5	3500	VFD	Pre Pleat (MERV 13)	2 - 24.00 x 24.00	2	0.58	HEPA	2 - 24.00 x 24.00	12	MERV 17	1.77								
DDPL16-9BL	3700	3210	6.62	1.5	7.13	200/60/3	10	3500	VFD	Pre Pleat (MERV 13)	2 - 24.00 x 24.00	2	0.66	HEPA	2 - 24.00 x 24.00	12	MERV 17	2.04								

NOTE:
1. ALL FANS TO HAVE VFD'S AND PIEZO RING AIRFLOW INDICATOR.

ENERGY RECOVERY VENTILATOR SCHEDULE																														
				Fan Data		Wheel Data														Unit Information										
Basis of Design	Model	Location	Tag #	Supply Airflow				Summer/Cooling														Electrical (includes preheater load)							Electric Preheat (t)	Minimum RER
				Outdoor				Supply						Return						Exhaust										
				Supply CFM	ESP	Motor HP	VFD	Dry Bulb	Wet Bulb	Grains	Dry Bulb	Wet Bulb	Grains	Min Latent Eff %	Max PD (in/wg)	Dry Bulb	RH	Wet Bulb	Grains	Max PD (in/wg)	Dry Bulb	Grains	Voltage/Phase	FLA	MCA	MOCOP				
SEMCO	FV-2000	Outdoor Unit	ERV-1	1,760	1.00	2.00	Yes	92.0	73.0	91.9	78.2	64.4	68.7	0.76	0.54	72.0	50%	60.0	58.3	0.47	87.3	84.0	208V/3Ph	23.5	25.5	35.0	0.0 KW	Cooling		
				Winter/Heating														Filters												
				Return Airflow				Outdoor				Supply						Return						Exhaust		Outdoor				Return
				Return CFM	ESP	Motor HP	VFD	Dry Bulb	Wet Bulb	Grains	Dry Bulb	Wet Bulb	Grains	Min Latent Eff %	Max PD (in/wg)	Dry Bulb	RH	Wet Bulb	Grains	Max PD (in/wg)	Dry Bulb	Grains	Type	Depth	Rating	Type	Depth	Rating	200.0	
				1,590	1.00	2.00	Yes	2.0	1.2	4.6	49.0	39.2	20.0	5	0.76	0.48	70.0	25%	51.4	27.0	0.44	18.0	9.9	Reated	2"	MERV 13	Reated	2"	MERV 8	
				Fan Data		Wheel Data														Unit Information										
Basis of Design	Model	Location	Tag #	Supply Airflow				Summer/Cooling														Electrical (includes preheater load)							Electric Preheat (t)	Minimum RER
				Outdoor				Supply						Return						Exhaust										
				Supply CFM	ESP	Motor HP	VFD	Dry Bulb	Wet Bulb	Grains	Dry Bulb	Wet Bulb	Grains	Min Latent Eff %	Max PD (in/wg)	Dry Bulb	RH	Wet Bulb	Grains	Max PD (in/wg)	Dry Bulb	Grains	Voltage/Phase	FLA	MCA	MOCOP				
SEMCO	FV-2000	Outdoor Unit	ERV-3	1,710	1.50	2.00	Yes	92.0	73.0	91.9	77.9	64.2	68.3	0.70	0.52	72.0	50%	60.0	58.3	0.51	86.1	82.0	208V/3Ph	20.0	22.0	30.0	0.0 KW	Cooling		
				Winter/Heating														Filters												
				Return Airflow				Outdoor				Supply						Return						Exhaust		Outdoor				Return
				Return CFM	ESP	Motor HP	VFD	Dry Bulb	Wet Bulb	Grains	Dry Bulb	Wet Bulb	Grains	Min Latent Eff %	Max PD (in/wg)	Dry Bulb	RH	Wet Bulb	Grains	Max PD (in/wg)	Dry Bulb	Grains	Type	Depth	Rating	Type	Depth	Rating	191.5	
				1,710	0.57	1.50	Yes	2.0	1.2	4.6	49.8	39.8	20.3	5	0.70	0.46	70.0	25%	51.4	27.0	0.48	22.2	11.3	Reated	2"	MERV 13	Reated	2"	MERV 8	

PUMP SCHEDULE														"TACO" AS STANDARD OR APPROVED EQUAL		
UNIT NO.	LOCATION	SYSTEM	CIRCULATING FLUID					MOTOR HP (WATTS)	MOTOR RPM	MOTOR SPEED	IMPELLER DIAMETER (IN.)	MIN. EFF. (%)	ELECTRICAL DATA VOLT/PH	WEIGHT (LB)	MODEL NO.	REMARKS
			FLUID	SPEC. GRAVITY	TEMP. (F)	GPM	HEAD (FT.)									
P-1	MER 121	LOAD IN CH-1	30% PG	1.026	42-110	42.6	60	2.0	1760	VFD	7.75	49	208/3	-	1919	SEE NOTES
P-2	MER 121	LOAD IN CH-2	30% PG	1.026	42-110	42.6	60	2.0	1760	VFD	7.75	49	208/3	-	1919	SEE NOTES
P-3	MER 121	LOAD IN CH-3	30% PG	1.026	42-110	42.6	60	2.0	1760	VFD	7.75	49	208/3	-	1919	SEE NOTES
P-4	MER 121	LOAD IN CH-4	PLAIN WATER	1.0	32-110	34	40	1.0	1760	VFD	6.55	47	208/3	-	1919	SEE NOTES
P-5	MER 121	AHU-1 PHC/ERF-1	30% PG	1.026	25	12.5	35	0.75	1760	VFD	5.8	40	208/3	-	1915	SEE NOTES
P-6	MER 121	AHU-2 PHC/ERF-2	30% PG	1.026	46	19.5	40	0.75	1750	VFD	6.2	41	208/3	-	1915	SEE NOTES
P-A	MER 121	GEO SYSTEM SOURCE	30% PG	1.026	25	300	180	25	1760	VFD	7.15	77	208/3	-	F13013D	SEE NOTES
P-B	MER 121	GEO SYSTEM SOURCE	30% PG	1.026	25	300	180	25	1760	VFD	7.15	77	208/3	-	F13013D	SEE NOTES

NOTES:

1. IMPELLER DIAMETER INDICATED IS APPROXIMATE. FINAL IMPELLER DIAMETER TO BE DETERMINED BY PUMP MFR. CONTRACTOR SHALL TRIM IMPELLER AFTER INITIAL FLOW BALANCING TO ACHIEVE OPTIMAL PUMP PERFORMANCE.
2. M.C. TO FURNISH. E.C. TO INSTALL AND WIRE VFD'S.

ENERGY RECOVERY VENTILATOR SCHEDULE																																																																																	
				Fan Data												Energy Recovery Data												Unit Information																																																					
																Summer/Cooling									Winter/Heating																																																								
				Supply Air Airflow						Exhaust Air Airflow						Outdoor Air			Fresh Air			Return Air			Outdoor Air			Fresh Air			Return Air			Performance Effectiveness			Electrical			Filters																																									
																Dry Bulb			Wet Bulb			Grains/lb			Dry Bulb			Wet Bulb			Grains/lb			Dry Bulb			Wet Bulb			Grains/lb			Dry Bulb			Wet Bulb			Grains/lb			Sensible (%)			Summer Total (%)			Winter Total (%)			Voltage/Phase/Hz			MCA			MOPD			Type		Depth		Rating		Type		Depth		Rating	
Basis of Design	Model	Location	Tag#	Elevation (ft)	Fresh Air CFM	ESP	Motor HP	VFD	FLA	Exhaust Air CFM	ESP	Motor HP	VFD	FLA	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Dry Bulb	Wet Bulb	Grains/lb	Sensible (%)	Summer Total (%)	Winter Total (%)	Voltage/Phase/Hz	MCA	MOPD	Type	Depth	Rating	Type	Depth	Rating																																		
RenewAir®	HE2X	Indoor Unit	ERV-2	364	1275		1	1.5	YES	4.6-4.8	1175		1	1.5	YES	4.6-4.8	92	73	93.1	78	66.7	81.4	72	60	59.1	2	1.2	39.2	19.4	70	51.4	27.4	75.9	55.9	74.7	208-230V / 3 Phase / 60 Hz	11.9	15	Pleated	2"	MERV-13	Pleated	2"	MERV-8																																					

Water Source Heat Pump Unit Schedule																																	
TAG	Diakin Model	Airflow (CFM)	Outdoor Airflow (CFM)	OA From ERV	External Static Pressure (inH ₂ O)	Fluid Flow (gpm)	Fluid Type	Antifreeze (%)	Cooling										Heating							Electrical							
									EWT (°F)	LWT (°F)	EAT		LAT		Total (Btu/hr)	Sensible (Btu/hr)	Heat of Rejection (Btu/hr)	EER (Design)	EER (AHR)	EWT (°F)	LWT (°F)	EAT (°F)	LAT (°F)	Total (Btu/hr)	Heat of Absorption (Btu/hr)	COP (Design)	COP (AHR)	Voltage	Compressor	Fan Motor	Total Unit	MCA (A)	Max Fuse
											EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)															RLA	FLA	FLA		
WSHP 001	WLVW1072	2200	220	ERV-1	1.28	15.00	Propylene Glycol	30.00	77.0	88.6	72.6	60.8	52.0	49.6	66235	49067	83580	12.6	14.6	32.0	26.6	67.0	90.1	55424	38595	3.2	3.4	208/60/3	13.2	5.0	31.4	34.7	45
WSHP 002	WLVW1096	3210	200	ERV-2	1.22	20.00	Propylene Glycol	30.00	77.0	87.5	72.4	60.6	55.2	51.8	77294	59560	100149	11.2	14.6	32.0	26.9	68.0	88.0	69869	48781	3.2	3.6	208/60/3	13.7	6.4	33.8	37.2	50
WSHP 003	WGTV0321	1000	195	ERV-1	0.7	6.50	Propylene Glycol	30.00	77.0	88.9	73.3	61.6	53.1	50.6	30030	21970	36597	15.6	18.9	32.0	26.5	65.0	86.3	23112	17029	3.8	4.1	208-230/60/3	8.7	5.0	13.7	15.9	20
WSHP 004	WLVW1072	2310	255	ERV-1	1.24	18.00	Propylene Glycol	30.00	77.0	86.8	72.6	60.8	52.4	50.1	66857	50516	84381	12.63	14.6	32.0	27.2	67.0	90.1	58256	41118	3.27	3.4		208/60/3	13.2	5.0	31.4	34.7
WSHP 005	WGTV0381	1575	150	ERV-2	14	14.00	Propylene Glycol	30.00	77.0	88.7	76.1	64.7	53.1	50.2	61167	37505	72425	18.6	19.7	32.0	26.6	55.0	84.2	47496	35687	4	3.9	208-230/60/3	16.5	9.4	25.9	30.0	45
WSHP 006	WGTV0721	1710	1710	ERV-3	0.7	18.00	Propylene Glycol	30.00	77.0	86.6	77.9	64.2	51.3	49.8	68353	49421	82299	16.7	18.1	32.0	27.0	50.0	79.7	55222	42701	4.4	3.7	208-230/60/3	17.6	9.4	27.0	31.4	45
WSHP 007	WGTH0491	1600	150	N/A	0.7	12.00	Propylene Glycol	30.00	77.0	86.7	72.6	60.9	52.5	50.5	45353	34808	55063	15.9	19.2	32.0	27.4	62.0	82.4	35506	26418	3.9	4	208-230/60/3	14.0	7.3	21.3	24.8	35
WSHP 008	WGTV0381	1090	1090	ERV-1	0.7	9.00	Propylene Glycol	30.00	77.0	89.0	78.0	66.6	54.8	52.6	43049	26473	51415	17.5	19.8	32.0	26.4	50.0	77.0	30779	23784	4.4	4	208-230/60/3	14.2	7.3	21.5	25.0	35

NOTE:
1. PROVIDE NEXUS COIL PACK FOR EACH WATER SOURCE HEAT PUMP BASED ON THEIR RESPECTIVE FLOW RATE OF EACH UNIT.

WATER TO WATER HEAT PUMP CHILLERS/BOILERS																																					
General Unit Data					Cooling			Heating			Cooling Source				Heating Source				Heating Load																		
Tag	Quantity	Bosch Model Number	Unit Size	Description	Total Capacity Btu/H	Input W	EER	Heat of Rejection Btu/H	Total Capacity Btu/H	Input W	COP	Heat of Absorption Btu/H	Fluid Flow GPM	EWI F	PCT Glycol %	LWT F	WPD ft H2O	Fluid Flow GPM	EWI F	PCT Glycol %	LWT F	WPD ft H2O	Fluid Flow GPM	EWI F	PCT Glycol %	LWT F	WPD ft H2O	Fluid Flow GPM	EWI F	PCT Glycol %	LWT F	WPD ft H2O	Unit MCA	Unit MFS	Unit Voltage		
WWHP-1-2-3	3	WW210-3USC-RXXXCA-XDGDH-M	210	WW - Water/2Water High Efficiency	159613	11205	14.2	196846	151873	14383	14.2	102798	40	77	30	87.4	15.8	40	50	30	41.7	19.8	40	32	30	26.8	8	22	40	101	0	108.1	8.5	69.7	125	3 - 208-230/60/3	
WWHP-4	1	WW190-3USC-RXXXCA-XDGDH-M	180	WW - Water/2Water High Efficiency	126892	8295	15.3	155195	120639	10703	15.3	84121	This WWHP is dedicated to the reheat coils in the 2 Autopsy AHUs. Those coils are for dehumidification during shoulder seasons and the geothermal (source) loop is expected to be warmer than the design condition shown here.											34	32	30	26.8	8	16.4	34	101	0	108.1	8.5	60.1	100	3 - 208-230/60/3

NOTE:
1. PROVIDE NEXUS COIL PACK FOR EACH WATER TO WATER HEAT PUMP CHILLERS BASED ON THEIR RESPECTIVE FLOW OF EACH UNIT.

DATE: 11/18/2022 SCALE: AS SHOWN DRAWN BY: ZR CHECKED BY: DSS APPROVED: MGF ORANGE COUNTY MEDICAL EXAMINER'S OFFICE 22 WELLS FARM RD. GUSHEN, NY 10824 20271		ORANGE COUNTY, NEW YORK		HYMAN HAYES ASSOCIATES		ARCHITECT/STRUCTURAL ENGINEER		SEAL DANIEL STEINBERG, P.E. 580 The Schenckel Road Suite 103 Larchmont, NY 10593 www.hymanhayes.com								<table border="1"> <thead> <tr> <th>#</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>										#	DESCRIPTION	DATE							
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COMMERCIAL PIPE INSULATION SCHEDULE			
	FIBERGLASS PRE FORMED -K=0.26		
	INSTALLED THICKNESS (IN.)		
	FACING	< 1½"	> 1½"
CHS, CHR (40-60°F)	GLASS MAT	1"	1½"
HWS, HWR (100-211°F)	GLASS MAT	1"	2"
RUNOUTS (UP TO 48")	GLASS MAT	½"	½"
COOLING CONDENSATE	--	½"	½"

COMMERCIAL DUCT INSULATION SCHEDULE			
	FACING	R VALUE INSIDE BUILDING ENVELOPE (AFTER INSTALLATION)	R VALUE OUTSIDE BUILDING ENVELOPE (AFTER INSTALLATION)
SUPPLY AIR	FSK*	R-5	R-8
RETURN AIR	FSK*	R-5	R-8
OUTDOOR INTAKE	FSK*	R-5	R-8
EXHAUST	--	--	--

* -- FOIL-SCRIM KRAFT

AIR SEPARATOR SCHEDULE									BASED ON MANUFACTURER: TACO OR APPROVED EQUAL			
UNIT NO.	SERVICE	LOCATION	MANUF. & MODEL #	WORKING PRESSURE PSIG ASME	TANK SIZE			TANK CONNECTION SIZES (IN.)			REMARKS	
					DIAMETER (LENGTH)	HEIGHT	CAPACITY (GALLONS)	WEIGHT (lbs.)	INLET	OUTLET		BOTTOM DRAIN
AS-1	GLYCOL FILLER SYSTEM	MER 121	TACO AC05F-125	125	16	32½	—	165	5	5	1¼	SEE NOTES
AS-2	CLEAN WATER FILLER SYSTEM	MER 121	TACO AC02F-125	125	12	22½	—	45	2	2	1¼	SEE NOTES
AS-3	ENERGY RECOVERY	MER 121	TACO 433	125	(8)	6	—	7	1½	1½	½	SEE NOTES
AS-4	ENERGY RECOVERY	MER 121	TACO 434	125	(8)	6	—	7	2	2	½	SEE NOTES

NOTES:

- THE UNIT SHALL HAVE AN INTERNAL STAINLESS STEEL AIR COLLECTOR TUBE WITH ½" DIAMETER PERFORATIONS AND 63% OPEN AREA DESIGNED TO DIRECT ACCUMULATED AIR TO THE COMPRESSION TANK VIA A NPT VENT CONNECTION AT TOP OF UNIT.
- THE AIR SEPARATOR MUST BE DESIGNED, CONSTRUCTED AND STAMPED FOR 125 PSIG @ 350°F IN ACCORDANCE WITH SECTION VIII, DIVISION 1 OF THE ASME BOILER AND PRESSURE VESSEL CODE AND REGISTERED WITH THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS.
- THE AIR SEPARATOR(S) SHALL BE PAINTED WITH ONE SHOP COAT OF LIGHT GRAY AIR DRY ENAMEL.

DUCTLESS SPLIT-SYSTEM UNITS (BASED ON MITSUBISHI CORP.)												
MARK	LOCATION	TYPE	MANUFACTURER	MODEL #	NET COOLING CAPACITY BTU/HR	NET HEATING CAPACITY BTU/HR	MOUNTING	EER	FAN CFM	ELECTRICAL CHARACTERISTICS		REMARKS
										VOLTAGE	COP/POWER CONSUMPTION (WATTS)	
AC-1	AS SHOWN	INDOOR	DAIKIN	FFQ09Q2VJU	---	---	WALL	13.0		208/230V	4.58/1,050 MAX	SEE NOTES
ACCU-1	AS SHOWN	OUTDOOR	DAIKIN	RX09QMVJU	9,000	9,000	LOW ROOF	13.0		208/230V	4.58/1,050 MAX	SEE NOTES

NOTES:

- PROVIDE WITH INTERNAL CONDENSATE PUMP, PIPE DISCHARGE TO JANITOR SLOP SINK.
- PROVIDE WITH LOW AMBIENT OPERATION KIT (-20°F).
- OUTDOOR UNIT ON ROOF SHALL BE MOUNTED ON RAILS.
- PROVIDE WITH ACCESSORY COVER TO CONCEAL PIPING.
- PROVIDE CRANKCASE HEATER.
- PROVIDE WINTER START KIT.
- PROVIDE ISOLATION KIT.
- PROVIDE TEMPERATURE CONTROL, WIRELESS OPTION.
- INSTALLATION OF SPLIT SYSTEM MUST BE PER MANUFACTURERS INSTRUCTIONS.

ELECTRIC UNIT HEATER SCHEDULE							
"QMARK MARLEY" AS STANDARD							
UNIT NO.	UNIT TYPE	CFM	KW	ELECTRICAL DATA		MODEL	REMARKS
				VOLTS	PHASE		
EUH-1	HORIZONTAL DISCHARGE UNIT HEATER	350	5	208	1ø	MUH0531	SEE NOTE 1

NOTES:

- CONTROLS SHALL BE STANDARD THERMOSTAT SET AT 60°F THROUGH THE BMS.
- PROVIDE BACKING PLATE. COORDINATE IN FIELD.

ENERGY RECOVERY EXHAUST FAN SCHEDULE																							BASED ON GREENHECK	
MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION						HOT WATER COIL - RUNAROUND LOOP DATA - 30% PG						PLEATED PANEL FILTERS			REMARKS	
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*	SUMMER			WINTER			TYPE	SIZES (IN)	DEPTH (IN)		
														EWI °F	LWT °F	CAPACITY (MBH)	FLOW RATE GPM	EWI °F	LWT °F				CAPACITY (MBH)	
1	ERF-1	VEKTOR-MH-15-9-70	2,500	2.202	2,444	2.92	1507	5	208/60/3	TF	1725	1	16.7	82	78	21.4	12.5	25	42	97.3	MERV 8	2 - 20x15	2	SEE NOTES
1	ERF-2	VEKTOR-MH-18-9-85	3,900	2.207	1,855	3.71	2295	5	208/60/3	TF	1725	1	16.7	80	77	26.6	19.5	31	46	136.2	MERV 8	2 - 20x14	2	SEE NOTES

- *NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory"
- PROVIDE WITH VFD DRIVE.

ELECTRIC DUCT HEATER SCHEDULE												
UNIT NO.	AREA SERVED	LOCATION	TYPE	CFM	E.A.T. (F)	L.A.T. (F)	kW	COIL WxH	NUMBER OF STAGES	V/PH	MANUFACTURER & MODEL NUMBER	REMARKS
ERC-1	CT/XRAY	CT/XRAY	OPEN COIL	1700	80	90	5.0	20x12	SCR	208/1	INDEECO QUA	
ERC-2	AUTOPSY ASSIST	AUTOPSY ASSIT	OPEN COIL	540	77	92	2.5	12x10	SCR	208/1	INDEECO QUA	

NOTES:

- PROVIDE FACTORY MOUNTED CONTROL TRANSFORMER, THERMAL CUTOUTS, MANUAL RESETS, AIRFLOW SWITCH, DISCONNECT SWITCH, PILOTS LIGHTS AND ALL OTHER APPURTENANCES REQUIRED FOR A COMPLETE WORKING SYSTEM.
- ALL ELECTRICAL REHEAT COILS SHALL HAVE SCR CONTROL WITH DUCT SENSOR.

EXPANSION TANK SCHEDULE									EQUIPMENT BASED ON: TACO OR APPROVED EQUAL
UNIT NO.	SERVICE	LOCATION	MANUFACTURER'S MODEL NO.	OPERATING WEIGHT (LBS)	DIMENSIONS, INCHES (DIAM X H)	TANK VOLUME, GALLONS	TANK ACCEPTANCE VOLUME, GALLONS	FILL PRESSURE, PSIG	REMARKS
ET-1	SOURCE SYSTEM	MER 121	CA 215	765	20x64	57	57	30	
ET-2	DTS SYSTEM	MER 121	CA 90	312	20x29	23	23	20	
ET-3	RHC HW SYS	MER 121	CA 90	312	20x29	23	23	12	PLAIN WATER

NOTES:

- TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION VIII OF THE ASME BOILER AND VESSEL CODE AMD STAMPED FOR 125 PSIG WORKING PRESSURE.
- RELIEF VALVE SHALL BE SET AT 80 PSIG.

AIR OUTLET SCHEDULE										
DESIGNATION AND SYMBOL	CFM RANGE	NECK SIZE ROUND	FACE SIZE	APPLICATION	MANUF. & MODEL NO.	ACCESSORIES	FRAME TYPE	MAX S.P.	FINISH	REMARKS
☒ CD-1	50-98 100-200 201-385 390-600 601-750	6" 8" 10" 12" 14"	24x24 24x24 24x24 24x24 24x24	SUPPLY AIR CEILING DIFFUSER	TITUS OMNI-NA	OPPOSED BLADE DAMPER	BORDER TYPE-3	0.040	#25 OFF-WHITE	
LCD-1	AS INDICATED	AS INDICATED		SUPPLY AIR LINEAR DIFFUSER	TITUS ML-37					
CD-2	AS INDICATED	8"ø	24x24	LAMINAR FLOW DIFFUSER	TITLE & BAILEY TENSOR					
☒ ER-1 ↑ RR-1 ↑ BR-1	100-170 175-275 280-420 450-800 850-1800 ABOVE	14"x18"	8x8 10x10 12x12 24x12 24x12 24x24 SEE PLANS	RETURN/ EXHAUST AIR CEILING REGISTER	TITUS 4 FL	AG-35AA OPPOSED BLADE DAMPER	TYPE-3A	0.100	ALUM.	
⊕→ SR-1	AS INDICATED	AS INDICATED	---	SUPPLY AIR SIDEWALL OR CEILING REGISTER	TITUS 122RS	AG-15 OPPOSED BLADE DAMPER	TYPE-3A	0.100	ALUM.	
⊕↖ ER-2	AS INDICATED	AS INDICATED	---	RETURN/ EXHAUST AIR SIDEWALL TOP REGISTER	TITUS 4 FL	AG-35AA OPPOSED BLADE DAMPER	TYPE-3A	0.100	ALUM.	INSTALL 6" B.F.C. U.N.O.
☑ TG/CG	AS INDICATED	AS INDICATED	---	RETURN AIR CEILING GRILLE	TITUS 4 FL	NO DAMPERS	TYPE-3A	0.050	ALUM.	

EXHAUST FAN SCHEDULE										"GREENHECK" AS STANDARD OR APPROVED EQUAL	
UNIT NO.	SERVICE	LOCATION	CFM	E.S.P. (IN.)	DRIVE	FAN RPM	FAN BHP	MOTOR HP (W)	ELEC. DATA V/PH	MODEL NO.	REMARKS
EF-1	MEDICAL WASTE STOR.	ROOF	450	0.25	VG-DIRECT	850	0.03	1/4	120/1	CUE-100-VG	SEE NOTES
EF-2	SALLY PORT EXHAUST	ROOF	2250	0.25	BELT	553	0.23	1/3	120/1	CUBE-200	SEE NOTES
EF-3	CHEM STORAGE	ROOF	355	0.25	DIRECT	1,300	0.06	--	120/1	G-095-G	SEE NOTES

NOTES:

- PROVIDE NEMA-1 SERVICE DISCONNECT SWITCH FOR ALL FANS.
- ALL FANS SHALL HAVE THERMAL OVERLOAD PROTECTION.
- PROVIDE PREFAB ROOF CURBS.
- PROVIDE ALL "EF" FANS WITH WALL TOGGLE SWITCH WITH PILOT LIGHT.
- EF-2 SHALL OPERATE VIA CO2 SENSOR FURNISH AND INSTALLED BY ATC SUB-CONTRACTOR. INTERLOCK OPERATION WITH WSHF-7 OUTSIDE AIR DAMPER.
- ALL FANS TO HAVE VFD'S.

ERF-1 & ERF-2 : SELECTED OPTIONS AND ACCESSORIES											
Bypass Air Plenum - Double Wall, 316 SS, Side Exhaust Intake											
Coated with LabCoat, RAL7023, Entire Unit											
Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired											
UL/cUL-705 - "Power Ventilators"											
Shaft Material - Turned and Polished Steel with Protective Coating											
Fan Panel Material - Coated Steel											
Isolation Damper - HCD-130-LE, Galvaleneal, Coated, 30 in. x 28 in., Parallel Blades, mounted in BAP, one per fan											
Isolation Damper Act. - Electric, 24 VAC, 2 pos., SR, w/o Transformer, Model: EFB24, Qty: 1											
Sure-Aire Flow Station (No Electronics), Qty 1											
Factory Vibration Test, 0.10 in/sec, peak, filter-in as measured at the fan RPM											
Extended Lube Lines - Nylon											
Motor Cover - with Hinged Removable Access Panel											
Wind Speed Level 125 mph without guy wires											
ERS Plenum											

GRAVITY VENTILATOR SCHEDULE										
TAG	LOCATION	SERVICE	CFM	MAX P.D. (IN. WC)	THROAT SIZE (IN.)	ROOF CURB (IN.)	MATERIAL	MODEL	MANUFACTURER	REMARKS
RV-1	ROOF	OA (AHU-1)	2,300	0.12	14 X 34	16 X 30	ALUMINUM	FGI-14x34	GREENHECK	SEE NOTES
RV-2	ROOF	OA (AHU-2)	3,700	0.12	22 X 40	22 X 40	ALUMINUM	FGI-20x38	GREENHECK	SEE NOTES
RV-3	ROOF	OA (ERV-2)	1,275	0.12	16 X 20	32 X 20	ALUMINUM	FGI-14x18	GREENHECK	SEE NOTES
RV-4	ROOF	OA (WSHP-7)	1600 MAX 150 MIN	0.12	18 X 22	12 X 34	ALUMINUM	FGI-10x32	GREENHECK	SEE NOTES

NOTES:

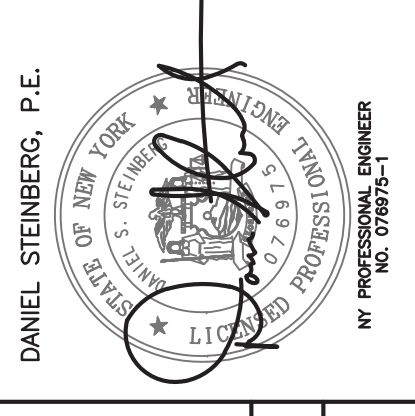
- PROVIDE WITH INTEGRAL INSECT SCREEN
- INSTALL ON 18" HIGH ROOF CURBS.
- PROVIDE WITH MOTORIZED DAMPERS, LINKED TO RESPECTIVE AHU'S AND WSHF'S CONTROLS.

REVISION SCHEDULE

#	DESCRIPTION	DATE
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SEAL

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COST CONSULTANT	STUART LYNN COMPANY
FF&E CONSULTANT	CLASSIC CONTRACT INTERIORS LLC
IT/SECURITY CONSULTANT	"XG" TECHNOLOGIES
CIVIL CONSULTANT	Finco Engineering & Land Surveying PC
ME/P CONSULTANT	FELENZER III
FORENSIC CONSULTANT	crime lab design

ORANGE COUNTY

ORANGE COUNTY MEDICAL EXAMINER'S OFFICE

22 WELLS FARM RD.
GOSHEN, NY 10924

SHEET TITLE

HVAC SCHEDULES

DATE: 11/18/2022

AS SHOWN

DRAWN BY: ZR

CHECKED BY: DSS

APPROVED: MRF

CLIENT APPROVAL

HHA PROJ. NO.: 20071

CLIENT PROJ. NO.:

DATE:

SCALE:

SHEET NUMBER

H802

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