

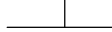
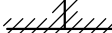
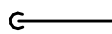
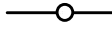
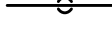
GENERAL NOTES

PLUMBING PIPING NOTES

- CLOSELY COORDINATE THE INSTALLATION OF ALL PIPING WITH NEW SHEET METAL, HVAC PIPING, ELECTRICAL, AND STRUCTURAL CONDITIONS. PROVIDE REQUIRED OFFSETS AND FITTINGS WHETHER INDICATED OR NOT. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. THE LOCATION OF SANITARY, STORM, AND VENT LINES TAKE PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING, AND ELECTRICAL CONDUIT AND CABLE TRAY.
- PIPE ROUTING INDICATED IS SCHEMATIC IN CONCEPT. FINAL ROUTING SHALL BE COORDINATED WITH SHEET METAL, ELECTRICAL, AND STRUCTURAL SYSTEMS.
- PROVIDE SHUTOFF VALVES ON ALL RUNOUT PIPING SERVING MULTIPLE FIXTURES.
- SLEEVE AND SEAL EXTERIOR WALL AND ROOF PENETRATIONS TO A WEATHER TIGHT CONDITION. SLEEVE AND SEAL INTERIOR FLOOR PENETRATIONS TO A WATERTIGHT CONDITION.
- PROVIDE FIRESTOP IN NEW HOLES AND PENETRATIONS IN RATED WALLS.
- CORE DRILL OPENINGS IN WALLS AND SLABS AS REQUIRED FOR NEW PIPING. COORDINATE LOCATION OF REINFORCING STEEL TO AVOID DAMAGE.
- MINIMIZE SYSTEM SERVICE INTERRUPTION AND COORDINATE WITH OWNER WHERE NEW CONNECTIONS TO EXISTING PIPE ARE INDICATED. TIE-IN METHODS TO INCLUDE HOT TAP AS REQUIRED.
- NEW PIPING ROUTED OVER ELECTRICAL GEAR MUST MEET CLEARANCE REQUIREMENTS OF THE NEC.
- VALVE INDICATIONS ARE GENERIC. REFER TO SPECIFICATION FOR ACCEPTABLE VALVE TYPES PER APPLICATION.

LEGEND

PIPE/FITTING SYMBOLS

	EXISTING PIPE
	EXISTING PIPE TO BE REMOVED
	NEW PIPE
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	UNION
	CAP
	PIPE BREAK

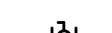
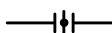
PIPING DESIGNATION

— CHWS —	PIPE CONTENTS. SEE ABBREVIATIONS LIST
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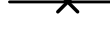
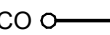
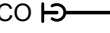
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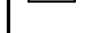
	DEMOLITION KEY NOTE SYMBOL
	KEY NOTE SYMBOL
	NEW TO EXISTING CONNECTION

VALVE SYMBOLS

	GENERIC VALVE (REFER TO SPEC FOR TYPE)
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	GAS COCK
	SWING CHECK VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	2-WAY VALVE
	3-WAY VALVE
	BACKFLOW PREVENTER
	RPZ VALVE
	CIRCUIT SETTER
	SOLENOID VALVE
	MIXING VALVE

MISC. PIPING SYMBOLS

	PUMP (LIQUID)
	PUMP (AIR)
	STRAINER
	EXPANSION JOINT
	FLEX CONNECTION
	STEAM TRAP
	PIPE ANCHOR
	PIPE GUIDE
	MANUAL AIR VENT (MV)
	AUTOMATIC AIR VENT (AV)
	VACUUM BREAKER (VB)
CO 	CLEANOUT LOCATED IN FLOOR
CO 	CLEANOUT LOCATED IN WALL. PIPE COMING UP FROM BELOW
CO 	HORIZONTAL CLEANOUT (LOCATED BELOW FLOOR AND ABOVE CEILING OF FLOOR BELOW)

F.I.	FLOW INDICATOR
	PRESSURE GAGE
P	PRESSURE TAP WITH NEEDLE VALVE
	THERMOMETER
T	THERMOWELL
	WATER HAMMER ARRESTER WITH P.D.I. DESIGNATION
	STATIC PRESSURE

CONTROLS

	TAMPER SWITCH
	FLOW SWITCH

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 90 % PROGRESS
05/18/2026	DD 90 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn By	JBFITZSIMMONS
Designer	JBFITZSIMMONS
Reviewer	GLOUIS
Manager	CKRETOVIC

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2500281

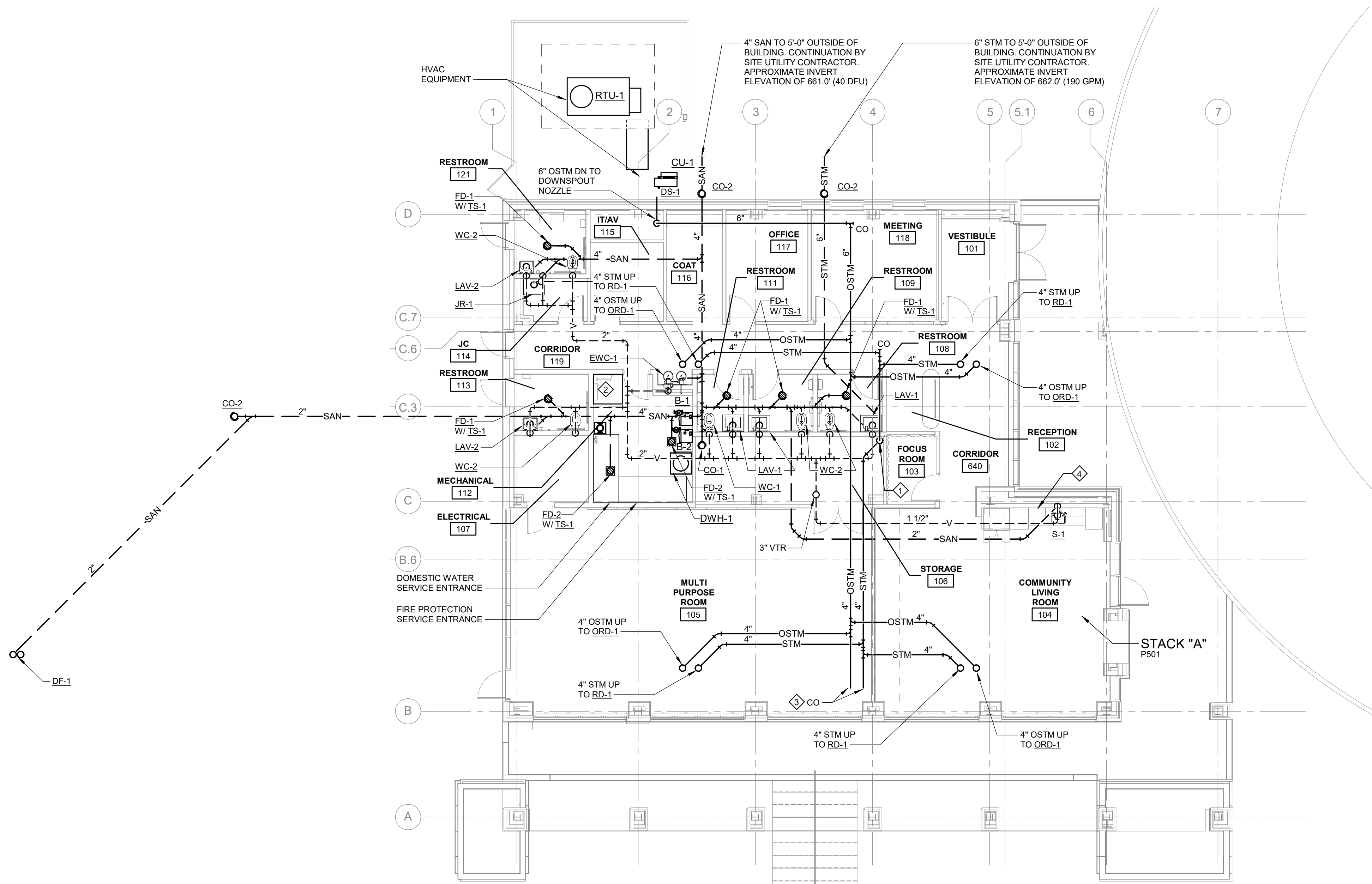
SHEET NO.

P001

Van Buren Charter Township

Van Buren Township, MI

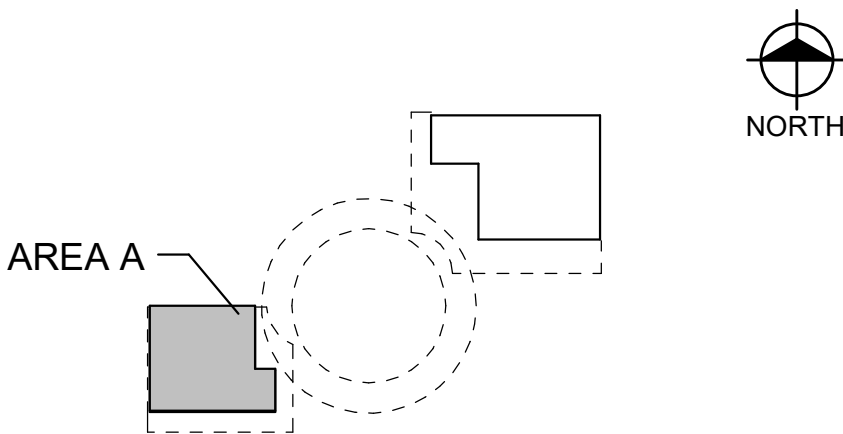
The Lakeside Park



FF - 665.0'
LAKE HOUSE
FIRST FLOOR PLUMBING SANITARY/STORM PLAN - AREA A
SCALE: 1/8" = 1'-0"

- KEY NOTES**
- 6" STM DOWN IN CORNER TO BELOW SLAB WITH CO APPROX 18" AFF AT BASE.
 - NO PIPING TO BE INSTALLED IN THIS AREA. MAINTAIN CLEARANCE FOR LADDER ACCESS TO ROOF HATCH.
 - PROVIDE CEILING ACCESS PANEL FOR CLEANOUTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
 - EXTEND DRAIN LINE FROM DISHWASHER TO SINK TAILPIECE. DRAIN LINE SHALL RISE AND BE SECURELY FASTENED TO UNDERSIDE OF SINK RIM OR COUNTER.

KEY PLAN



Van Buren Charter Township
Van Buren Township, MI
The Lakeside Park

REVISIONS

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
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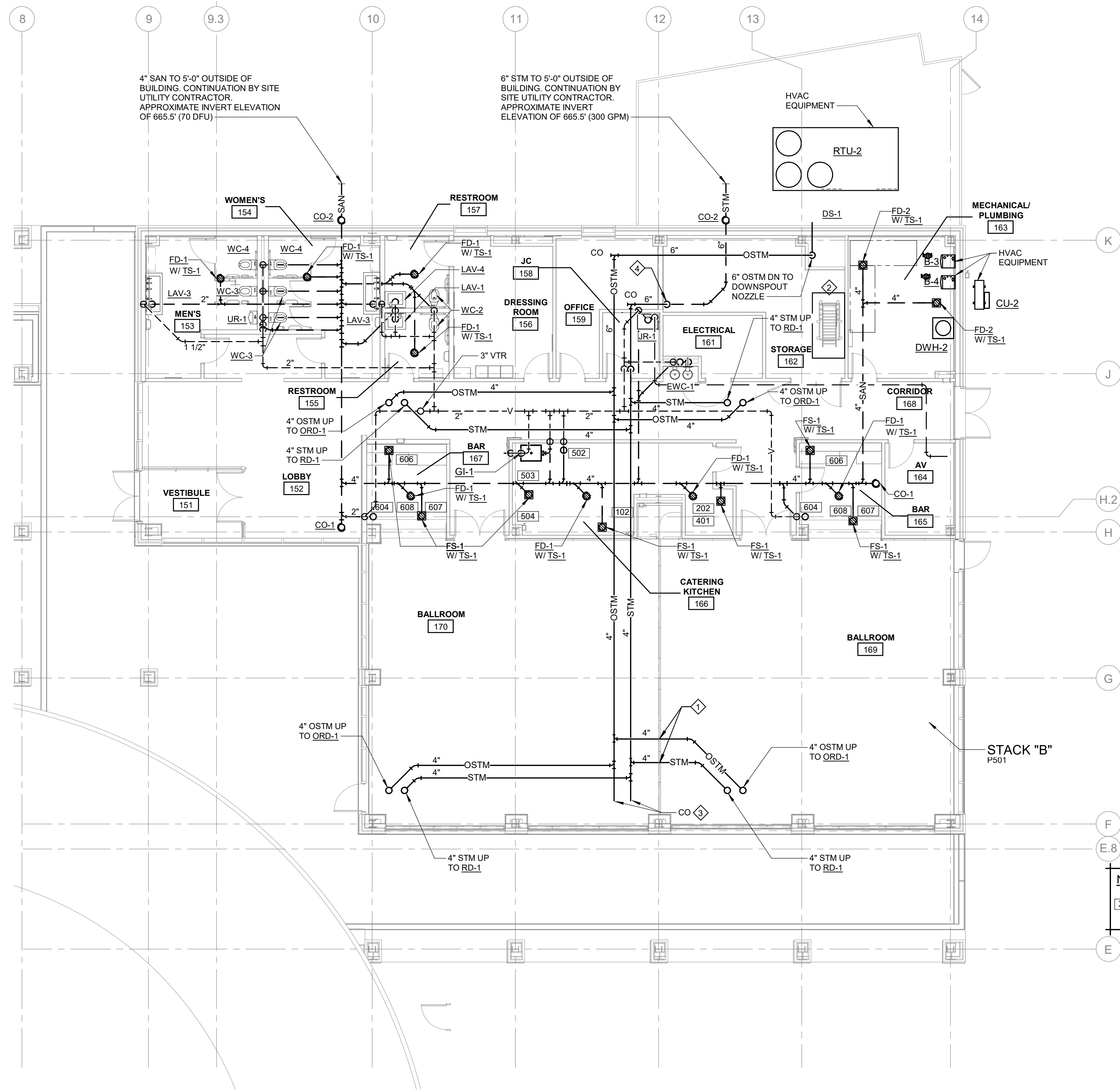
Drawn By JBFITZSIMMONS
Designer JBFITZSIMMONS
Reviewer GLOUIS
Manager CKRETOVIC

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SHEET NO.

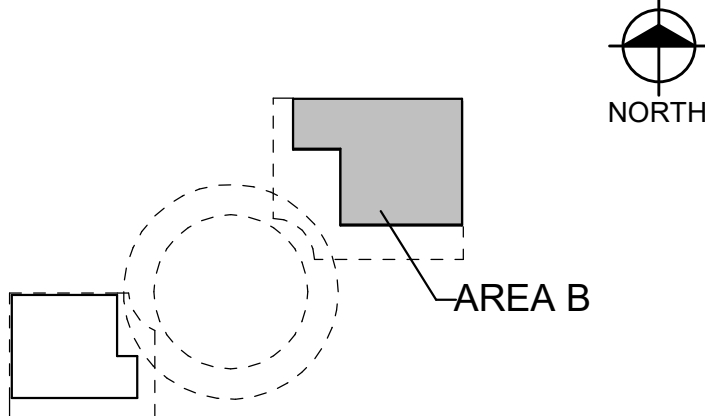
P201

PLOT INFO: 10/12/2026 2:05:04 PM Autodesk Docs://2500281 - Van Buren Twp Lake House/2026_M_2500281.rvt



- KEY NOTES**
1. OFFSET PIPING AND ROUTE THRU OPENINGS CENTERED IN WEB AND PROVIDE MINIMUM 12" SPACING BETWEEN OPENINGS. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
 2. NO PIPING TO BE INSTALLED IN THIS AREA. MAINTAIN CLEARANCE FOR LADDER ACCESS TO ROOF HATCH.
 3. PROVIDE CEILING ACCESS PANEL FOR CLEANOUTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
 4. 6" STM DOWN IN CORNER TO BELOW SLAB WITH CO APPROX 18" AFF AT BASE

KEY PLAN



FF - 668.5'
LAKE HALL
FIRST FLOOR PLUMBING SANITARY/STORM PLAN - AREA B
SCALE: 1/8" = 1'-0"

Van Buren Charter Township
Van Buren Township, MI
The Lakeside Park

REVISIONS

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09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
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02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

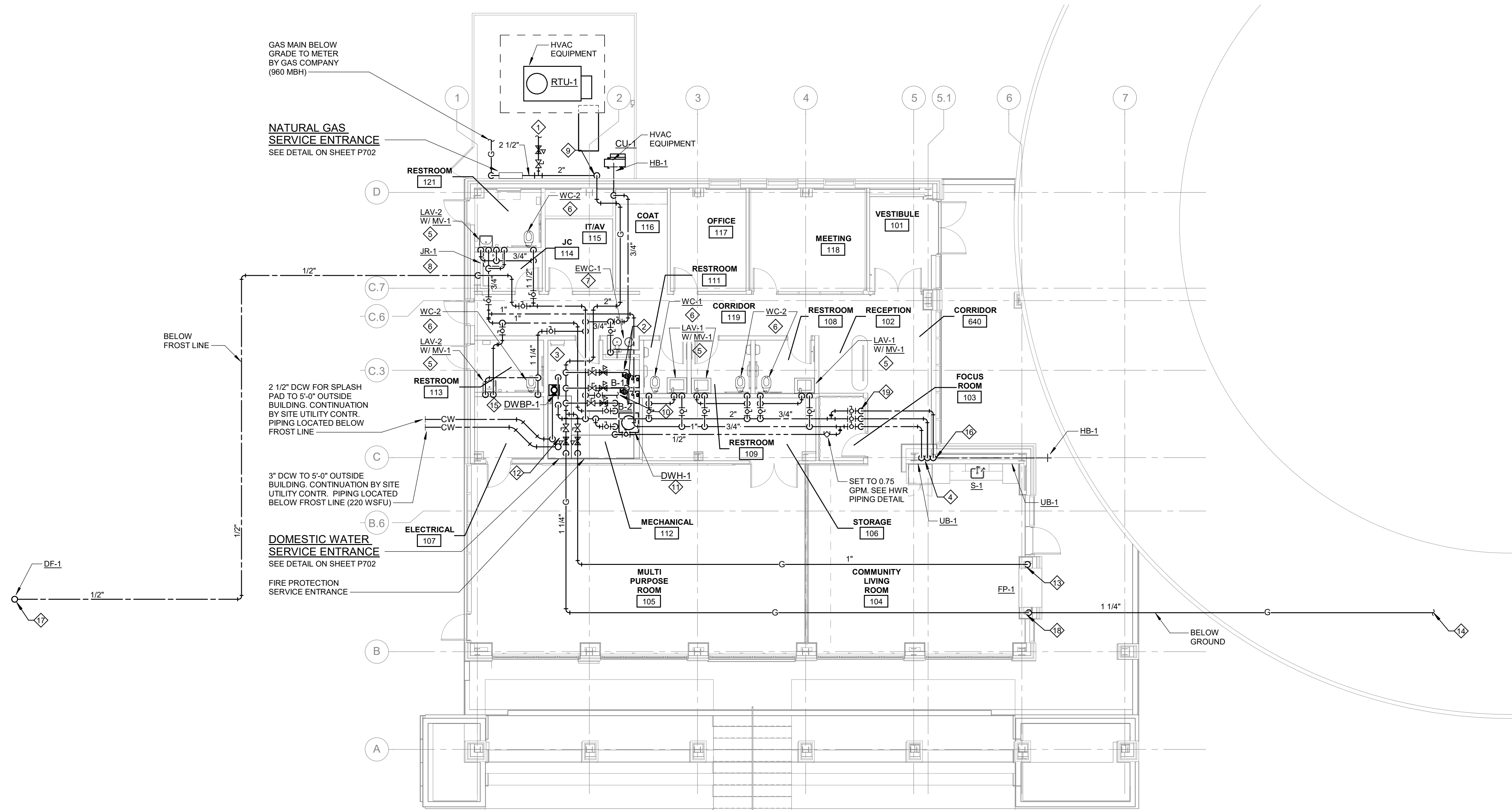
Drawn By JBFITZSIMMONS
Designer JBFITZSIMMONS
Reviewer GLOUIS
Manager CKRETOVIC

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2500281
SHEET NO.

P202

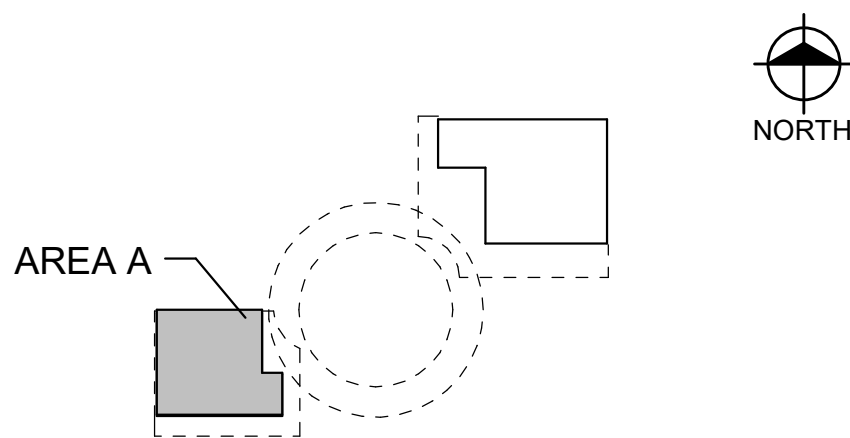
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LAKE HOUSE
FIRST FLOOR PLUMBING SUPPLY PIPING PLAN - AREA A
SCALE: 1/8" = 1'-0"

- KEY NOTES**
- 1 1/2" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR TO ROOFTOP UNIT. PROVIDE WITH 6" DIRT LEG AT CONNECTION.
 - 1 1/4" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR TO BOILER. PROVIDE WITH 6" DIRT LEG AT CONNECTION.
 - NO PIPING TO BE INSTALLED IN THIS AREA. MAINTAIN CLEARANCE FOR LADDER ACCESS TO ROOF HATCH.
 - 3/4" CW AND HW DOWN IN WALL. CONTINUE 1/2" CW AND HW TO SINK. CONTINUE 1/2" HW TO INSTANT HOT WATER DISPENSER. CONTINUE 1/2" CW TO REFRIGERATOR UTILITY BOX. PROVIDE SHUT-OFF VALVE AND DUAL CHECK BACKFLOW PREVENTER AND ROUTE 1/2" CW TO COFFEE MAKER UTILITY BOX. PROVIDE SHUT-OFF VALVE AND DUAL CHECK BACKFLOW PREVENTER AND ROUTE 1/2" HW TO DISHWASHER.
 - 1/2" CW AND HW DOWN IN WALL TO MIXING VALVE. CONTINUE 1/2" CW AND 1/2" TW TO LAVATORY.
 - 1 1/4" CW DOWN IN WALL TO WATER CLOSET. PROVIDE WITH WATER HAMMER ARRESTOR. SEE SCHEDULE ON SHEET P602.
 - 1/2" CW DOWN IN WALL TO ELECTRIC WATER COOLER.
 - 1/2" CW AND HW DOWN IN WALL TO JANITORS RECEPTOR.
 - GAS PIPING UP ALONG WALL AND ROUTE THRU WALL ABOVE THE CEILING OF THE INTERIOR SPACE.
 - 3/4" HVAC MAKE-UP WATER CONNECTION WITH BACKFLOW PREVENTER AND PRESSURE REGULATOR. ROUTE FULL SIZE DRAIN TO INDIRECT INTO NEAREST F.D. SEE DETAIL ON SHEET P702 FOR MORE INFORMATION.
 - WATER HEATER COMBUSTION AIR AND VENT PIPING UP THRU ROOF. COORDINATE LOCATION WITH HVAC INTAKES TO MAINTAIN MINIMUM 10 FT SEPARATION.
 - 1 1/4" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR FOR FIREPIT. 1" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR FOR FIREPLACE. MOUNT VALVES WITH DIRT LEG 5'-0" AFF ALONG WALL AND LABEL EACH SERVICE FOR FIREPLACE AND FIREPIT.
 - 1" GAS PIPING DOWN IN WALL TO FIREPLACE. PROVIDE WITH 6" DIRT LEG AT CONNECTION. INSTALL PER MANUFACTURER RECOMMENDATIONS.
 - 1 1/4" GAS BELOW GROUND TO FIREPIT. PROVIDE WITH 6" DIRT LEG AT CONNECTION. INSTALL PER MANUFACTURER RECOMMENDATIONS. REFER TO CIVIL DRAWINGS FOR LOCATION.
 - 2 1/2" SPLASH PAD WATER CONNECTION WITH BACKFLOW PREVENTER. ROUTE FULL SIZE DRAIN TO INDIRECT INTO NEAREST F.D. SEE DETAIL ON SHEET P702 FOR MORE INFORMATION.
 - 3/4" CW DOWN IN WALL. ROUTE TO EXTERIOR HOSE BIBB.
 - 1/2" CW TO DRINKING FOUNTAIN BURY VALVE.
 - 1 1/4" GAS PIPING DOWN IN WALL TO BELOW GRADE FOR EXTERIOR FIREPIT.
 - OFFSET PIPING TO ABOVE CEILING OF CHANGE IN CEILING HEIGHT.

KEY PLAN



Van Buren Charter Township
Van Buren Township, MI
The Lakeside Park

REVISIONS	
10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
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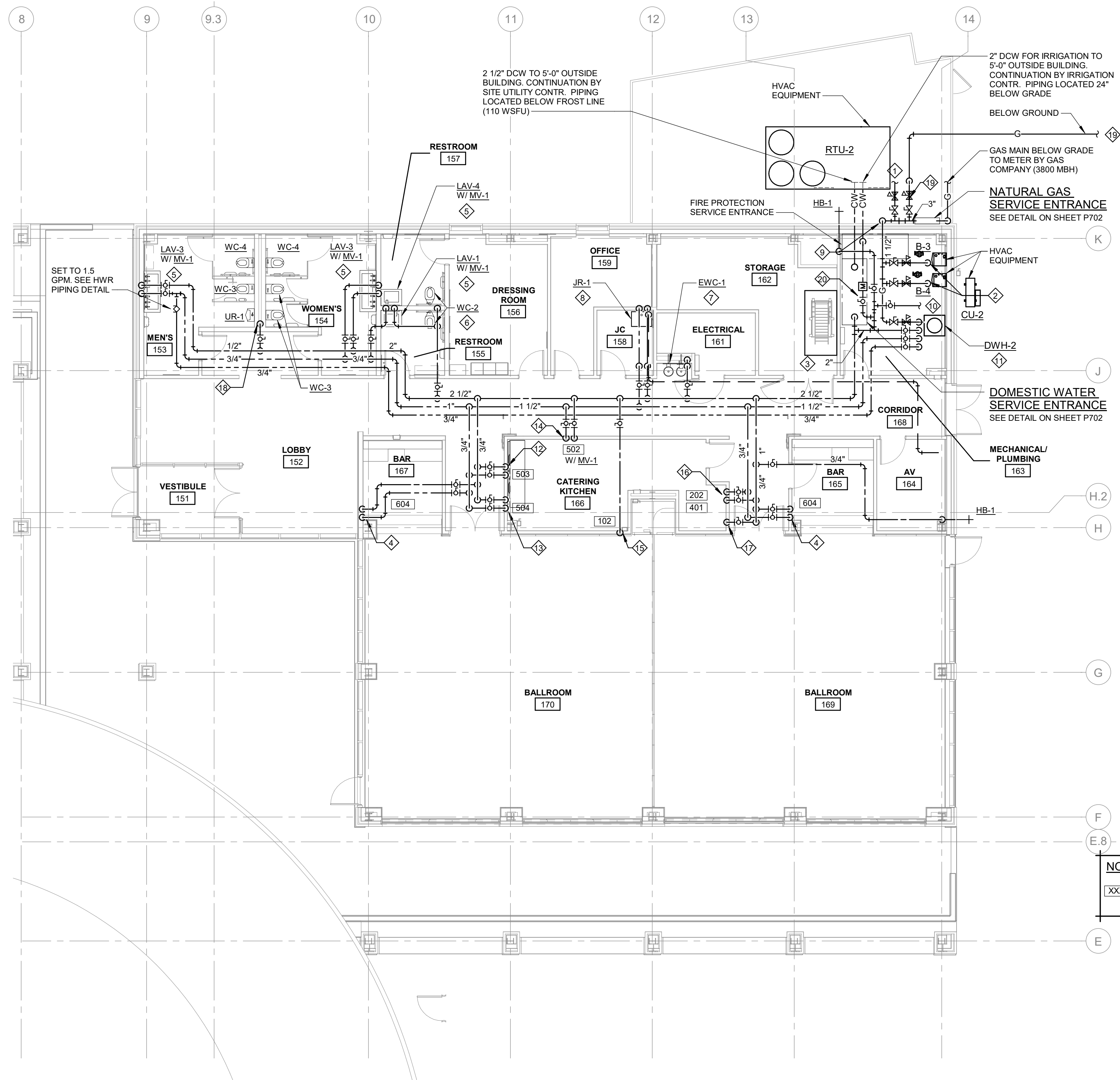
Drawn By	JBFTZSIMMONS
Designer	JBFTZSIMMONS
Reviewer	GLOUIS
Manager	CKRETOVIC

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2500281

SHEET NO.
P301

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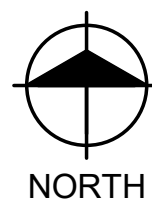
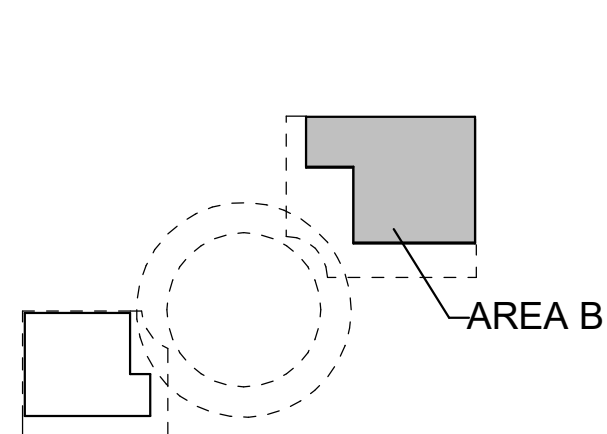


NOTE:
XXX REFERS TO FOOD SERVICE
ITEM NUMBER SEE FOOD
SERVICE DRAWINGS

KEY NOTES

- 1 1/2" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR TO ROOFTOP UNIT. PROVIDE WITH 6" DIRT LEG AT CONNECTION.
- 1 1/4" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR TO BOILER. PROVIDE WITH 6" DIRT LEG AT CONNECTION.
- NO PIPING TO BE INSTALLED IN THIS AREA. MAINTAIN CLEARANCE FOR LADDER ACCESS TO ROOF HATCH.
- 1/2" CW AND HW DOWN IN WALL TO BAR SINK.
- 1/2" CW AND HW DOWN IN WALL TO MIXING VALVE. CONTINUE 1/2" CW AND 1/2" TW TO LAVATORY.
- 1 1/2" CW DOWN IN WALL TO WATER CLOSETS. ROUTE 1 1/4" CW TO EACH WC. PROVIDE WITH WATER HAMMER ARRESTOR. SEE SCHEDULE ON SHEET P602.
- 1/2" CW DOWN IN WALL TO ELECTRIC WATER COOLER.
- 1/2" CW AND HW DOWN IN WALL TO JANITORS RECEPTOR.
- GAS PIPING UP ALONG WALL AND ROUTE THRU WALL ABOVE THE CEILING OF THE INTERIOR SPACE.
- 3/4" HVAC MAKE-UP WATER CONNECTION WITH BACKFLOW PREVENTER AND PRESSURE REGULATOR. ROUTE FULL SIZE DRAIN TO INDIRECT INTO NEAREST F.D. SEE DETAIL ON SHEET P702 FOR MORE INFORMATION.
- WATER HEATER COMBUSTION AIR AND VENT PIPING UP THRU ROOF. COORDINATE LOCATION WITH HVAC INTAKES TO MAINTAIN MINIMUM 10 FT SEPARATION.
- 1/2" CW AND HW DOWN IN WALL TO POT SINK.
- 3/4" HW DOWN IN WALL TO DISHWASHER. PROVIDE SHUT-OFF VALVE, DUAL CHECK BACKFLOW PREVENTER, AND WATER HAMMER ARRESTOR. 1/2" CW DOWN IN WALL TO DRAIN TEMPERING KIT. PROVIDE SHUT-OFF VALVE, DUAL CHECK BACKFLOW PREVENTER, AND WATER HAMMER ARRESTOR.
- 1/2" CW AND HW DOWN IN WALL TO MIXING VALVE. CONTINUE 1/2" CW AND 1/2" TW TO HAND SINK.
- 1/2" CW DOWN IN WALL TO ICE MAKER FILTER. PROVIDE SHUT-OFF VALVE AND DUAL CHECK BACKFLOW PREVENTER. CONTINUE 1/2" CW TO ICE MAKER.
- 1/2" CW AND HW DOWN IN WALL TO PREP SINK.
- 1/2" CW DOWN IN WALL TO COFFEE MAKER FILTER. PROVIDE SHUT-OFF VALVE AND DUAL CHECK BACKFLOW PREVENTER. CONTINUE 1/2" CW TO COFFEE MAKER.
- 2" CW DOWN IN CHASE TO FIXTURES. PROVIDE WITH WATER HAMMER ARRESTOR. SEE SCHEDULE ON SHEET P602.
- 2 1/2" GAS PIPING WITH SHUT-OFF VALVE AND REGULATOR FOR GENERATOR. ROUTE PIPING BELOW GRADE TO GENERATOR. PROVIDE WITH 6" DIRT LEG AT CONNECTION.
- 2" IRRIGATION WATER CONNECTION WITH BACKFLOW PREVENTER AND DEDUCT METER. ROUTE FULL SIZE DRAIN TO INDIRECT INTO NEAREST F.D. SEE DETAIL ON SHEET P702 FOR MORE INFORMATION.

KEY PLAN



LAKE HALL FIRST FLOOR PLUMBING SUPPLY PIPING PLAN - AREA B

SCALE: 1/8" = 1'-0"

Van Buren Charter Township

Van Buren Township, MI

The Lakeside Park

REVISIONS

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
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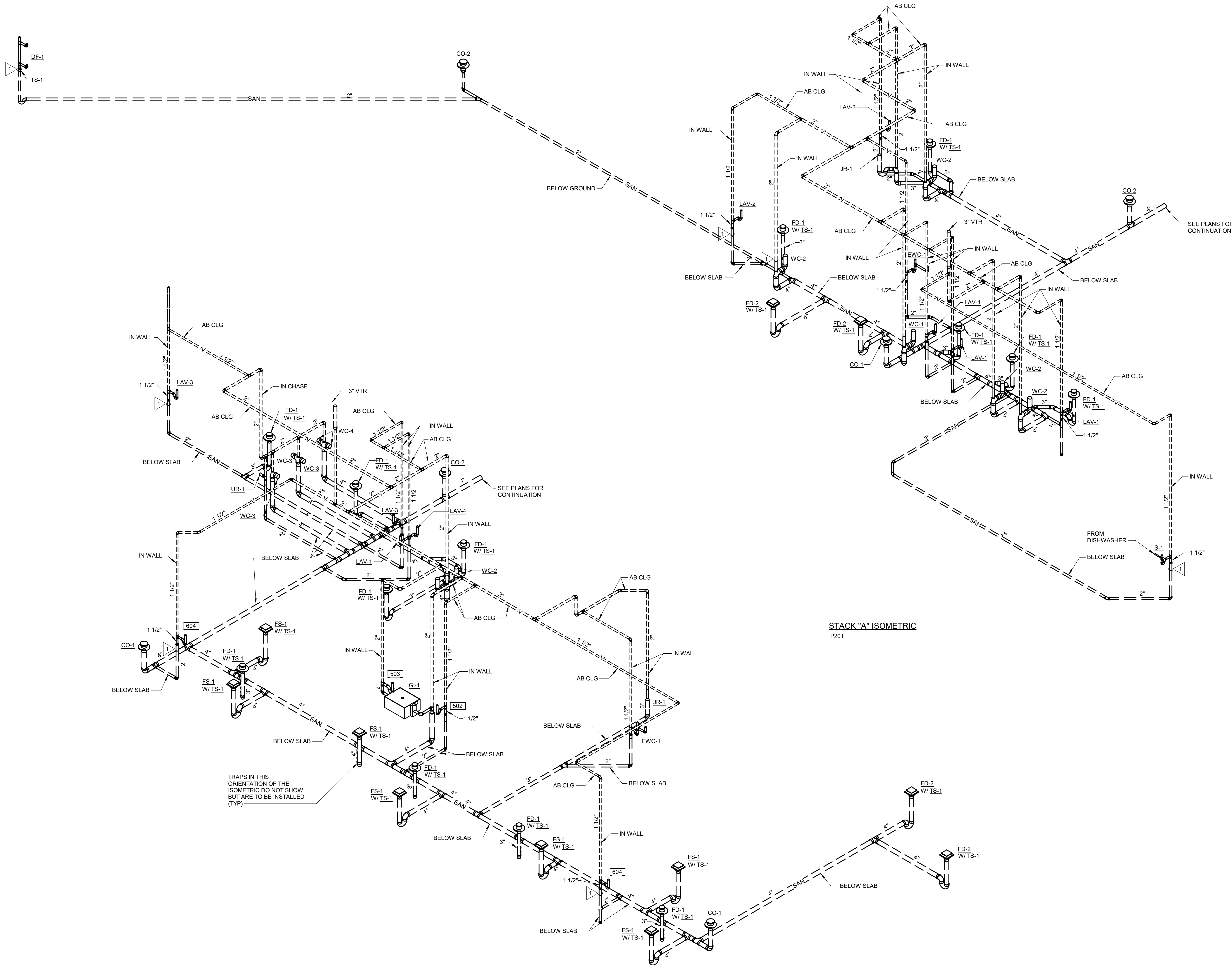
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Designer JBFITZSIMMONS
Reviewer GLOUIS
Manager CKRETOVIC

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2500281

SHEET NO.

P302



STACK "B" ISOMETRIC
P202

STACK "A" ISOMETRIC
P201

Van Buren Charter Township

Van Buren Township, MI
The Lakeside Park

REVISIONS

10/12/2026	BIDS & PERMIT
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Designer JBFITZSIMMONS
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SHEET NO.

P501

PLUMBING SPECIALTIES SCHEDULE		
IDENTIFICATION	DESCRIPTION	
HB-1	HOSE BIBB: EXTERIOR NON-FREEZE: 1. ZURN MODEL NO. Z1320XL, ANTI-SIPHON ENCASED WALL HYDRANT COMPLETE WITH INTEGRAL BACKFLOW PREVENTER - NON-FREEZE TYPE - WITH BRONZE CASING. ALL INTERIOR PARTS AND NON-TURNING OPERATING ROD WITH FREE-FLOATING COMPRESSION CLOSURE VALVE. FACE SHALL BE STAINLESS STEEL COMPLETE WITH OPERATING KEY. LENGTH TO SUIT WALL.	
MV-1	MIXING VALVE: LAVATORY TEMPERED WATER SUPPLY: 1. LEONARDO "ECO-MIX" MODEL 270-LF, THERMOSTATIC MIXING VALVE SHALL CONFORM TO ASSE 1070 WITH UNION CONNECTED INLET STRAINER CHECK STOPS. 1/2" INLETS AND OUTLET. CONTROL DOWN TO 0.5 GPM. 3.5 GPM FLOW AT 5 PSI PRESSURE DROP. CONTROL TEMPERATURE MUST BE ADJUSTABLE AND BE LOCKING TYPE ADJUSTMENT. ADJUSTABLE HIGH TEMPERATURE LIMIT SHALL BE SET FOR 110°F (MAXIMUM).	
TS-1	TRAP SEAL: HDPE INLINE: 1. RECTORSEAL "SURE SEAL" MODEL SS3009V AND SS4009V. IN LINE FLOOR DRAIN TRAP SEAL, ASSE 1072 APPROVED.	
UB-1	UTILITY SUPPLY BOX: REFRIGERATOR / COFFEE MAKER: 1. BASED ON IPS CORPORATION "WATER-TITE" MODEL NO. AB9900 ROUND RECESSED PVC RESIN BOX WITH MOUNTING FLANGE AND FACE PLATE, 1/4 TURN LEAD FREE BRASS BALL VALVE, SWEAT CONNECTION.	
FD-1	FLOOR DRAIN: ROUND: 1. ZURN MODEL ZN415-B, CAST IRON BODY SHALLOW SUMP DRAIN WITH DOUBLE DRAINAGE FLANGE AND WEEPHOLES, FLASHING CLAMP, BOTTOM OUTLET WITH NEOPRENE GASKET INSIDE CONNECTOR AND TYPE 8 6" DIAMETER ADJUSTABLE GRATE. FRAME AND GRATE TO HAVE POLISHED NICKEL-BRONZE FINISH.	
FD-2	FLOOR DRAIN: SQUARE: 1. ZURN MODEL Z610, CAST IRON BODY SQUARE TOP SHALLOW SUMP DRAIN WITH DOUBLE DRAINAGE FLANGE, FLASHING CLAMP, WEEPHOLES, 12"x12" HEAVY DUTY TOP AND REMOVABLE SEDIMENT BUCKET. BOTTOM OUTLET WITH NEOPRENE GASKET INSIDE CONNECTOR. PROVIDE CAST IRON FRAME AND GRATE, WITH FACTORY APPLIED PROTECTIVE COATING.	
FS-1	FLOOR SINK: SQUARE: 1. ZURN MODEL Z1900, SANI-FLOOR RECEPTOR 12"x12"x6" DEEP CAST IRON BODY SQUARE LIGHT DUTY GRATE 1/2" SLOTTED OPENINGS, WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR AND TOP, COMPLETE WITH ABS ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER, DOUBLE DRAINAGE FLANGE, FLASHING CLAMP, WEEPHOLES. BOTTOM OUTLET WITH NEOPRENE GASKET INSIDE CONNECTOR.	
RD-1	ROOF DRAIN: ROUND: 1. ZURN MODEL Z100F HIGH EFFICIENT FLOW PERFORMING ROOF DRAIN, DURA-COATED CAST IRON BODY WITH COMBINATION MEMBRANE FLASHING CLAMP/RAVEL GUARD AND LOW SILHOUEETTE POLY DOME, UNDERDECK CLAMP, ADJUSTABLE EXTENSION ASSEMBLY.	
ORD-1	OVERFLOW ROOF DRAIN: ROUND: 1. SAME AS RD-1 EXCEPT PROVIDE WITH 2" HIGH OVERFLOW DAM .	
DS-1	DOWNSPOUT NOZZLE: ROUND: 1. ZURN MODEL Z4B199-SS, ALL PLAIN BRONZE BODY, NO-HUB INLET, REMOVABLE STAINLESS SCREEN, 13 LBS.	
CO-1	CLEANOUT: INTERIOR: 1. ZURN MODEL ZN1400, FRAME AND ACCESS COVER WITH CAST IRON BODY, ROUND FRAME WITH SCORIATED TOP, ANCHOR LUGS AND BRONZE TAPER THREADED PLUG. FRAME AND TOP TO BE POLISHED NICKEL BRONZE FINISH. BOTTOM OUTLET WITH NEOPRENE GASKET INSIDER CONNECTOR. FURNISH WITH ANCHOR FLANGE.	
CO-2	CLEANOUT: EXTERIOR: 1. ZURN MODEL Z1400-HD, FRAME AND ACCESS COVER WITH CAST IRON BODY, ROUND FRAME WITH SCORIATED TOP, ANCHOR LUGS AND BRONZE TAPER THREADED PLUG. FRAME AND TOP TO BE POLISHED NICKEL BRONZE FINISH. BOTTOM OUTLET WITH NEOPRENE GASKET INSIDER CONNECTOR. FURNISH WITH ANCHOR FLANGE. FURNISH WITH HEAVY DUTY CAST IRON FRAME AND TOP.	

PLUMBING EQUIPMENT SCHEDULE		
IDENTIFICATION	DESCRIPTION	
DWET-1 DWET-2	DOMESTIC WATER EXPANSION TANK: INLINE: 1. AMTROL "THERM-X-TROL" MODEL NO. ST-12C-DD, ASME RATED DIAPHRAGM TYPE THERMAL EXPANSION TANK, DEEP DRAIN STEEL, HEAVY DUTY BUTYL NSF/ANSI 61 DIAPHRAGM, ANTIMICROBIAL POLYPROPYLENE LINER, RED OXIDE PRIMER FINISH, SCHRADER VALVE WITH EPDM SEAT, 55 PSIG FACTORY PRECHARGE, 6.4 GAL. TANK VOLUME, .50 MAX ACCEPTANCE FACTOR, 12" DIA x 18" HEIGHT 3/4" CONNECTION, 68 LBS.	
GI-1	GREASE INTERCEPTOR: HYDROMECHANICAL, ABOVE GROUND: 1. SCHIER "GREAT BASIN" MODEL GB2-C HYDROMECHANICAL, GREASE INTERCEPTOR WITH INTEGRAL FLOW CONTROL FITTING FOR ABOVE FLOOR INDOOR INSTALLATION. SEAMLESS ROTO-MOLDED POLYETHYLENE PLASTIC CONSTRUCTION, 35 GPM PEAK, 1.8 GALLON SOLIDS CAPACITY, 20 GALLON LIQUID CAPACITY, BUILT-IN FLOW CONTROL, INTEGRAL AIR RELIEF/ANTI-SIPHON, 4" INLET AND OUTLET CONNECTION, 21.5" DIAMETER WATER AND GAS TIGHT COVER, 130 LBS GREASE CAPACITY, 23" WIDE x 35" LONG x 13 3/4" HEIGHT.	
DWBP-1	SPLASH PAD BOOSTER PUMP: SIMPLEX, PACKAGED: 1. HYFAB "eMVP" MODEL eMVPJ-3-L-23, SIMPLEX PACKAGED VARIABLE SPEED BOOSTER PUMP TO PROVIDE FLOW OF 108 GPM WITH 20 PSI BOOST. CENTRIFUGAL PUMP WITH 316 STAINLESS STEEL IMPELLER, HYDROPNEUMATIC TANK, PAINTED STEEL BASE, GROOVED STAINLESS STEEL MANIFOLD CONNECTIONS, 3 HP, 3,500 RPM, 230V 3 PHASE, DISCONNECT PROVIDED BY ELEC CONTR.	

PLUMBING FIXTURE SCHEDULE			
IDENTIFICATION	DESCRIPTION	IDENTIFICATION	DESCRIPTION
LAV-3 (ADA)	LAVATORY: WALL HUNG, SINGLE BASIN DUAL STATION, SENSOR FAUCET: 1. BOWL: SLOAN "AER-DEC" MODEL AD-82000 BASYS, 2-STATION 60"x24" WALL HUNG, CORIAN QUARTZ - VENETIAN CREAM - LEATHERED FINISH, 2 SETS OF THREE SINGLE FAUCET HOLES. 2. FAUCETS: SLOAN "BASYS" MODEL EFX-200, TWO SINGLE POST BRUSHED NICKEL FINISH CAST BRASS FAUCET SENSOR MID-BODY FAUCET, HARDWIRED POWER SUPPLY, LEAD FREE, 0.5 GPM, AERATOR. 3. HAND DRYERS: SLOAN "BASYS" MODEL EHD-510, TWO SINGLE POST BRUSHED NICKEL FINISH DECK MOUNTED DRYER, SENSOR OPERATED, HARDWIRED POWER SUPPLY, HEPA FILTER, 120V, 1500 WATT, 20 AMP. 4. SOAP DISPENSERS: SLOAN "BASYS" MODEL ESD-400, TWO SINGLE POST BRUSHED NICKEL FINISH, DECK MOUNTED SOAP DISPENSER, SENSOR OPERATED, HARDWIRED POWER SUPPLY, FOAM SOAP. 5. ENCLOSURE: SLOAN "AER-DEC" MODEL AD-82000 BASYS, 2-STATION ENCLOSURE COLOR TO BE WALNUT HEIGHTS WITH HORIZONTAL GRAIN DIRECTION. 6. CARRIER: PROVIDE BLOCKING AS RECOMMENDED BY MANUFACTURER. 7. SUPPLIES: CHICAGO MODEL 1017, ANGLE STOP FITTING WITH SUPPLY TUBE AND LOOSE KEY, CHROME PLATED, 2-1/4" METAL TEE HANDLE WITH SQUARES TAPERED BROACH, 1/2" NPT FEMALE THREAD INLET AND 3/8-INCH O.D. FEMALE COMPRESSION OUTLET. 8. DRAIN: MCQUIRE MODEL 155A, CAST BRASS CHROME PLATED OPEN GRID P.O. PLUG WITH 17 GA 1-1/4"x6" SEAMLESS BRASS TAILPIECE, BRASS LOCK NUT, HEAVY RUBBER BASIN WASHER AND FIBER FRICTION WASHER. 9. TRAP: MCQUIRE MODEL MCT150, 17 GA SEAMLESS CHROME PLATED TUBULAR BRASS WITH WALL BEND AND FLANGE. 10. MIXING VALVE: PROVIDE WITH MIXING VALVE AS INDICATED IN PLUMBING SPECIALTIES. 11. PIPE COVERS: IPS CORPORATION "TRUEBRO" MODEL LAV GUARD 2, PROVIDE PROTECTIVE PIPE COVERS ON DRAIN AND SUPPLY PIPING BELOW LAVATORY.	WC-1	WATER CLOSET: FLOOR MOUNTED, SENSOR FLUSH VALVE: 1. BOWL: ZURN "ECOVANTAGE" MODEL Z5655-BWL1, FLOOR MOUNTED BOTTOM OUTLET SIPHON JET, WHITE VITREOUS CHINA WITH ELONGATED BOWL, OPERATES IN THE RANGE OF 1.1 GPF TO 1.6 GPF, 1 1/2-INCH TOP SPUD, PROVIDE WITH WAX RING AND CLOSET BOLT KIT. 2. FLUSH VALVE: ZURN "AQUAVANTAGE" MODEL ZEM56000AV-IS-HET-HW6, QUIET DIAPHRAGM-TYPE, 1.28 GPF, POLISHED CHROME FINISH, 1 1/2" TOP SPUD CONNECTION, SINGLE FLUSH, MANUAL OVER-RIDE BUTTON, HARDWIRED AUTOMATIC SENSOR OPERATED EXPOSED FLUSH VALVE. 3. SEAT: ZURN MODEL Z59565S-EL-STS, COMMERCIAL EXTRA HEAVY-DUTY PLASTIC ELONGATED TOILET SEAT, PREMIUM WHITE, OPEN FRONT LESS COVER, INTEGRALLY MOLDED BUMPERS, SELF-SUSTAINING STAINLESS STEEL CHECK HINGES.
		WC-2 (ADA)	WATER CLOSET: SAME AS WC-1 EXCEPT WITH ADA BOWL: 1. BOWL: ZURN "ECOVANTAGE" MODEL Z5665-BWL1, FLOOR MOUNTED BOTTOM OUTLET SIPHON JET, WHITE VITREOUS CHINA WITH ELONGATED BOWL, OPERATES IN THE RANGE OF 1.1 GPF TO 1.6 GPF, 1 1/2-INCH TOP SPUD, PROVIDE WITH WAX RING AND CLOSET BOLT KIT.
		WC-3	WATER CLOSET: WALL HUNG, SENSOR FLUSH VALVE: 1. BOWL: ZURN "ECOVANTAGE" MODEL Z5615-BWL1, WALL HUNG BACK OUTLET SIPHON JET, WHITE VITREOUS CHINA WITH ELONGATED BOWL, OPERATES IN THE RANGE OF 1.1 GPF TO 1.6 GPF, 1 1/2-INCH TOP SPUD, PROVIDE WITH CLOSET BOLT KIT. 2. FLUSH VALVE: ZURN "AQUAVANTAGE" MODEL ZEM56000AV-IS-HET-HW6, QUIET DIAPHRAGM-TYPE, 1.28 GPF, POLISHED CHROME FINISH, 1 1/2" TOP SPUD CONNECTION, SINGLE FLUSH, MANUAL OVER-RIDE BUTTON, HARDWIRED AUTOMATIC SENSOR OPERATED EXPOSED FLUSH VALVE. 3. SEAT: ZURN MODEL Z59565S-EL-STS, COMMERCIAL EXTRA HEAVY-DUTY PLASTIC ELONGATED TOILET SEAT, PREMIUM WHITE, OPEN FRONT LESS COVER, INTEGRALLY MOLDED BUMPERS, SELF-SUSTAINING STAINLESS STEEL CHECK HINGES. 4. CARRIER: ZURN SERIES 1200, DURA-COATED CAST IRON MAIN FITTING WITH HYDRO-MECHANICALLY OPTIMIZED SWEEP AND EXTENDED 2" VENT, ADJUSTABLE GASKETED FACEPLATE, FLOOR MOUNTED PRE-FAB SLOTTED FOOT SUPPORTS WITH FOOT ANCHORING PRE-FAB SUPPORT BASE, HEAVY DUTY 1/2" REAR ANCHOR TIE-DOWN, FIXTURE BOLTS, TRIM, STUD PROTECTORS, BONDED, NEOSEAL GASKET, AND CORROSION RESISTANT. MEETS ASME A112.6M.
		WC-4 (ADA)	WATER CLOSET: SAME AS WC-3 EXCEPT MOUNTED PER ADA REQUIREMENTS.
		UR-1 (ADA)	URNIAL: WALL HUNG, SENSOR FLUSH VALVE: 1. BOWL: ZURN "ECOVANTAGE" MODEL Z5755, WALL HUNG, WHITE VITREOUS CHINA, FLUSHING RIM, OPERATES IN THE RANGE OF 0.125 GPF TO 1.0 GPF ELONGATED 14" RIM FROM FINISHED WALL, WASHOUT FLUSH ACTION, EXTENDED SIDES FOR PRIVACY, 3/4" TOP INLET SPUD, 2" I.P.S. OUTLET FLANGE, VANDAL RESISTANT OUTLET STRAINER. 2. FLUSH VALVE: ZURN "AQUAVANTAGE" MODEL ZEM6003AV-IS-EWS-HW6, QUIET DIAPHRAGM-TYPE, 0.5 GPF, POLISHED CHROME FINISH, 3/4" TOP SPUD CONNECTION, SINGLE FLUSH, MANUAL OVER-RIDE BUTTON, HARDWIRED AUTOMATIC SENSOR OPERATED EXPOSED FLUSH VALVE. 3. CARRIER: ZURN SERIES 1220, WALL URINAL SUPPORT SYSTEM WITH DURA-COATED CARBON STRUCTURAL STEEL RECTANGULAR TUBING UPRIGHTS, CONFORMING TO ASTM A500 GRADE C, WITH WELDED BASE FEET HAVING SLOTTED FLOOR ANCHOR HOLES. LOWER BEARING PLATE IS VERTICALLY ADJUSTABLE BEARING SLOT TO ACCOMMODATE BEARING JACK PLACEMENT. INCLUDES MOUNTING FASTENERS AND HARDWARE, MEETS ASME A112.6.1M.
LAV-1 (ADA)	LAVATORY: WALL HUNG, SENSOR FAUCET: 1. BOWL: SLOAN "AER-DEC" MODEL AD-81000 BASYS, 1-STATION 30"x24" WALL HUNG, CORIAN QUARTZ - VENETIAN CREAM - LEATHERED FINISH, THREE SINGLE FAUCET HOLES. 2. FAUCET: SLOAN "BASYS" MODEL EFX-200, SINGLE POST BRUSHED NICKEL FINISH CAST BRASS FAUCET SENSOR MID-BODY FAUCET, HARDWIRED POWER SUPPLY, LEAD FREE, 0.5 GPM, AERATOR. 3. HAND DRYER: SLOAN "BASYS" MODEL EHD-510, SINGLE POST BRUSHED NICKEL FINISH DECK MOUNTED DRYER, SENSOR OPERATED, HARDWIRED POWER SUPPLY, HEPA FILTER, 120V, 1500 WATT, 20 AMP. 4. SOAP DISPENSER: SLOAN "BASYS" MODEL ESD-400, SINGLE POST BRUSHED NICKEL FINISH, DECK MOUNTED SOAP DISPENSER, SENSOR OPERATED, HARDWIRED POWER SUPPLY, FOAM SOAP. 5. ENCLOSURE: SLOAN "AER-DEC" MODEL AD-81000 BASYS, 1-STATION ENCLOSURE COLOR TO BE WALNUT HEIGHTS WITH HORIZONTAL GRAIN DIRECTION. 6. CARRIER: PROVIDE BLOCKING AS RECOMMENDED BY MANUFACTURER. 7. SUPPLIES: CHICAGO MODEL 1017, ANGLE STOP FITTING WITH SUPPLY TUBE AND LOOSE KEY, CHROME PLATED, 2-1/4" METAL TEE HANDLE WITH SQUARES TAPERED BROACH, 1/2" NPT FEMALE THREAD INLET AND 3/8-INCH O.D. FEMALE COMPRESSION OUTLET. 8. DRAIN: MCQUIRE MODEL 155A, CAST BRASS CHROME PLATED OPEN GRID P.O. PLUG WITH 17 GA 1-1/4"x6" SEAMLESS BRASS TAILPIECE, BRASS LOCK NUT, HEAVY RUBBER BASIN WASHER AND FIBER FRICTION WASHER. 9. TRAP: MCQUIRE MODEL MCT150, 17 GA SEAMLESS CHROME PLATED TUBULAR BRASS WITH WALL BEND AND FLANGE. 10. MIXING VALVE: PROVIDE WITH MIXING VALVE AS INDICATED IN PLUMBING SPECIALTIES. 11. PIPE COVERS: IPS CORPORATION "TRUEBRO" MODEL LAV GUARD 2, PROVIDE PROTECTIVE PIPE COVERS ON DRAIN AND SUPPLY PIPING BELOW LAVATORY.	LAV-2 (ADA)	LAVATORY: WALL HUNG, SENSOR FAUCET: 1. BOWL: ZURN MODEL Z5341, 20"x18" WALL HUNG, WHITE VITREOUS CHINA, 4" CENTER FAUCET HOLES, FRONT OVERFLOW, MOUNTING HOLES FOR CONCEALED ARM CARRIER. 2. FAUCET: ZURN "AQUASENSE" MODEL Z6915-XL-M-CWB-HW6, 4" CENTER SET POLISHED CHROME-PLATED CAST BRASS SENSOR FAUCET WITH INFARED PROXIMITY SENSOR, HARDWIRED POWER SUPPLY, 4" LONG INTEGRAL CAST SPOUT, LEAD FREE, 0.5 GPM, AERATOR. 3. CARRIER: ZURN SERIES 1230, CONCEALED ARM WALL LAVATORY SUPPORT SYSTEM WITH DURA-COATED CARBON STRUCTURAL STEEL RECTANGULAR TUBING UPRIGHTS, WITH WELDED BASE FEET HAVING SLOTTED FLOOR ANCHOR HOLES. INCLUDES MOUNTING FASTENERS AND HARDWARE. 4. ENCLOSURE: IPS CORPORATION "TRUEBRO" MODEL LAVSHIELD, RIGID HIGH-IMPACT, STAIN RESISTANT, PVC, CHINA WHITE, STAINLESS STEEL SCREWS AND WALL ANCHORS. 5. SUPPLIES: CHICAGO MODEL 1017, ANGLE STOP FITTING WITH SUPPLY TUBE AND LOOSE KEY, CHROME PLATED, 2-1/4" METAL TEE HANDLE WITH SQUARES TAPERED BROACH, 1/2" NPT FEMALE THREAD INLET AND 3/8-INCH O.D. FEMALE COMPRESSION OUTLET. 6. DRAIN: MCQUIRE MODEL 155A, CAST BRASS CHROME PLATED OPEN GRID P.O. PLUG WITH 17 GA 1-1/4"x6" SEAMLESS BRASS TAILPIECE, BRASS LOCK NUT, HEAVY RUBBER BASIN WASHER AND FIBER FRICTION WASHER. 7. TRAP: MCQUIRE MODEL MCT150, 17 GA SEAMLESS CHROME PLATED TUBULAR BRASS WITH WALL BEND AND FLANGE. 8. MIXING VALVE: PROVIDE WITH MIXING VALVE AS INDICATED IN PLUMBING SPECIALTIES. 9. PIPE COVERS: IPS CORPORATION "TRUEBRO" MODEL LAV GUARD 2, PROVIDE PROTECTIVE PIPE COVERS ON DRAIN AND SUPPLY PIPING BELOW LAVATORY.
S-1 (ADA)	SINK: UNDERMOUNT, MANUAL FAUCET: 1. BOWL: KOHLER "RIVERBY" MODEL K-5479-5U, 25" UNDERMOUNT SINGLE-BOWL KITCHEN SINK, MATTE WHITE COLOR, 5-1/4" DEPTH, ENAMELED CAST IRON. 2. FAUCET: GROHE "ZEDRA" MODEL 32 298, SINGLE HANDLE PULL DOWN KITCHEN FAUCET, CAST BRASS SUPERSTEEL INFINITYFINISH, LEAD FREE, 1.75 GPM, AERATOR. 3. SUPPLIES: CHICAGO MODEL 1017, ANGLE STOP FITTING WITH SUPPLY TUBE AND LOOSE KEY, CHROME PLATED, 2-1/4" METAL TEE HANDLE WITH SQUIRES TAPERED BROACH, 1/2" NPT FEMALE THREAD INLET AND 3/8-INCH O.D. FEMALE COMPRESSION OUTLET. 4. DRAIN: KOHLER K-8801 STRAINER WITH TAILPIECE, PROVIDE DISHWASHER CONNECTION. 5. TRAP: MCQUIRE MODEL MCT150, 17 GA SEAMLESS CHROME PLATED TUBULAR BRASS WITH WALL BEND AND FLANGE. 6. DISPENSER FAUCET: INSINKERATOR "TRANSITIONAL 1010" MODEL FH1010, INSTANT HOT WATER FAUCET, LEAD FREE, SOLID BRASS, CERAMIC DISC VALVE, SWIVEL SPOUT, SELF-CLOSING HOT VALVE, STAINLESS STEEL FINISH. 7. DISPENSER TANK: INSINKERATOR MODEL HWT-F1000S, INSTANT HOT WATER DISPENSER SYSTEM COMPLETE WITH 2/3 GALLON HOT WATER TANK AND FILTER, ADJUSTABLE 160" TO 200" F, 115V, 750 WATTS, 6.25 AMPS.	JR-1	JANITOR RECEPTOR: FLOOR MOUNTED: 1. BOWL: FIAT "STOCKTON" MODEL TSB800, 36"x24" ONE PIECE PRECAST TERRAZZO MOP BASIN WITH 12" HIGH CURBS WITH STAINLESS STEEL CAPS, STANDARD DRAIN BODY IS STAINLESS STEEL CAST INTEGRALLY, STAINLESS STEEL STRAINER. 2. FAUCET: FIAT MODEL 830AA, SERVICE SINK FAUCET, CHROME PLATED WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACE, PAL HOOK, AND 3/4" HOSE THREAD ON SPOUT. 3. ACCESSORIES: A. HOSE AND HOSE BRACKET: FIAT MODEL 832AA. B. ALUMINUM BUMPER-GUARD PLATE: FIAT MODEL 1239BB24. C. STAINLESS STEEL WALL GUARD: FIAT MODEL M5G. D. MOP HANGER: FIAT MODEL 889CC. E. STRAINER: FIAT MODEL 1453BB. F. SILICONE SEALANT: FIAT MODEL 833AA.
EW-1 (ADA)	ELECTRIC WATER COOLER: WALL MOUNTED, BOTTLE FILLER: 1. FIXTURE: HAWS "RIVVE" MODEL 1011HSA.8, WALL MOUNTED, B-LEVEL COOLER WITH BOTTLE FILLING STATION, FILTERED, REFRIGERATED, STAINLESS FINISH, VANDAL RESISTANT BUBBLER, ELECTRONIC BOTTLE FILLER BUTTON WITH MECHANICAL FRONT BUBBLER BUTTION ACTIVATION. 2. TRAP: MCQUIRE MODEL MCT150, 17 GA SEAMLESS CHROME PLATED TUBULAR BRASS WITH WALL BEND AND FLANGE.		
DF-1 (ADA)	DRINKING FOUNTAIN: EXTERIOR, FREESTANDING: 1. FIXTURE: HAWS MODEL 3611FR, ADA VANDAL RESISTANT OUTDOOR FREEZE-RESISTANT BOTTLE FILLER FOUNTAIN, NON-REFRIGERATED, STAINLESS FINISH, VANDAL RESISTANT SHIELDED BUBBLER, ELECTRONIC BOTTLE FILLER BUTTON WITH MECHANICAL FRONT BUBBLER BUTTON ACTIVATION. 2. DOG BOWL: HAWS MODEL 3670, STAINLESS FINISH, VANDAL RESISTANT SHIELDED BUBBLER. 3. BURY VALVE: HAWS MODEL 6518.2FR, FREEZE-RESISTANT BURY VALVE FOR DUAL FOUNTAIN. 4. CARRIER: HAWS MODEL MTS.3600, FREE STANDING TEMPLATE FOR ANCHOR SPACING DURING CONCRETE POUR. 5. VALVE BOX: CAST IRON VALVE BOX WITH BRONZE COVER TO ACCESS BURY VALVES. DO NOT LOCATE BOX UNDER FOUNTAINS OR WITHIN ADA CLEARANCE REQUIREMENTS.		

fishbeck

Engineers | Architects | Scientists | Constructors

Van Buren Charter Township

Van Buren Township, MI

The Lakeside Park

REVISIONS

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 90 % PROGRESS
05/18/2026	DD 90 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn By

JBFITZSIMMONS

Designer

JBFITZSIMMONS

Reviewer

GLouis

Manager

CKRETOVIC

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2500281

SHEET NO.

P601

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FIXTURE PIPE SIZE SCHEDULE							
TAG	FIXTURE	COLD WATER SUPPLY (inches)	HOT WATER SUPPLY (inches)	TEMPERED WATER SUPPLY (inches)	TEPID WATER SUPPLY (inches)	MINIMUM SAN TRAP SIZE (inches)	MINIMUM SAN VENT SIZE (inches)
LAV	LAVATORY	1/2	--	1/2	--	1 1/4	1 1/2
S	SINK	1/2	1/2	--	--	1 1/2	1 1/2
JR	JANITOR RECEPTOR	1/2	1/2	--	--	3	1 1/2"
EW	ELECTRIC WATER COOLER	1/2	--	--	--	1 1/4	1 1/2
WC	WATER CLOSET, FLUSH VALVE	1 1/4	--	--	--	4	2
UR	URINAL, FLUSH VALVE	1	--	--	--	2	1 1/2
FD	FLOOR DRAIN, ROUND	--	--	--	--	3	1 1/2"
FD	FLOOR DRAIN, SQUARE	--	--	--	--	4	2
FS	FLOOR SINK, SQUARE	--	--	--	--	4	2
MV	MIXING VALVE	1/2	1/2	1/2	--	--	--
HB	HOSE BIBB, INTERIOR	3/4	--	--	--	--	--
HB	HOSE BIBB, EXTERIOR	3/4	--	--	--	--	--
* SANITARY AND VENT PIPING BELOW SLAB TO BE A MINIMUM OF 2"							

FOOD SERVICE NOTES

1. FOOD SERVICE EQUIPMENT IS FURNISHED BY THE FOOD SERVICE CONSULTANT FOR THIS PROJECT. PLUMBING CONTRACTOR TO FURNISH ALL FINAL PLUMBING CONNECTIONS BETWEEN THE ROUGH-IN AND THE INLET FIXTURES. THE PLUMBING CONTRACTOR SHALL INCLUDE ALL NECESSARY PIPING, ELBOWS, UNIONS, WATER SHUT-OFF VALVES, INTERCONNECTING DRAINS BETWEEN SINK COMPARTMENTS, AND SO FORTH, TO MEET LOCAL AND STATE CODES.

2. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING ALL FAUCETS, SINK DRAINS, TAILPIECE, REAR OVERFLOWS, AND PRE-SPRAY FAUCET ASSEMBLIES, ETC., FURNISHED LOOSE BY THE OWNER. THESE ITEMS SHALL BE CLEARLY TAGGED WITH THE EQUIPMENT ITEM NUMBER AND LOCATION OF THE FIXTURE ACCESSORY WHERE IT IS TO BE MOUNTED, AND SHALL BE TURNED OVER TO THE PLUMBING CONTRACTOR FOR INSTALLATION.

3. INSTALL FOOD SERVICE EQUIPMENT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

4. SEE FOOD SERVICE EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION PERTAINING TO FOOD SERVICE EQUIPMENT PLUMBING REQUIREMENTS, INCLUDING UTILITIES REQUIRED, CONNECTION SIZES AND ROUGH-IN LOCATIONS FOR SPECIFIC ITEMS (SUPPLY AND DRAIN). COORDINATE FINAL INSTALLATION WITH THE FOOD SERVICE EQUIPMENT AS ACTUALLY INSTALLED. LOCATIONS OF FLOOR DRAINS, FLOOR SINKS AND OTHER ASSEMBLIES UTILIZED FOR INDIRECT DRAINAGE FROM FOOD SERVICE EQUIPMENT, ARE TO BE COORDINATED WITH THE FOOD SERVICE EQUIPMENT. THE PLUMBING CONTRACTOR SHALL EXTEND PIPING BELOW COUNTERS, IN CASEWORK OR STRUCTURE AS REQUIRED FROM DROP OR RISE POINTS INDICATED ON PLANS TO EQUIPMENT CONNECTION POINTS.

5. ALL FOOD SERVICE EQUIPMENT INTERCONNECTING PIPING (SUPPLY AND DRAIN) IS FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR, INCLUDING CONDENSATION DRAIN PIPING FROM REFRIGERATION EQUIPMENT, FOOD WELLS, ETC
6. WHERE WASTE LINES FROM FOOD SERVICE EQUIPMENT ARE INDICATED TO BE INDIRECTLY DISCHARGED TO THE SANITARY SYSTEM, A MINIMUM AIR GAP OF 2" SHALL BE MAINTAINED ABOVE THE FLOOD RIM OF THE DRAIN ASSEMBLY.

7. PLUMBING SUPPLY PIPING (HW, CW, TW, ETC.) SERVING FOOD SERVICE EQUIPMENT PROVIDED WITH SOLENOID VALVES OR OTHER QUICK-CLOSING DEVICES SHALL HAVE A SHOCK ABSORBER FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR AT THE TOP OF THE SUPPLY DROP OR BASE OF SUPPLY RISER INDICATED ON PLANS. MULTIPLE ITEMS SERVED BY A COMMON SUPPLY DROP OR RISE MAY BE SERVED BY A SINGLE SHOCK ABSORBER, SIZED AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS FOR TYPE AND QUANTITY OF FIXTURES SERVED. WHERE QUICK-CLOSING DEVICES SUPPLY PIPING IS FURNISHED WITH A BACKFLOW PREVENTOR OR CHECK VALVE, THE SHOCK ABSORBER SHALL BE INSTALLED DOWNSTREAM SIDE OF THE BACKFLOW PREVENTOR OR CHECK VALVE.

8. WHERE A SINGLE PLUMBING SUPPLY DROP OR RISE SERVES MULTIPLE FOOD SERVICE ITEMS, VERIFY LOCATIONS AND SIZES OF INDIVIDUAL SUPPLY CONNECTIONS FROM THE FOOD SERVICE EQUIPMENT SCHEDULE. PROVIDE INDIVIDUAL SUPPLY BRANCHES TO EQUIPMENT, WITH STOP VALVES AS REQUIRED.

9. RUN PIPING CONCEALED WHENEVER POSSIBLE, IN STRUCTURE OR CASEWORK. SECURE PIPING TO STRUCTURE WITHIN CASEWORK (WHERE APPLICABLE) WITH COMPATIBLE FASTENERS PROVIDED BY THE PLUMBING CONTRACTOR.

10. COORDINATE INSTALLATION OF ALL ITEMS AND VERIFY CONDITIONS IN ADVANCE WITH THE FOOD SERVICE FIXTURES/EQUIPMENT CONTRACTOR(S).

11. GREASE BEARING DRAIN PIPING FROM FIXTURES AND/OR EQUIPMENT DESIGNATED ON PLANS AS "GW" DISCHARGING TO GREASE INTERCEPTOR(S) IS TO BE SLOPED AT MINIMUM 1/4" PER FOOT PER MBC REQUIREMENTS.

DOMESTIC WATER HEATER SCHEDULE											
TAG NO.	MANUFACTURER	MODEL	STORAGE CAPACITY (GAL)	GAS INPUT (BTUH)	WATER TEMP (°F)	RECOVERY (GPH)	AIR INTAKE (\"DIA)	FLUE EXHAUST (\"DIA)	VENT		NOTES
									CATEGORY	TYPE	
DWH-1	RHEEM	PRO+G40	40	50,000	140	64	2	2	IV	CPVC, DIRECT	1,2,3,4
DWH-2	RHEEM	PRO+G50	50	50,000	140	64	2	2	IV	CPVC, DIRECT	1,2,3,4
<u>NOTES:</u> 1. BASED ON PROFESSIONAL CLASSIC PLUS MAXIMUS. 2. RECOVERY CAPACITY BASED ON 90°F TEMPERATURE RISE. 3. INCLUDE CONCENTRIC VENT KIT. 4. INTAKE AND EXHAUST PIPING SIZE BASED ON 50 EQUIVALENT FEET. CONFIRM WITH ACTUAL PIPING INSTALLATION.											

WATER CIRCULATOR PUMP SCHEDULE										
TAG NO.	MANUFACTURER	MODEL	FLOW (GPM)	TDH (FT)	MOTOR SPEC			RPM	WEIGHT (LBS)	NOTES
					HP	FLA	VOLTAGE			
DHWP-1	BELL & GOSSETT	ECOCIRC 20-18	0.75	14	.027	1.02	120V, 1Ø	3500	10	1, 2
DHWP-2	BELL & GOSSETT	ECOCIRC 20-18	1.5	14	.027	1.02	120V, 1Ø	4000	10	1, 2
NOTES:										
1. CIRCULATOR SHALL BE IN-LINE, LEAD-FREE STAINLESS STEEL CONSTRUCTION SUITABLE FOR POTABLE HOT WATER, NON-OVERLOADING WITH BUILT-IN THERMAL OVERLOAD PROTECTION.										
2. PROVIDE ADJUSTABLE, SURFACE MOUNTED AQUASTAT SIMILAR TO HONEYWELL LS606C. SET AQUASTAT TO SHUT-OFF RECIRCULATION PUMP AT WATER HEATER SET POINT AND ON AT 10°F BELOW SET POINT.										

FOOD SERVICE EQUIPMENT SCHEDULE										
TAG NO.	DESCRIPTION	COLD WATER SIZE (IN)	HOT WATER SIZE (IN)	SAN DIRECT DRAIN SIZE (IN)	SAN INDIRECT DRAIN SIZE (IN)	GW DIRECT DRAIN SIZE (IN)	GW INDIRECT DRAIN SIZE (IN)	GAS SIZE (IN)	GAS MBH	NOTES
102	ICE MAKER W/ BIN	1/2			1 1/2					PIPING TO INDIRECT INTO DRAIN
102A	ICE MAKER FILTER	1/2								SERVES ITEM 102
202	PREP TABLE	1/2	1/2							
401	AIRPOT COFFEE BREWER	1/2			1 1/2					PIPING TO INDIRECT INTO DRAIN
401A	COFFEE MAKER FILTER	1/2								SERVES ITEM 401
502	HAND SINK W/ SIDE SPLASHES	1/2	1/2*	1 1/2						PROVIDE W/ MIXING VALVE
503	POT SINK	1/2			2	2				
504	UNDERCOUNTER DISHWASHER	1/2	3/4		1 1/2					BUILT-IN BOOSTER HEATER
504A	DRAIN WATER TEMPERING KIT	1/2			1 1/2					PIPING TO INDIRECT INTO DRAIN
604	UNDERBAR HAND SINK	1/2	1/2	1 1/2						
606	BEER DISPENSER				1 1/2					PIPING TO INDIRECT INTO DRAIN
607	UNDERBAR DRAINBOARD				1 1/2					PIPING TO INDIRECT INTO DRAIN
608	UNDERBAR ICE BIN				1 1/2					PIPING TO INDIRECT INTO DRAIN

NATURAL GAS LOAD SCHEDULE				
TAG NO.	DESCRIPTION	LOCATION	CFH	GAS SUPPLY PRESSURE MIN-MAX (IN WC)
LAKE HALL				
RTU-2	ROOFTOP UNIT	OUTSIDE	400	7 - 14
B-3	BOILER	MECHANICAL ROOM 163	285	7 - 14
B-4	BOILER	MECHANICAL ROOM 163	285	7 - 14
DWH-2	DOMESTIC WATER HEATER	MECHANICAL ROOM 163	50	3.5 - 10.5
GEN-1	GENERATOR	OUTSIDE	2400	7 - 11
TOTAL CFH			3420	
LAKE HOUSE				
RTU-1	ROOFTOP UNIT	OUTSIDE	200	7 - 14
B-1	BOILER	MECHANICAL ROOM 112	199	7 - 14
B-2	BOILER	MECHANICAL ROOM 112	199	7 - 14
DWH-1	DOMESTIC WATER HEATER	MECHANICAL ROOM 112	50	3.5 - 10.5
FP-1	FIREPLACE	COMMUNITY LIVING ROOM 104	72	5.5 - 7
FP-2	FIREPIT	OUTSIDE	140	3.5 - 14
TOTAL CFH			860	
NOTE: 1. LAKE HALL SERVICE SIZE BASED ON IFGC TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE; INLET PRESSURE OF LESS THAN 2 PSI, WITH 0.5 in. W.C. PRESSURE DROP, SPECIFIC GRAVITY OF 0.60 AND 90 FEET DEVELOPED LENGTH OF PIPE FROM REGULATOR. 2. LAKE HOUSE SERVICE SIZE BASED ON IFGC TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE; INLET PRESSURE OF LESS THAN 2 PSI, WITH 0.5 in. W.C. PRESSURE DROP, SPECIFIC GRAVITY OF 0.60 AND 350 FEET DEVELOPED LENGTH OF PIPE FROM REGULATOR.				

WATER HAMMER ARRESTER SCHEDULE (WHA)	
P.D.I. SIZE	WATER SUPPLY FIXTURE UNITS
"A"	1 TO 11
"B"	12 TO 32
"C"	33 TO 60
"D"	61 TO 113
"E"	114 TO 154
"F"	155 TO 330
NOTES: 1. USE NEXT LARGER SIZE WATER HAMMER ARRESTER WHEN FLOW PRESSURE EXCEEDS 65 PSIG. 2. BASED ON: PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-WH-201.	

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 90 % PROGRESS
05/18/2026	DD 90 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn By	JBFITZSIMMONS
Designer	JBFITZSIMMONS
Reviewer	GLOUIS
Manager	CKRETOVIC

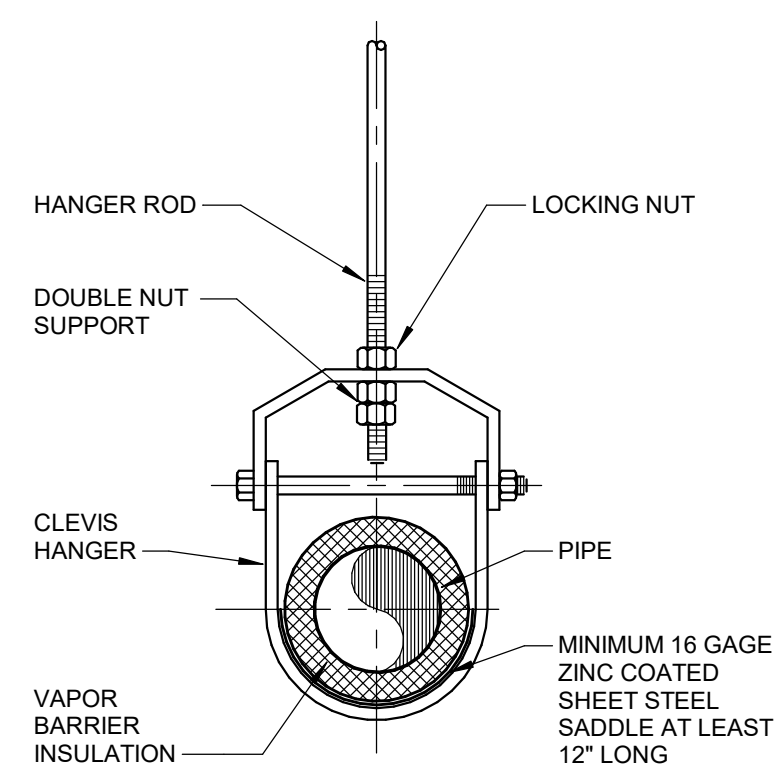
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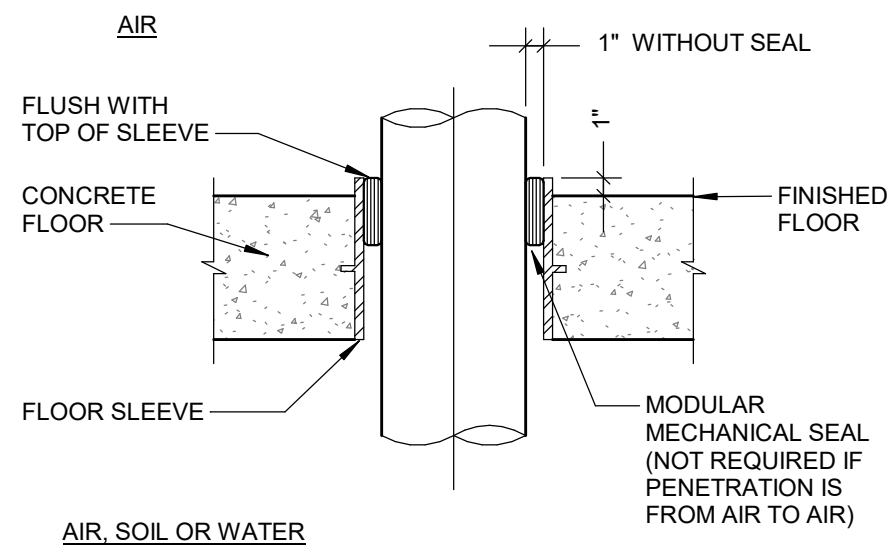
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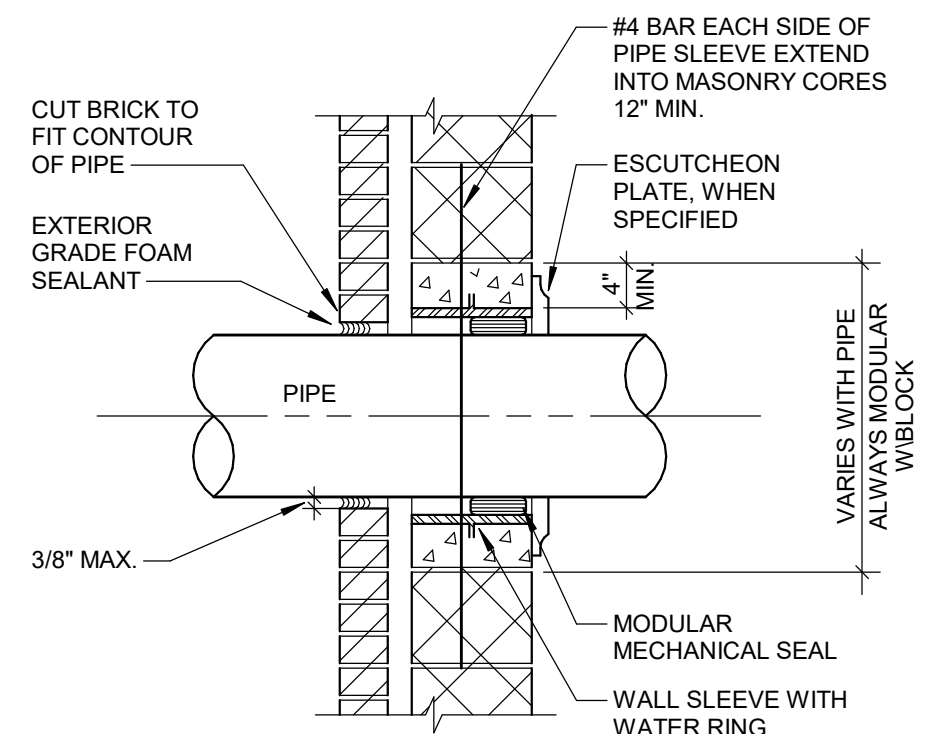
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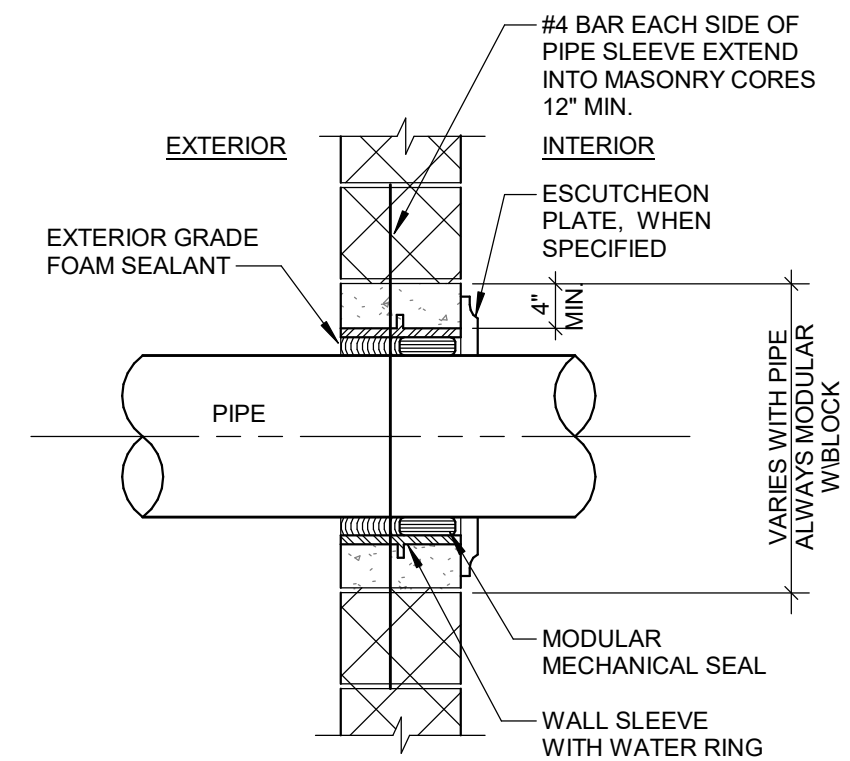
TYPICAL CLEVIS HANGER
NO SCALE



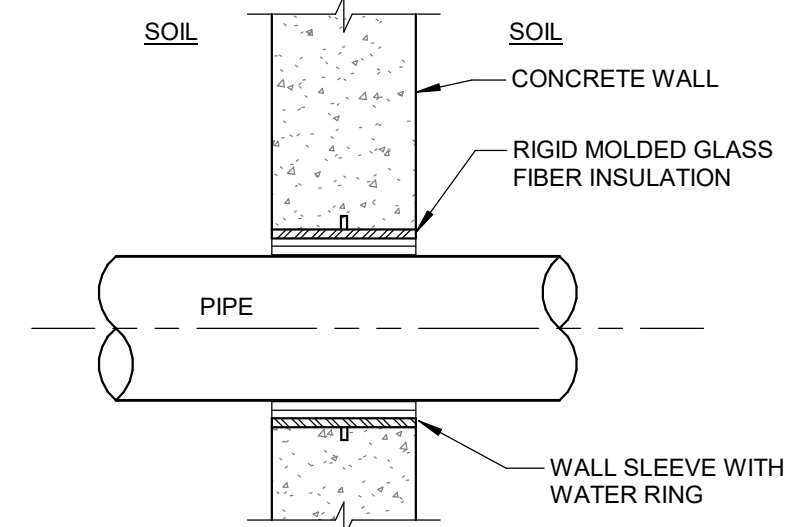
FLOOR SLEEVE DETAIL - TYPE 1
NO SCALE



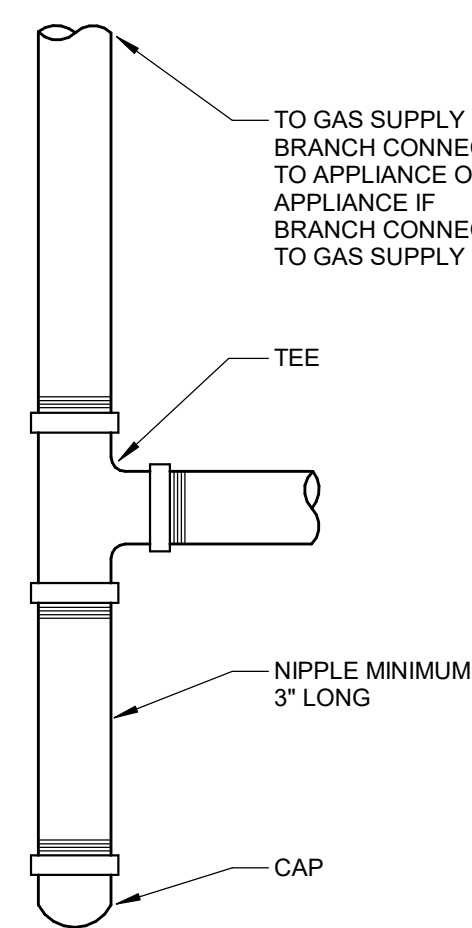
WALL SLEEVE DETAIL - TYPE 2
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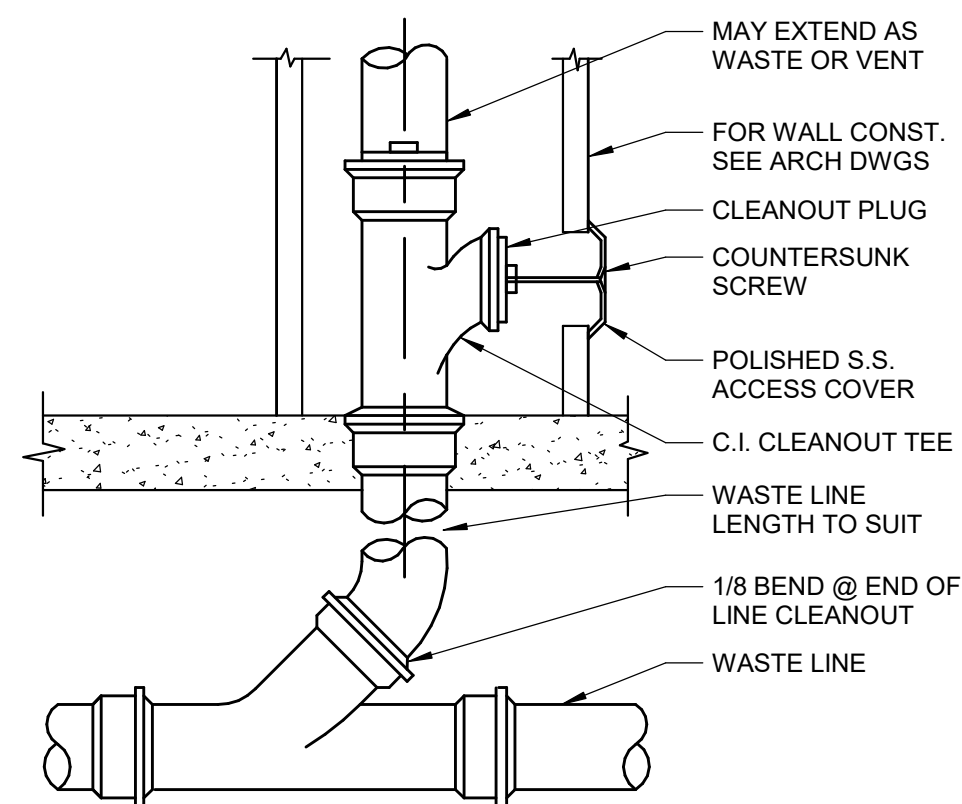
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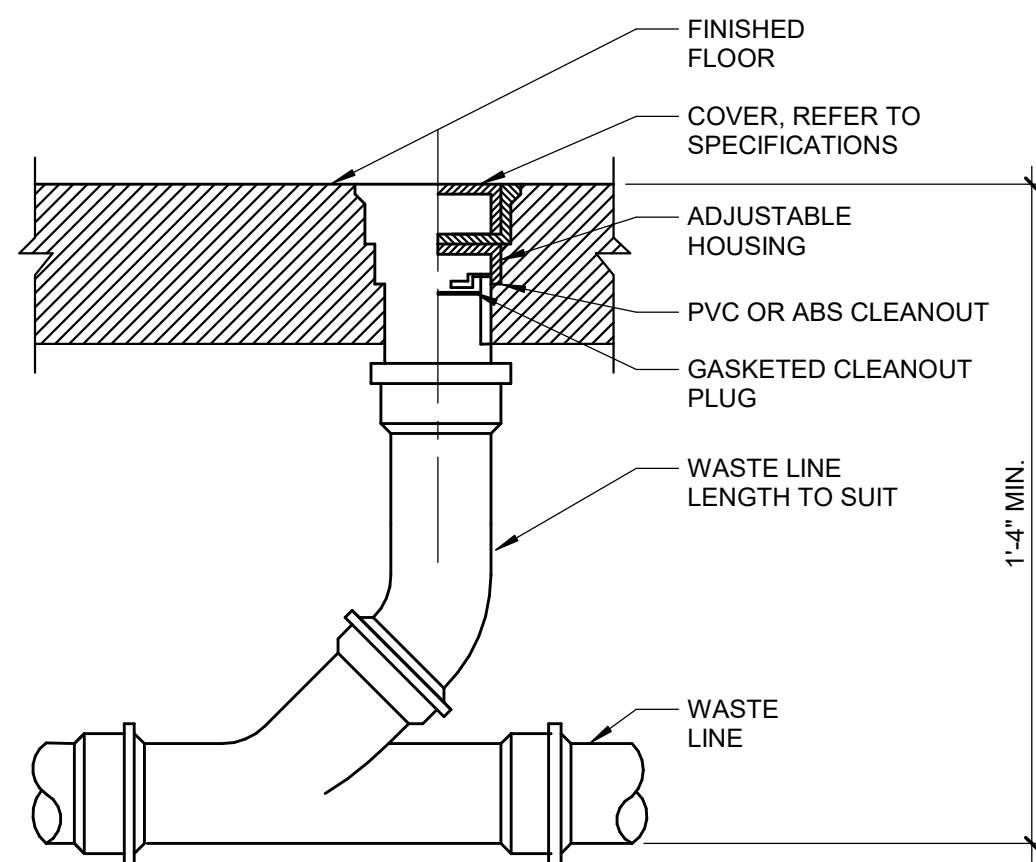
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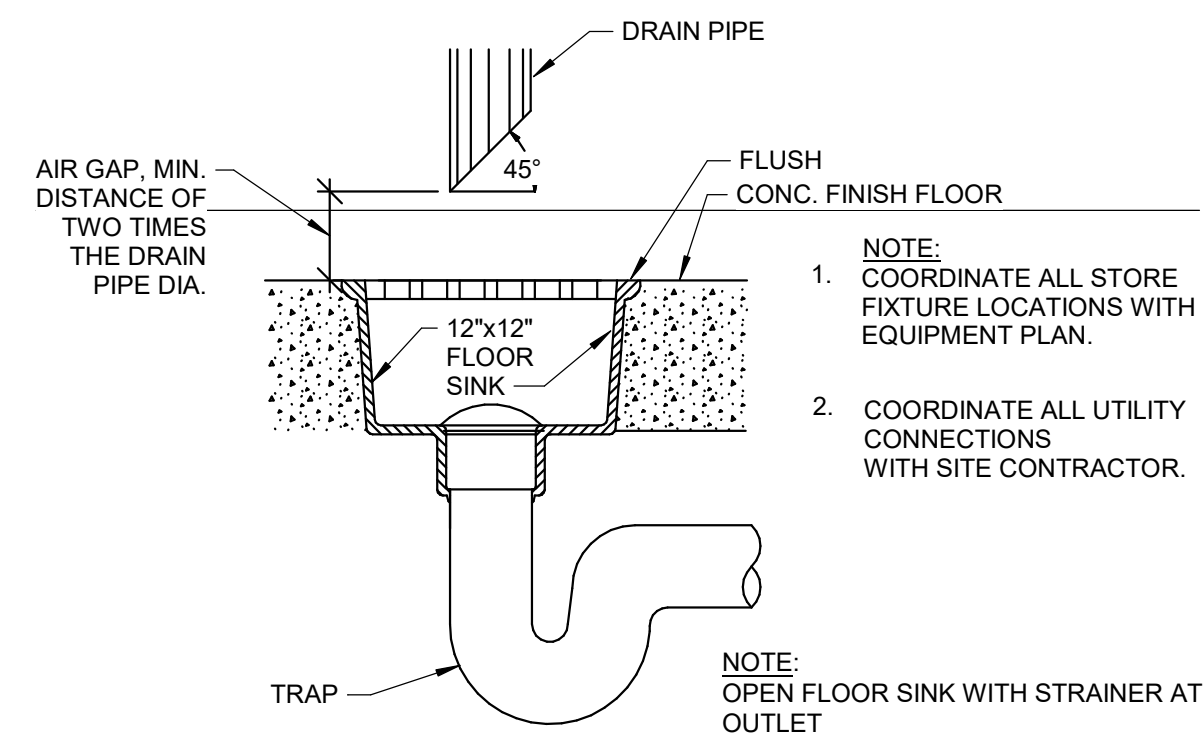
DIRT LEG DETAIL
NO SCALE



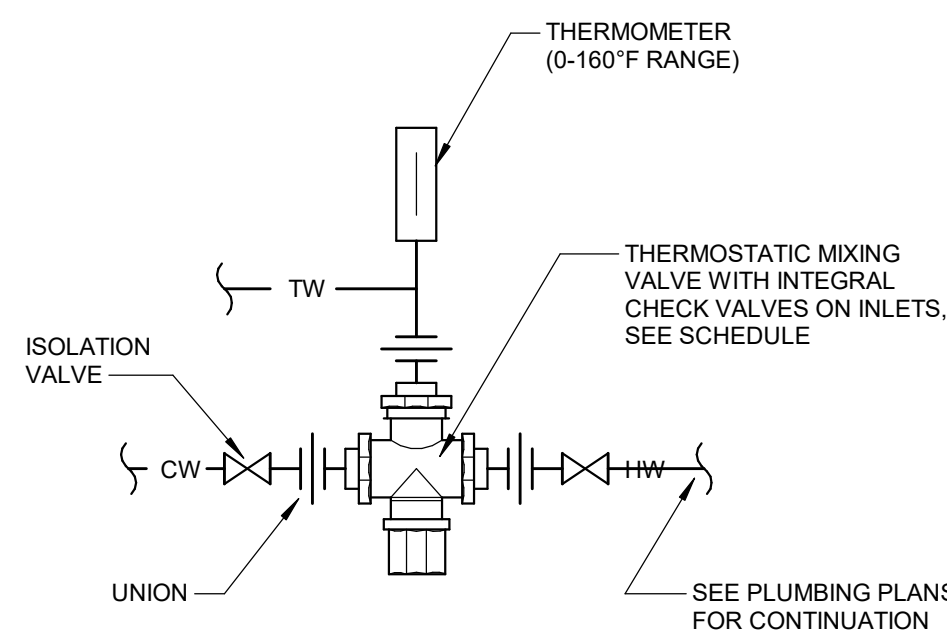
WALL CLEANOUT DETAIL
NO SCALE



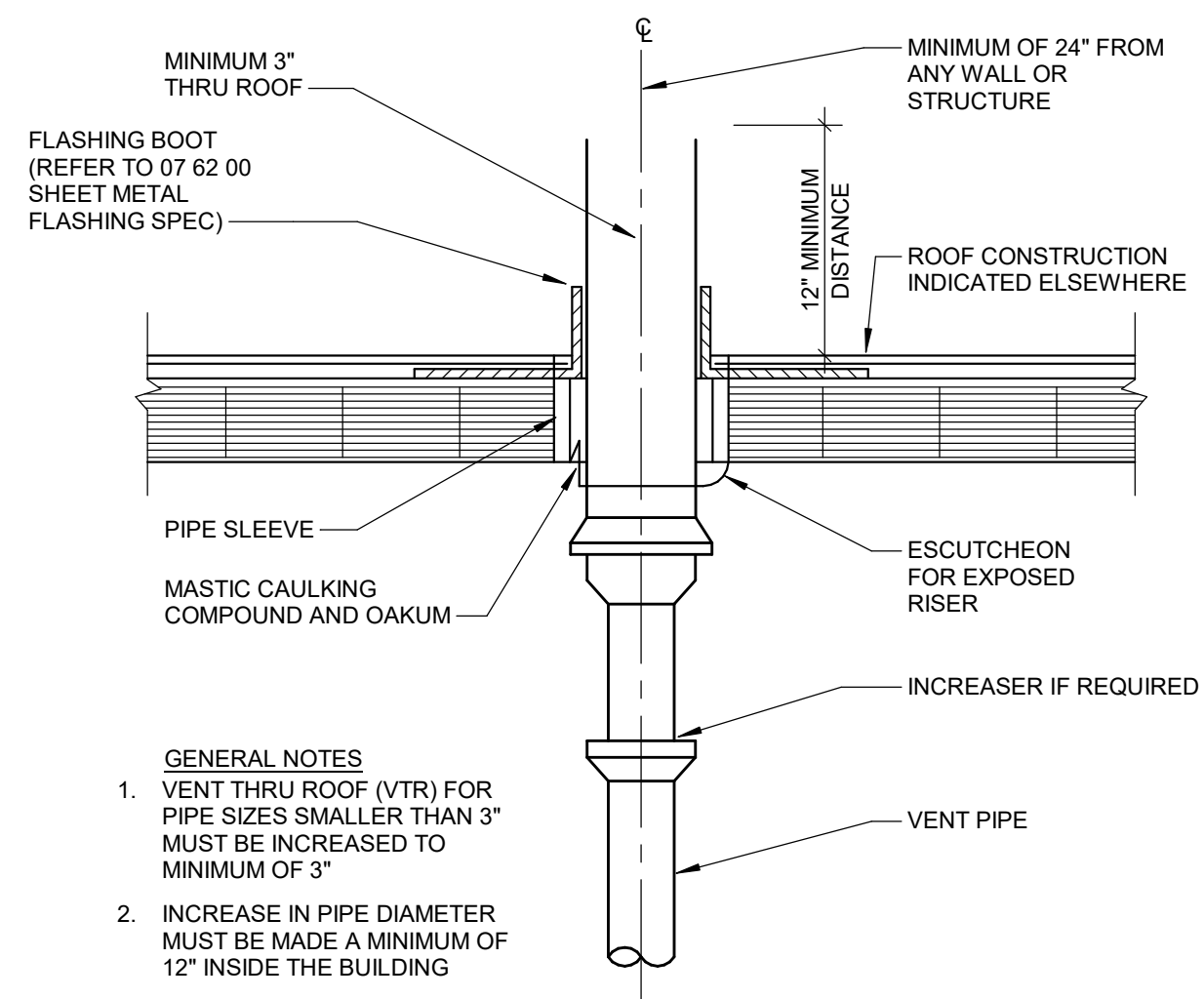
FLOOR CLEANOUT DETAIL
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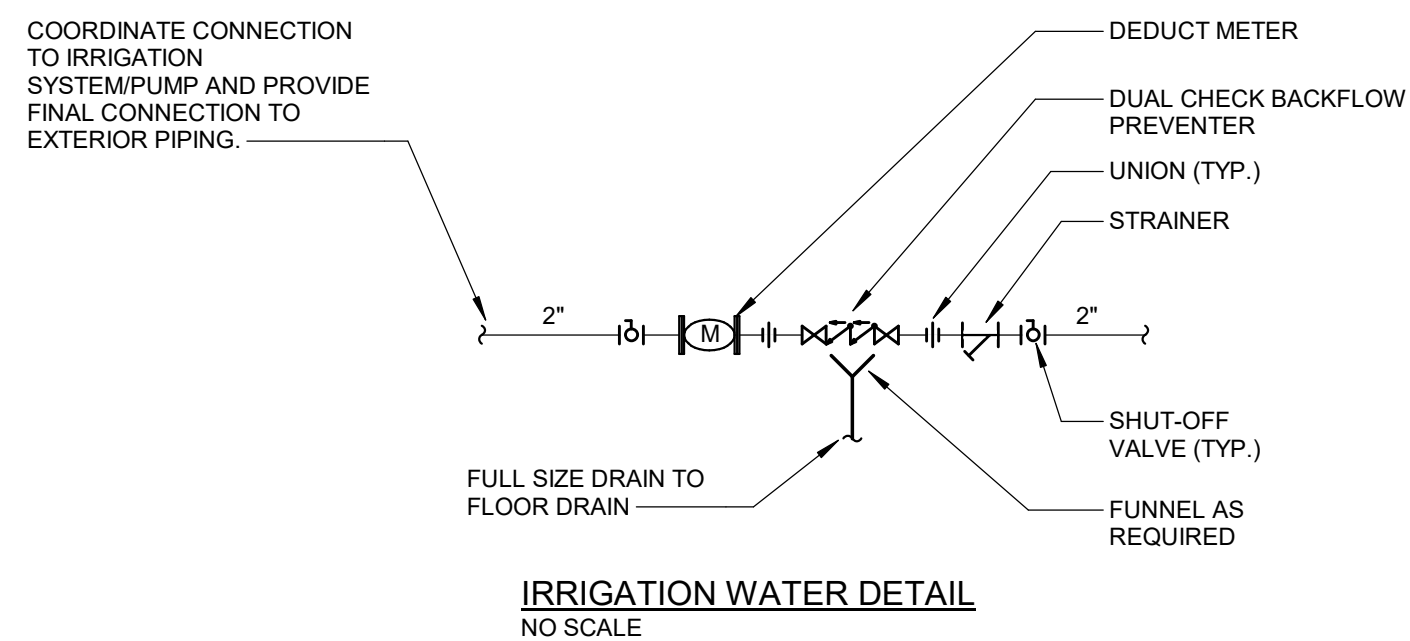
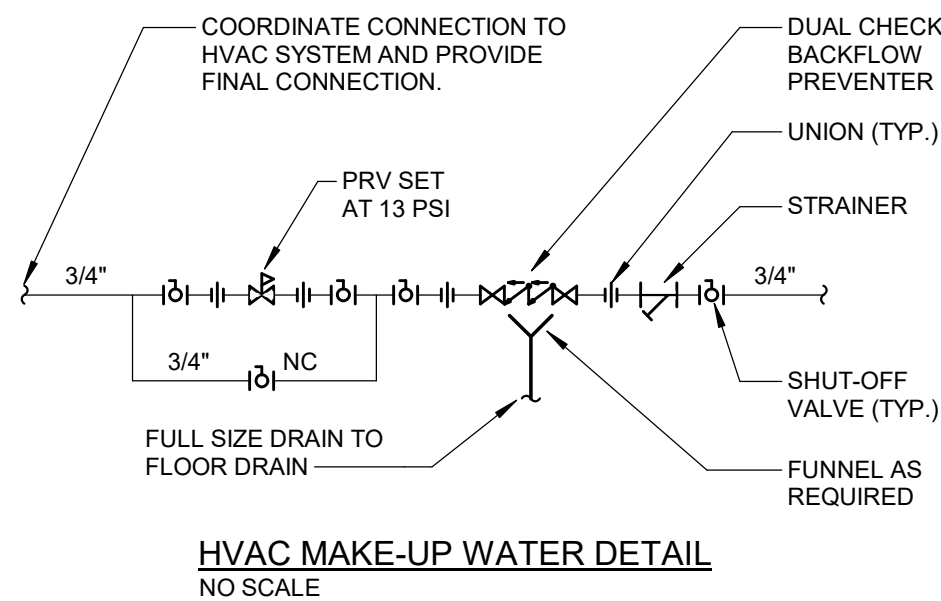
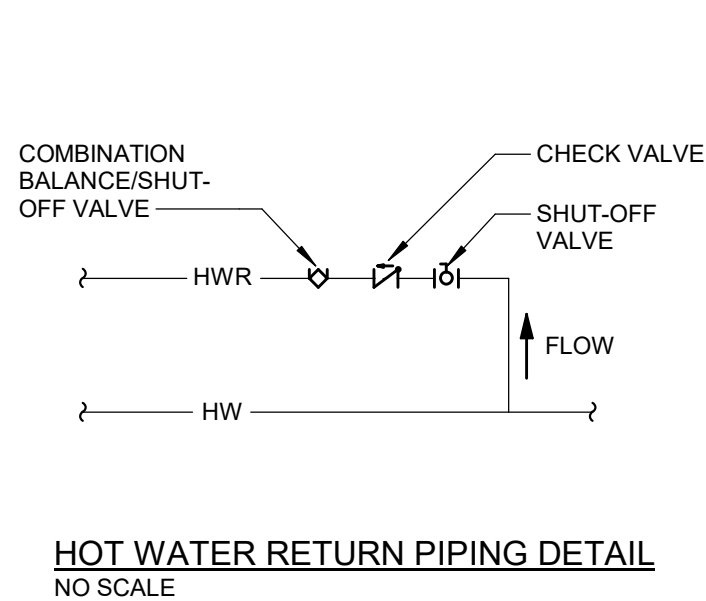
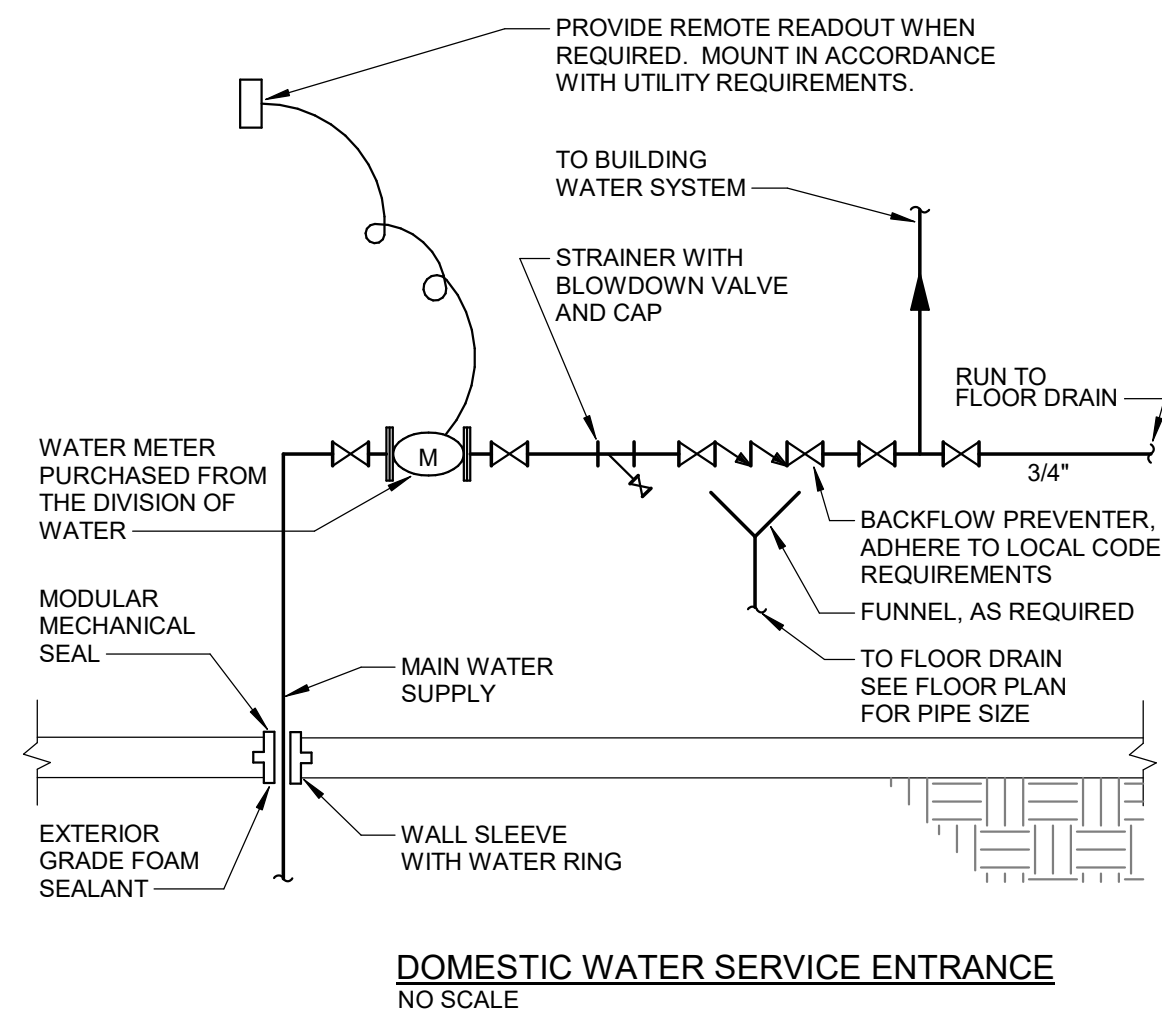
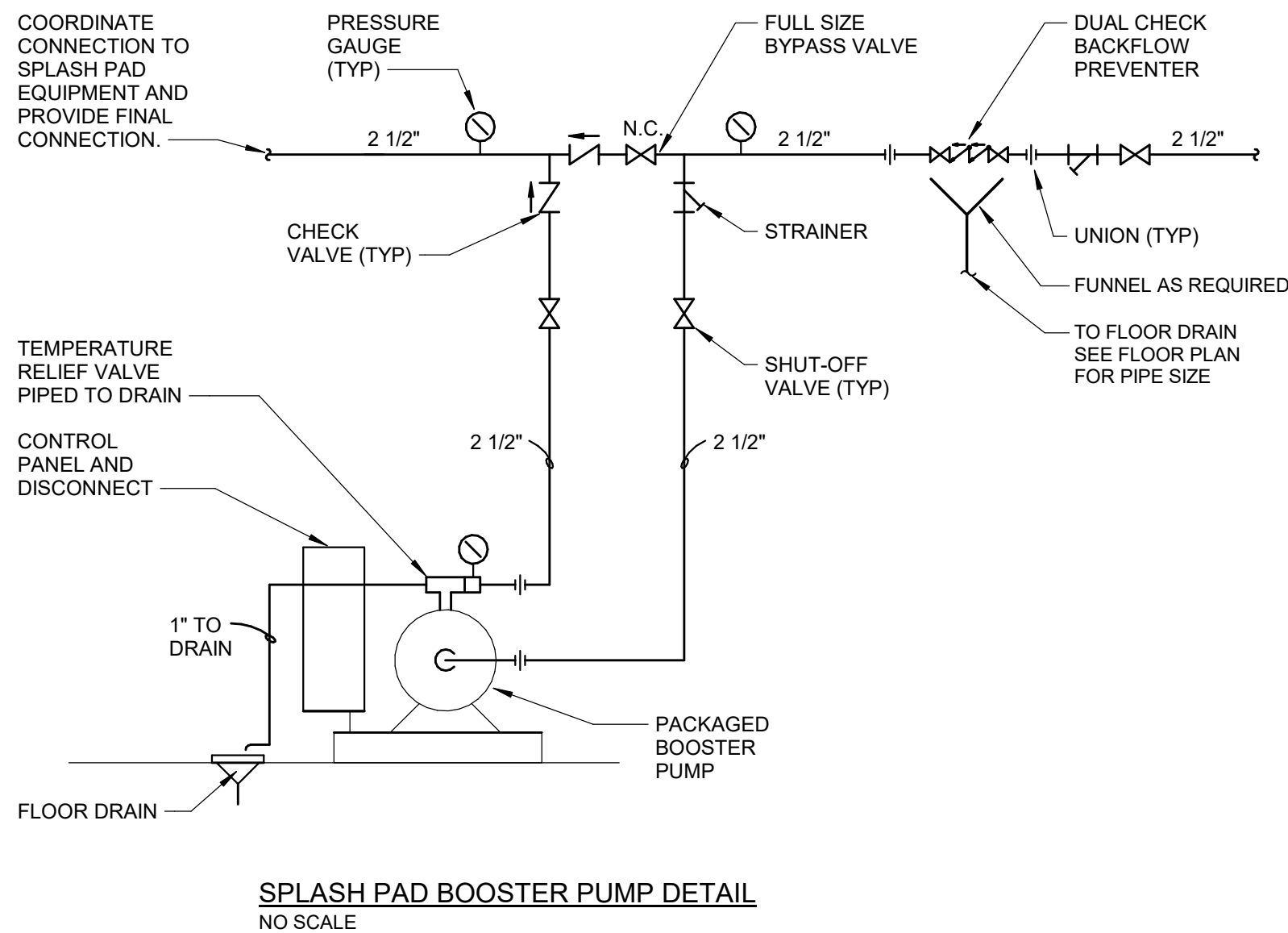
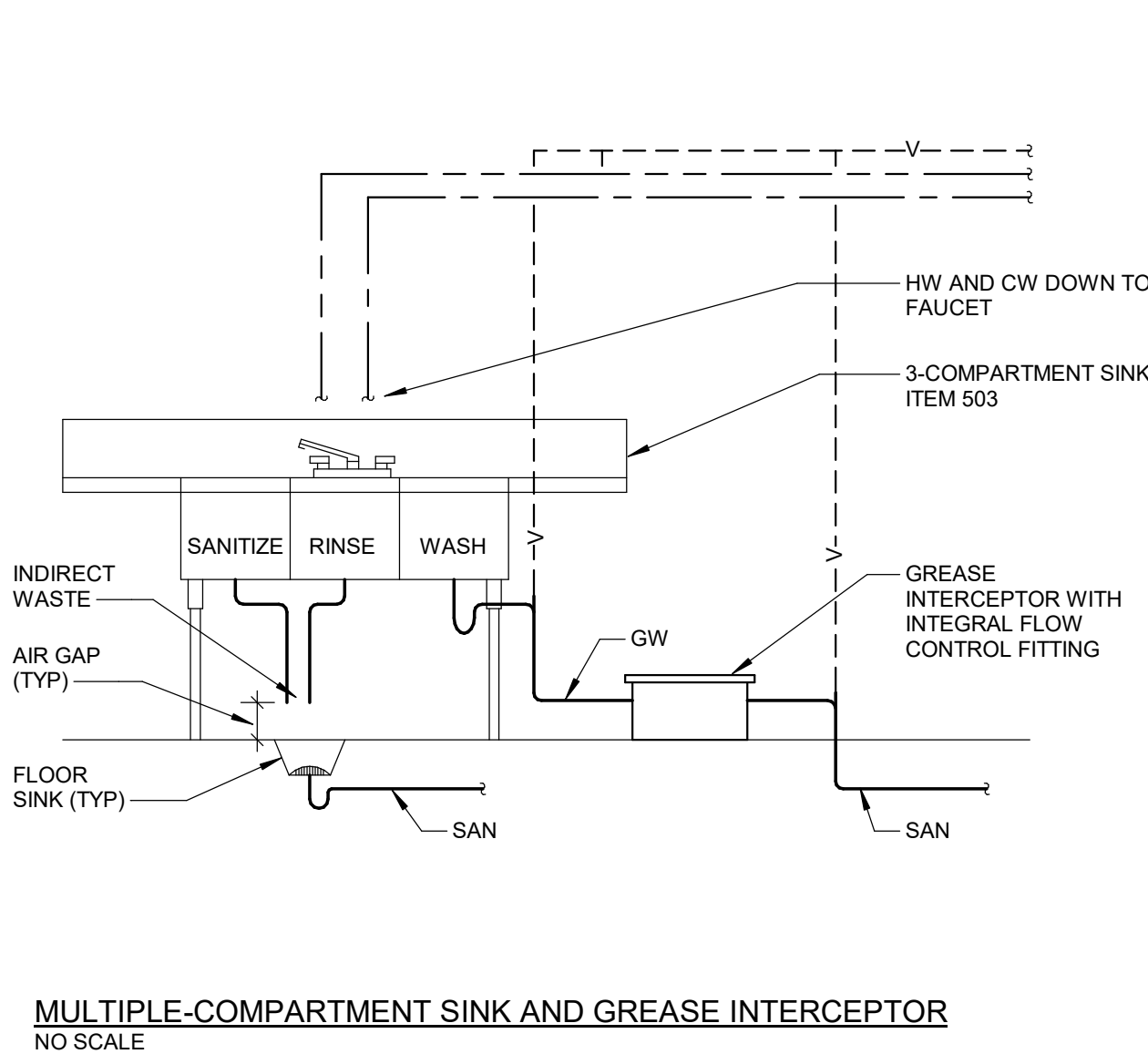
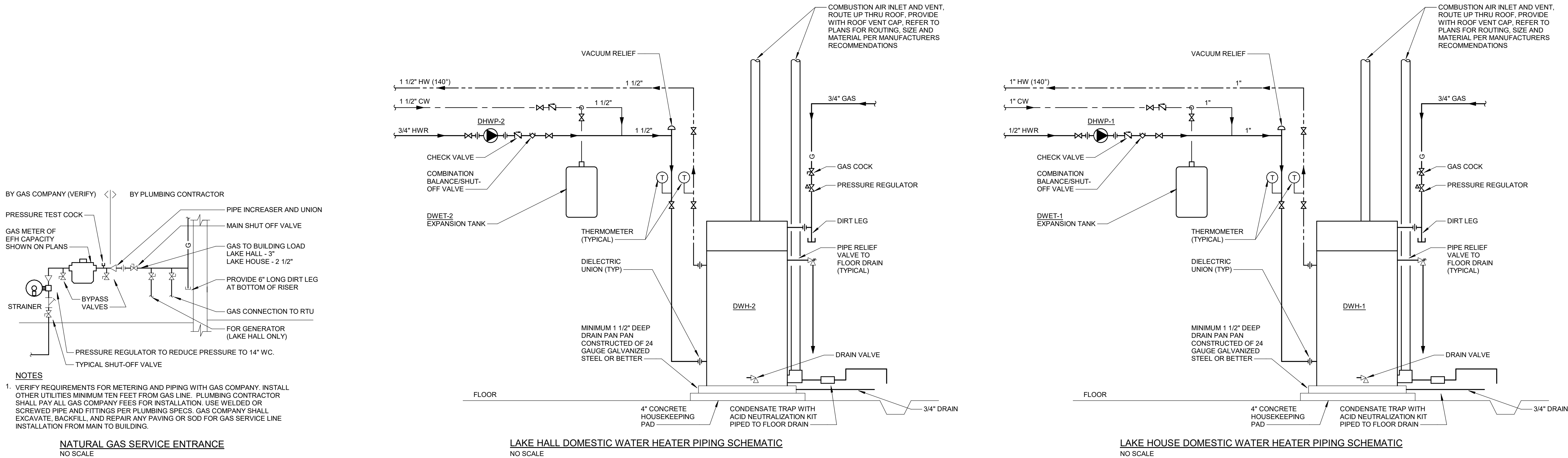
TYPICAL FLOOR SINK DETAIL
NO SCALE



MIXING VALVE INSTALLATION DETAIL
NO SCALE



PLUMBING VENT THRU ROOF DETAIL
NO SCALE



AFB	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
AFG	ABOVE FINISHED GRADE	MD	MOTORIZED DAMPER
AHU	AIR HANDLING UNIT	MFR	MANUFACTURER
AI	AC INSULATION	MINI	MINIMUM
AL	ACOUSTICAL LINING	MISC	MISCELLANEOUS
AP	ACCESS PANEL	NC	NORMALLY CLOSED
BD	BALANCING DAMPER	NO	NORMALLY OPEN
BDD	BIDIRECTIONAL DAMPER	NC	NOT IN CONTRACT
BMS	BUILDING MANAGEMENT SYSTEM	OA	OUTSIDE AIR
CI	CAST IRON	P	PUMP
CS	CLINIC SINK	PC	PLUMBING CONTRACTOR
CM	CONSTRUCTION MANAGER	RA	RETURN AIR
CO	CLEAN OUT	RET	RETURN AIR
DB	DRY BULB	RAG	RETURN AIR GRILLE
DDC	DIRECT DIGITAL CONTROL	RC	RAIN CONDUCTOR
DF	DRINKING FOUNTAIN	RD	ROOF DRAIN
DF	DIFFERENTIAL PRESSURE	S	SINK
DWG	DRAWING	SA	SUPPLY AIR
EA	EXHAUST AIR	SF	SUPPLY FAN
EF	EXHAUST FAN	SH	SHOWER
EAG	EXHAUST AIR GRILLE	SS	SERVICE SINK
EC	ELECTRICAL CONTRACTOR	TRANS	TRANSFORMER
EM SH	EMERGENCY SHOWER	TCC	TEMPERATURE CONTROL
EW	EYEWASH		CONTRACTOR
EW	ELECTRIC WATER COOLER	TU	TERMINAL UNIT
EX	EXISTING	UNC	UNLESS OTHERWISE
FC	FLEXIBLE CONNECTION	UH	UNIT HEATER
FD	FLOOR DRAIN	UR	URINAL
FS	FLOOR SINK	VAV	VARIABLE AIR VOLUME
FT	FINNED TUBE	VI	VIBRATION ISOLATOR
GC	GENERAL CONTRACTOR	VTR	VENT THRU ROOF
HV	HOSE BIBB	WB	WET BULB
HVAC	HEATING, VENTILATING, AIR CONDITIONING	WC	WORK IN CONTRACT
		WC	WATER CLOSET
HE	HEAT EXCHANGER	WC	WATER COLUMN
HX	INVERT ELEVATION	WH	WALL HYDRANT
	L LOUVER	WS	WASTE STACK
LAV	LAVATORY	YH	YARD HYDRANT

AR	ARGON GAS	MA	MEDICAL AIR
AWV	ACID WASTE VENT	MPS	MEDIUM PRESSURE STEAM
AW	ACID WASTE	MVAC	MEDICAL VACUUM
BF	BOILER	N2	NITROGEN
CO2	CARBON DIOXIDE	N2O	NITROUS OXIDE
CA	COMPRESSED AIR	NPW	NON-POTABLE WATER
CHWR	CHILLED WATER RETURN	OSTM	OVERFLOW STORM SEWER
CHWS	CHILLED WATER SUPPLY	O2	OXYGEN
COND	CONDENSATE	PC	PUMPED CONDENSATE
COND	CONDENSER WATER RETURN	PHWR	PRIMARY HEATING WATER RETURN
CS	CONDENSER WATER SUPPLY	PHWS	PRIMARY HEATING WATER SUPPLY
CW	DOMESTIC COLD WATER	PW	POTABLE WATER
CWR	COOLING WATER RETURN	PSW	PROCESS WATER SUPPLY
CWS	COOLING WATER SUPPLY	PWR	PROCESS WATER RETURN
DWR	DEIONIZED WATER RETURN	RS	REFRIGERANT SUCTIION
DWS	DEIONIZED WATER SUPPLY	RL	REFRIGERANT LIQUID
FOS	FUEL OIL SUPPLY	ROR	REVERSE OSMOSIS WATER RETURN
FOS	FUEL OIL SUPPLY	ROS	REVERSE OSMOSIS WATER SUPPLY
FP	FIRE PROTECTION WATER SUPPLY	SAN	SANITARY
FP-DRY	FIRE PROTECTION DRY	SCW	SOFT COLD WATER
FP-PA	FIRE PROTECTION PRE-ACTION	SODA	SODA
FP	FIRE PROTECTION	STEAM	STEAM
G	GLYCOL CHILLED WATER RETURN	SMS	SNOWMELT SUPPLY
GCHWR	GLYCOL CHILLED WATER RETURN	SMR	SNOWMELT RETURN
GCHWS	GLYCOL CHILLED WATER SUPPLY	STM	STORM SEWER
GHR	GREENHOUSE RETURN	T	TOWER
GHSW	GREENHOUSE SUPPLY	TWS	TOWER WATER SUPPLY
GHR	GEOTHERMAL LOOP RETURN	TW	TOWER WATER RETURN
GWS	GEOTHERMAL LOOP SUPPLY	VAC	VACUUM
H	HELIUM	WAGD	WASTE ANESTHETIC GAS DISPOSAL
HPS	HIGH PRESSURE STEAM	WWR	WELL WATER RETURN
HWR	DOMESTIC HOT WATER RETURN	WWS	WELL WATER SUPPLY
HWR	HEATING WATER RETURN		
HWS	HEATING WATER SUPPLY		
LA	LABORATORY AIR		
LPC	LOW PRESSURE CONDENSATE		
LPS	LOW PRESSURE STEAM		
LV	LABORATORY VACUUM		

AHRI	AIR CONDITIONING, HEATING AND REFRIGERATION INSTITUTE	HP	HORSE POWER
ARI	AIR PRESSURE DROP	HR	HOUR
BFU	AIR CONDITIONING AND REFRIGERATION INSTITUTE	Hz	HERTZ
BHP	BRAKE HORSE POWER	IN	INCHES
BTU	BOTH THERMAL UNITS PER HOUR	IN WC	INCHES WATER COLUMN
COP	CUBIC FEET PER MINUTE	KW	KILOWATT
DB	COEFFICIENT OF PERFORMANCE	LAT	LEAVING AIR TEMPERATURE
DBA	DRY BULB	LBS	POUNDS
DIA	COMPARATIVE NOISE LEVEL	LF	LINEAL FEET
EAT	DIAMETER	LT	LEAVING WATER TEMPERATURE
EER	ENTERING AIR TEMPERATURE	MAX	MAXIMUM
ECM	ELECTRONICALLY COMMUTATED MOTOR	MBH	1000 BTUH
ENR	ENERGY EFFICIENCY RATIO	MCA	MINIMUM CIRCUIT AMPACITY
ESP	EXTERNAL STATIC PRESSURE	MIN	MINIMUM
EW	ENTERING WATER TEMPERATURE	MOP	MAXIMUM OVER-CURRENT PROTECTION
F	FAHRENHEIT	NC	NOISE CRITERION
FE	FEET	NSA	NON-STEADY STATE
F DB	FAHRENHEIT DRY BULB	PA	PRESSURE DROP
F WB	FAHRENHEIT WET BULB	PH	POUNDS PER HOUR
FLA	FULL LOAD AMPS	PSIG	POUNDS PER SQUARE INCH - GAUGE
FLA	FULL LOAD AMPS		VOLTS
FPM	FEET PER MINUTE	RPM	REVOLUTIONS PER MINUTE
FT HD	FEET WATER HEAD	SCCR	SHORT-CIRCUIT CURRENT RATING
GPM	GALLONS PER MINUTE	TSP	TOTAL STATIC PRESSURE
GRNS	GRAINS	TRF	TRANSFORMER FREQUENCY DRIVE
		WPD	WATER PRESSURE DROP

SHEET METAL NOTES

1. COORDINATE THE INSTALLATION OF ALL DUCTWORK WITH NEW PLUMBING, ELECTRICAL AND STRUCTURAL CONDITIONS. PROVIDE REQUIRED OFFSETS AND FITTINGS WHETHER INDICATED OR NOT. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES. OBTAIN APPROVAL OF ALTERNATE DUCT ROUTING BEFORE PROCEEDING IN ORDER TO ENSURE THAT THE AVAILABLE STATIC PRESSURE REMAINS ADEQUATE. DUCTWORK LOCATION TAKES PRECEDENCE OVER HVAC AND FIRE PROTECTION PIPING, AND ELECTRICAL CONDUIT AND CABLE TRAY.
2. REFER TO DUCT TAKEOFF DETAILS. SPIN-IN TYPE WITH SCOOPS IS NOT ACCEPTABLE. PROVIDE A MINIMUM OF 2 FEET BETWEEN RUNOUT TAKEOFFS FROM TRUNK DUCTS.
3. VERIFY THERMOSTAT, SENSOR, AND HUMIDISTAT LOCATIONS WITH ARCHITECT AND ENGINEER BEFORE ROUGH-IN.
4. PROVIDE 1-INCH DUCTLINER ON FIRST 20 FEET OF DUCT CONNECTED TO ROOF EXHAUST FANS.
5. SET DIFFUSER BLADES TO THROW AIR IN DIRECTIONS INDICATED BY ARROWS.
6. MOUNT RUNOUT BALANCING DAMPERS AS CLOSE TO MAIN DUCT AS POSSIBLE.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIFFUSER LOCATIONS.
8. DUCTWORK LAYOUT HAS BEEN DESIGNED TO ABSORB NOISE. PROVIDE ALL FITTINGS AS INDICATED.
9. NEW DUCTWORK AND PIPE ROUTING AS INDICATED ARE SCHEMATIC IN CONCEPT. PROVIDE ALL NECESSARY OFFSETS.
10. MOUNT TERMINAL UNITS TO NOT IMPAIR ACCESS TO FILTERS, COILS, AND CONTROLS.
11. BALANCE ALL NEW DIFFUSERS AND GRILLES TO CFM INDICATED.
12. PROVIDE WATERTIGHT CONCRETE CURBS AROUND ELEVATED FLOOR SLAB PENETRATIONS.
13. TO REDUCE NOISE, PROVIDE INSULATED FLEX DUCT AT CONNECTIONS TO DIFFUSERS (MAXIMUM OF 5').

CLOSELY COORDINATE THE INSTALLATION OF ALL PIPING WITH NEW SHEET METAL, PLUMBING, ELECTRICAL, AND STRUCTURAL CONDITIONS. PROVIDE REQUIRED OFFSETS AND FITTINGS, WHETHER INDICATED OR NOT. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR CLEARANCES.

PIPE ROUTING AS INDICATED IS SCHEMATIC IN CONCEPT. COORDINATE FINAL ROUTING WITH SHEET METAL, ELECTRICAL, AND STRUCTURAL SYSTEMS. PROVIDE ALL NECESSARY OFFSETS.

PROVIDE SHUTOFF VALVES ON ALL RUNOUT PIPING SERVING MULTIPLE COILS.

INSTALL ALL PIPING TO CLEAR COIL REMOVAL AND ACCESS PANELS.

UNLESS OTHERWISE NOTED, ALL CONDENSATE PIPE IS TO BE FULL SIZE OF ASSOCIATE STEAM TRAP CONNECTION. PROVIDE MINIMUM CONDENSATE PIPE SIZE OF 3/4 INCH.

INSTALL MAINS AS HIGH AS POSSIBLE. PROVIDE VENTS AT ALL PIPING HIGH POINTS. PROVIDE DRAINS AT ALL LOW POINTS. SEE PIPING DETAILS.

PROVIDE PIPE ANCHORS, EXPANSION LOOPS, AND JOINTS AND GUIDES AS REQUIRED. REFER TO SPECIFICATIONS.

BALANCE ALL NEW AND EXISTING COILS WHERE FLOW IS INDICATED.

SLEEVE AND SEAL EXTERIOR WALL AND ROOF PENETRATIONS TO A WEATHER TIGHT CONDITION SLEEVE AND SEAL INTERIOR FLOOR PENETRATIONS TO A WATERTIGHT CONDITION.

PROVIDE FIRESTOP IN NEW HOLES AND PENETRATIONS IN RATED WALLS.

OPENINGS IN WALLS AND SLABS SHALL BE CORE DRILLED AS REQUIRED FOR NEW PIPING. LOCATION OF REINFORCING STEEL SHALL BE COORDINATED TO AVOID DAMAGE.

PROVIDE ISOLATION, DRAIN AND FILLING OF EXISTING PIPING SYSTEMS AS REQUIRED TO PERFORM THE WORK.

NEW PIPING ROUTED OVER ELECTRICAL GEAR MUST MEET CLEARANCE REQUIREMENTS OF THE NEC.

VALVE INDICATIONS ARE GENERIC. REFER TO SPECIFICATION FOR ACCEPTABLE VALVE TYPES PER APPLICATION.

PIPE/FITTING SYMBOLS	VALVE SYMBOLS	MISC. PIPING SYMBOLS	HVAC DUCTWORK SYMBOLS
EXISTING PIPE EXISTING PIPE TO BE REMOVED NEW PIPE ELBOW UP ELBOW DOWN TEE UP TEE DOWN UNION CAP PIPE BREAK	GENERIC VALVE (REFER TO SPEC FOR TYPE) BALL VALVE GLOBE VALVE BUTTERFLY VALVE PLUG VALVE GAS COCK SWING CHECK VALVE PRESSURE REDUCING VALVE PRESSURE RELIEF VALVE 2-WAY VALVE 3-WAY VALVE BACKFLOW PREVENTER RPZ VALVE CIRCUIT SETTER SOLENOID VALVE MIXING VALVE	PUMP (LIQUID) PUMP (AIR) STRAINER EXPANSION JOINT FLEX CONNECTION STEAM TRAP PIPE ANCHOR PIPE GUIDE MANUAL AIR VENT (MV) AUTOMATIC AIR VENT (AV) VACUUM BREAKER (VB) CO — CLEANOUT LOCATED IN FLOOR CO — CLEANOUT LOCATED IN WALL, PIPE COMING UP FROM BELOW CO — HORIZONTAL CLEANOUT (LOCATED BELOW FLOOR AND ABOVE CEILING OF FLOOR BELOW)	L.F.I. FLOW INDICATOR P PRESSURE GAGE N NEEDLE VALVE T THERMOMETER T THERMOWELL "X" WATER HAMMER ARRESTER WITH P.D.I. DESIGNATION SP STATIC PRESSURE CONTROLS T THERMOSTAT H HUMIDISTAT S SENSOR CO CARBON MONOXIDE SENSOR CD CARBON DIOXIDE SENSOR ND NITROGEN DIOXIDE SENSOR FS FLOW SWITCH SD DUCT SMOKE DETECTOR CW CONTROL WIRE TS TAMPER SWITCH FS FLOW SWITCH
PIPING DESIGNATION CHWS — PIPE CONTENTS, SEE ABBREVIATIONS LIST			EXISTING DUCT EXISTING DUCT TO BE REMOVED NEW DUCT CAPPED DUCT SUPPLY AIR DUCT UP SUPPLY AIR DUCT DOWN EXHAUST OR RETURN AIR DUCT UP EXHAUST OR RETURN AIR DUCT DOWN ROUND DUCT UP ROUND DUCT DOWN FLAT OVAL DUCT DOWN FLEXIBLE DUCT BALANCING DAMPER MOTORIZED DAMPER TURNING VANES SIDE WALL DIFFUSER/GRILLE SUPPLY AIR DIFFUSER WITH TAG NUMBER (SEE SCHEDULE) AND CFM. ARROWS INDICATE AIR FLOW DIRECTION EXHAUST AIR OR RETURN AIR GRILLE WITH TAG NUMBER (SEE SCHEDULE) AND CFM ROUND DUCT SIZE RECTANGULAR DUCT SIZE EXISTING FIRE DAMPER HORIZONTAL INSTALLATION EXISTING FIRE DAMPER VERTICAL INSTALLATION FIRE DAMPER HORIZONTAL INSTALLATION FIRE DAMPER VERTICAL INSTALLATION FIRE/SMOKE DAMPER HORIZONTAL INSTALLATION FIRE/SMOKE DAMPER VERTICAL INSTALLATION SMOKE DAMPER SUPPLY AIR DIFFUSER WITH RADIATION DAMPER AND THERMAL BLANKET EXHAUST AIR OR RETURN AIR GRILLE WITH RADIATION DAMPER MOTOR
GENERAL DESIGNATION DEMOLITION KEY NOTE SYMBOL KEY NOTE SYMBOL NEW TO EXISTING CONNECTION			

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Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

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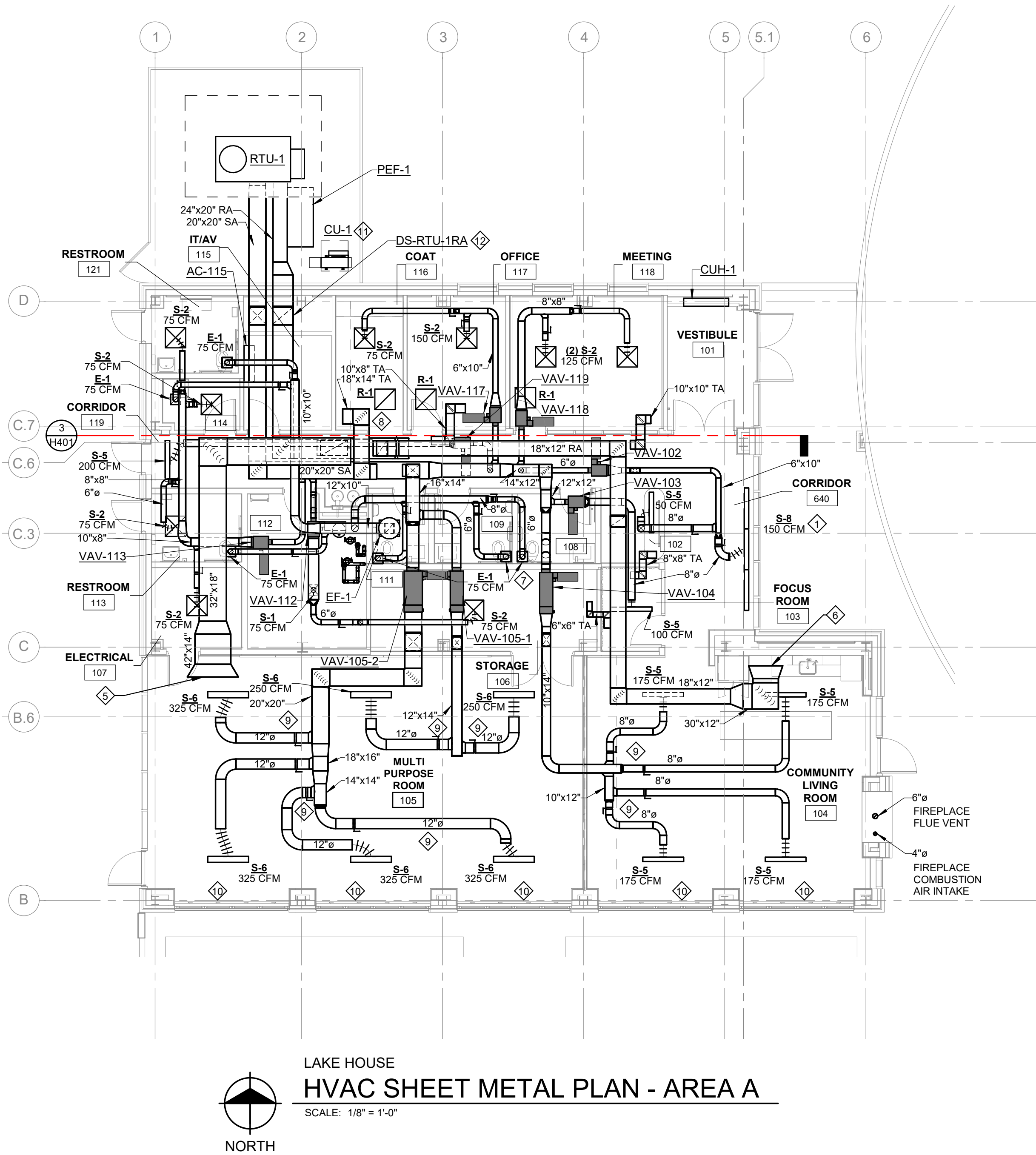
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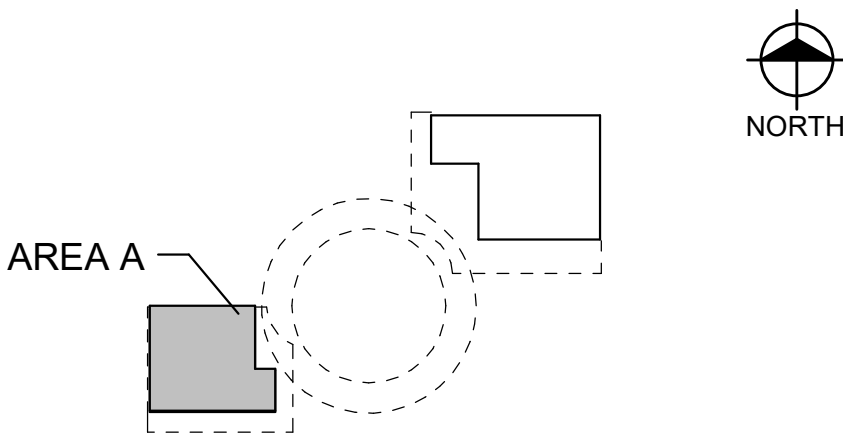
NOTES

- DUCT BRANCHES TO DIFFUSERS/GRILLES SHALL BE FULL SIZE OF DIFFUSER/GRILLE NECK UNLESS NOTED OTHERWISE.
- DUCT BRANCHES TO TERMINAL UNITS SHALL BE FULL SIZE OF TERMINAL UNIT INLET CONNECTION UNLESS NOTED OTHERWISE.

KEY NOTES

- PROVIDE 12 FT CONTINUOUS DIFFUSER, CENTER 4 FT IS A ACTIVE DIFFUSER.
- BALANCE RETURN DAMPER TO 1400 CFM.
- BALANCE RETURN DAMPER TO 700 CFM.
- BALANCE RETURN DAMPER TO 1800 CFM.
- PROVIDE A 60" x 20" OPEN ENDED RETURN AIR DUCT. RETURN AIR SHALL BE TRANSFERRED FROM THE SPACE THROUGH THE PLENUM CAVITY FORMED BEHIND THE ACOUSTICAL PANEL ON THE NORTH WALL AND ROUTED ABOVE THE CEILING TO THE RETURN AIR DUCT.
- PROVIDE A 40" x 12" OPEN-ENDED RETURN AIR DUCT. RETURN AIR SHALL BE TRANSFERRED FROM THE SPACE THROUGH THE OPENING LOCATED ABOVE THE UPPER CABINETS AND ROUTED TO THE RETURN AIR DUCT ABOVE THE CEILING.
- PROVIDE YOUNG REGULATOR COMPANY 270-275 WITH 5020CC DAMPER FOR REMOTE DAMPER CONTROL OF EXHAUST GRILLES.
- TRANSFERS RETURN AIR FROM COAT 116, CORRIDOR 119, CORRIDOR 640, AND RECEPTION 102 INTO THE RETURN PLENUM.
- DAMPER MUST BE MOUNTED AT LEAST 10 DUCT DIAMETERS FROM THE DIFFUSER AS DIRECTED BY THE ACOUSTICAL CONSULTANT DUE TO NOISE CONCERNS.
- THE CONTROLS CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING FROM THE REED DOOR CONTACT FURNISHED BY THE DOOR MANUFACTURER AND SHALL INTERFACE THE DOOR CONTACT WITH THE ASSOCIATED VAV TERMINAL UNIT SERVING THE SPACE. THE DOOR CONTACT STATUS SHALL BE MONITORED AND UTILIZED FOR CONTROL FUNCTIONS AS SPECIFIED.
- PROVIDE CONDENSING UNIT WITH CURB.
- SILENCER IN VERTICAL DUCT.

KEY PLAN



Van Buren Charter Township

Van Buren Township, MI

The Lakeside Park

REVISIONS

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 90 % PROGRESS
05/18/2026	DD 90 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

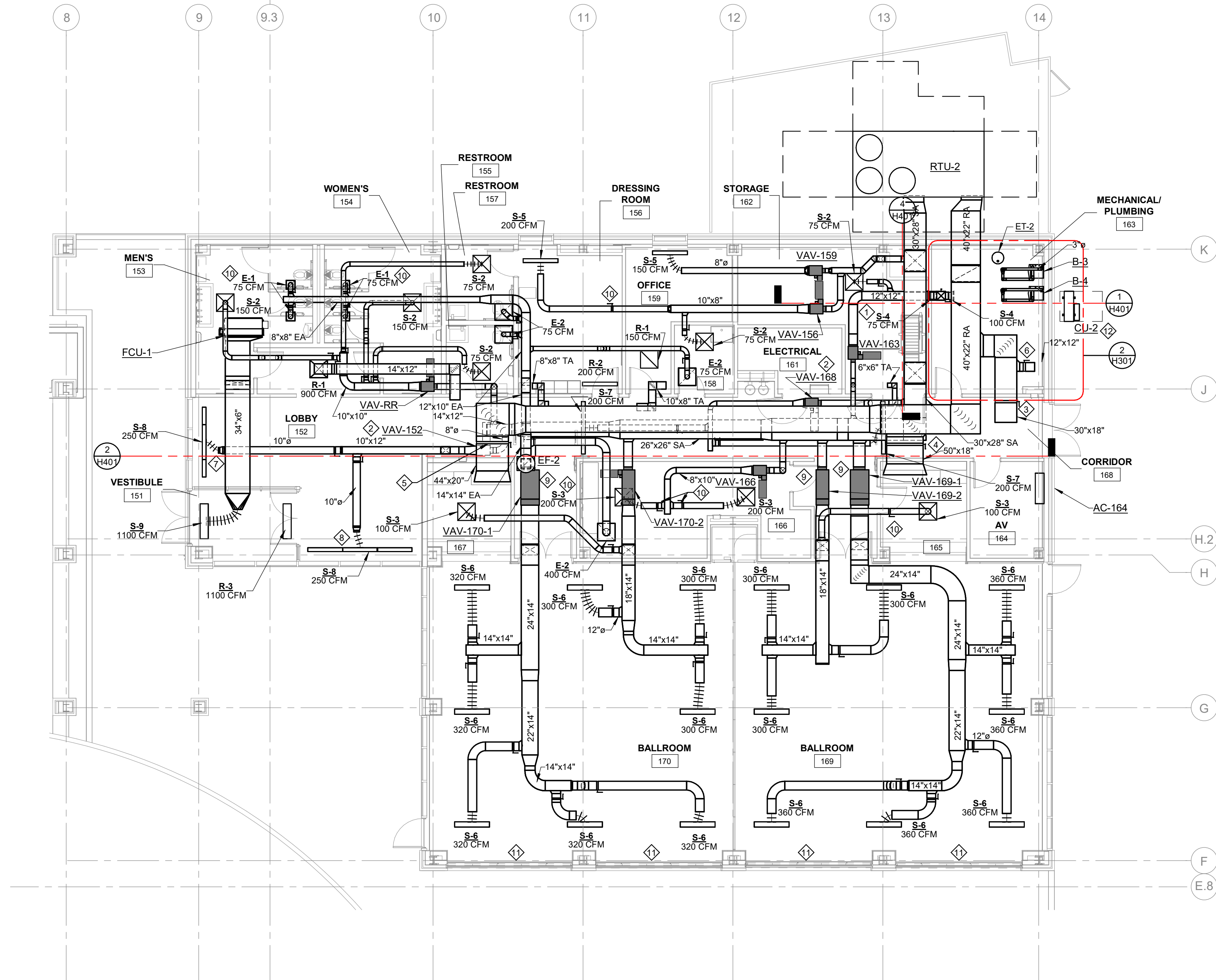
Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

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PROJECT NO.
2500281

SHEET NO.

H101



LAKE HALL
HVAC SHEET METAL PLAN - AREA B
SCALE: 1/8" = 1'-0"

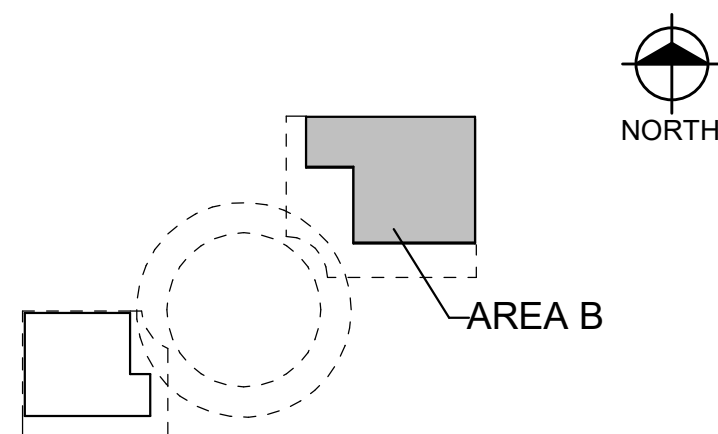
NOTES

- DUCT BRANCHES TO DIFFUSERS/GRILLES SHALL BE FULL SIZE OF DIFFUSER/GRILLE NECK UNLESS NOTED OTHERWISE.
- DUCT BRANCHES TO TERMINAL UNITS SHALL BE FULL SIZE OF TERMINAL UNIT INLET CONNECTION UNLESS NOTED OTHERWISE.
- REFER TO SECTION 2 ON SHEET H401 FOR DUCT DIMENSIONS IN CORRIDOR.

KEY NOTES

- SUPPLY DIFFUSER TO SERVE MEZZANINE ABOVE STORAGE ROOM.
- COORDINATE VAV BOX LOCATION WITH LIGHTING, DIFFUSERS, SPRINKLERS, AND CEILING TILES TO ENSURE BOXES CAN BE ADEQUATELY ACCESSED.
- SET RETURN BALANCE DAMPER TO 1500 CFM.
- SET RETURN BALANCE DAMPER TO 2900 CFM.
- SET RETURN BALANCE DAMPER TO 2700 CFM.
- SET RETURN BALANCE DAMPER TO 100 CFM.
- PROVIDE 8 FT CONTINUOUS DIFFUSER, THE CENTER 4 FT SECTION HAS AIRFLOW, THE OUTER 2 FT ON EACH END ARE BLANK OFF PANELS.
- PROVIDE 12 FT CONTINUOUS DIFFUSER, CENTER 4 FT IS A BLANK OFF PANEL.
- BOTTOM CONTROL ACCESS VAV.
- PROVIDE YOUNG REGULATOR COMPANY 270-275 WITH 5020CC DAMPER FOR REMOTE DAMPER CONTROL.
- THE CONTROLS CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING FROM THE REED DOOR CONTACT FURNISHED BY THE DOOR MANUFACTURER AND SHALL INTERFACE THE DOOR CONTACT WITH THE ASSOCIATED VAV TERMINAL UNIT SERVING THE SPACE. THE DOOR CONTACT STATUS SHALL BE MONITORED AND UTILIZED FOR CONTROL FUNCTIONS AS SPECIFIED.
- PROVIDE CONDENSING UNIT WITH CURB.

KEY PLAN



REVISIONS

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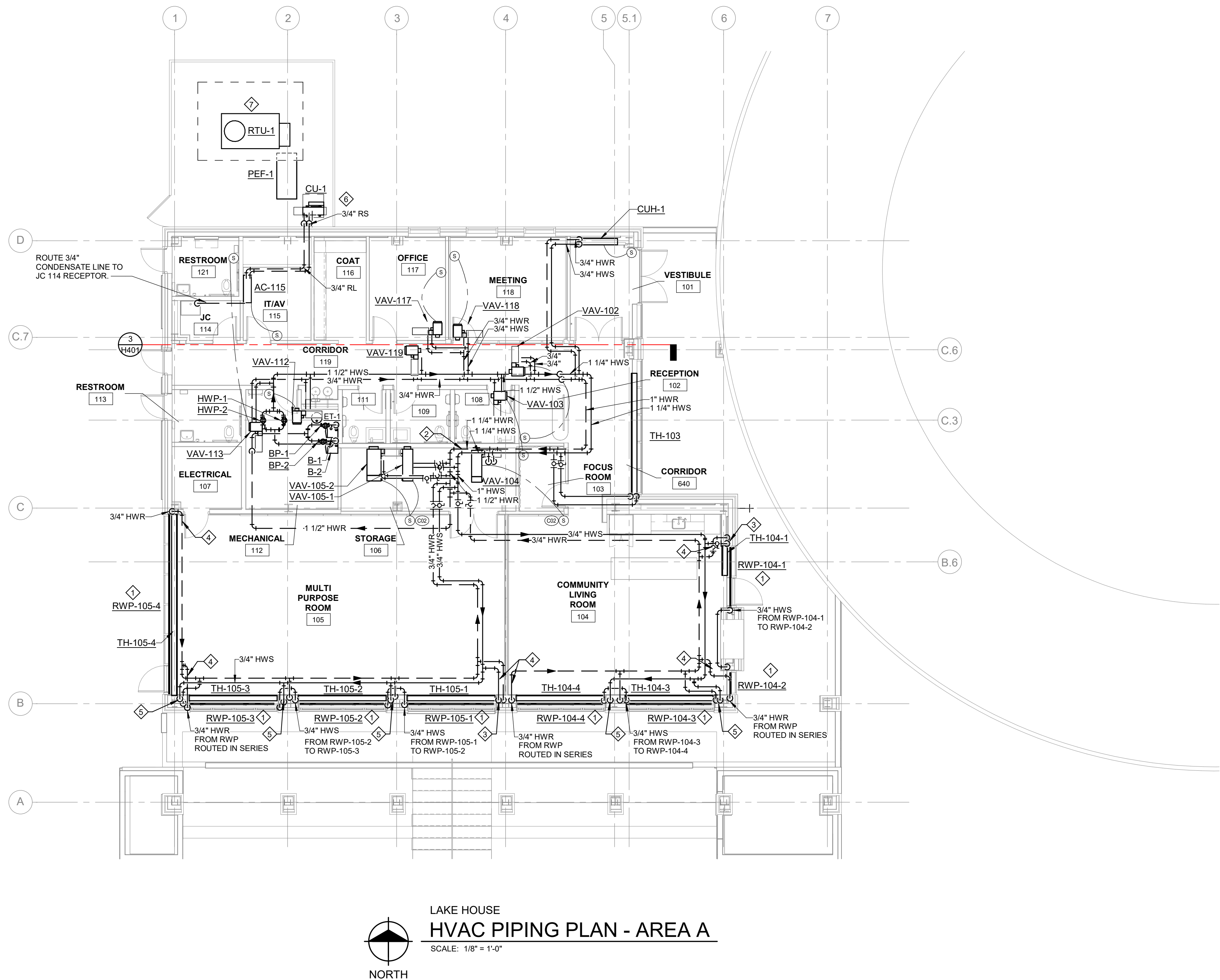
Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

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PROJECT NO.
2500281
SHEET NO.

H102

PLOT INFO: 10/12/2026 2:04:39 PM Autodesk Docs://2500281 - Van Buren Twp Lake House/2026_M_2500281.rvt



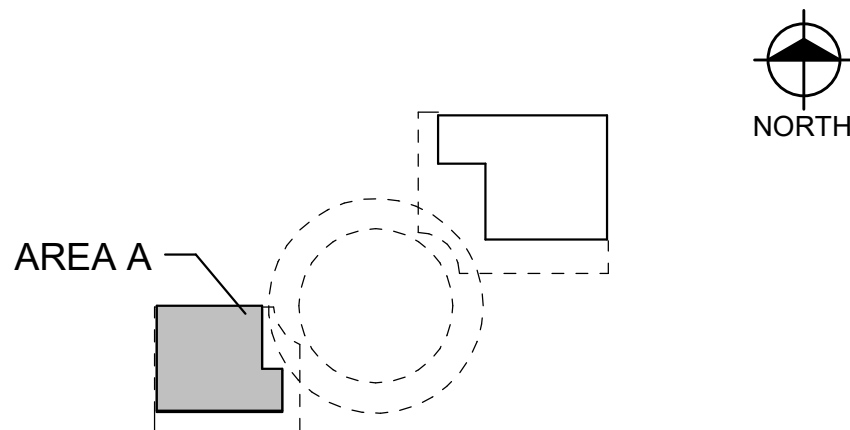
GENERAL NOTES

- TO ALLOW PROPER ACCESS TO VALVES, DO NOT LOCATE VALVES ABOVE METAL CEILING LOCATED IN CORRIDOR 640, COMMUNITY LIVING ROOM 104, AND MULTIPURPOSE ROOM 105 UNLESS NOTED OTHERWISE.
- PROVIDE 3/4" HWS/R PIPING TO TERMINAL UNITS, UNLESS NOTED OTHERWISE.

KEY NOTES

- RADIANT WALL PANELS MOUNTED AT 10'-0" A.F.F. ON MULLIONS.
- LOCATE HW DIFFERENTIAL PRESSURE SENSOR TRANSMITTER.
- 3/4" HWS DN TO RADIANT WALL PANEL AND 3/4" HWS/R TRENCH HEATER. VALVES SERVING TRENCH HEATER TO BE LOCATED WITHIN TRENCH OPENING.
- LOCATE ALL VALVES AND CIRCUIT SETTERS ADJACENT TO ACCESS PANELS. REFER TO THE ARCHITECTURAL DRAWINGS FOR ACCESS PANEL LOCATIONS AND COORDINATE ACCORDINGLY.
- 3/4" HWS/R DN TO TRENCH HEATER. VALVES SERVING TRENCH HEATER TO BE LOCATED WITHIN TRENCH OPENING.
- PROVIDE CONDENSING UNIT WITH CURB.
- ROUTE RTU CONDENSATE DRAIN TO GRADE. PROVIDE FULLY TRAPPED AND SLOPED PIPING IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

KEY PLAN



Van Buren Charter Township

Van Buren Township, MI

The Lakeside Park

REVISIONS

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Drawn By CUHLIG
Designer CUHLIG
Reviewer GLOUIS
Manager CKRETOVIC

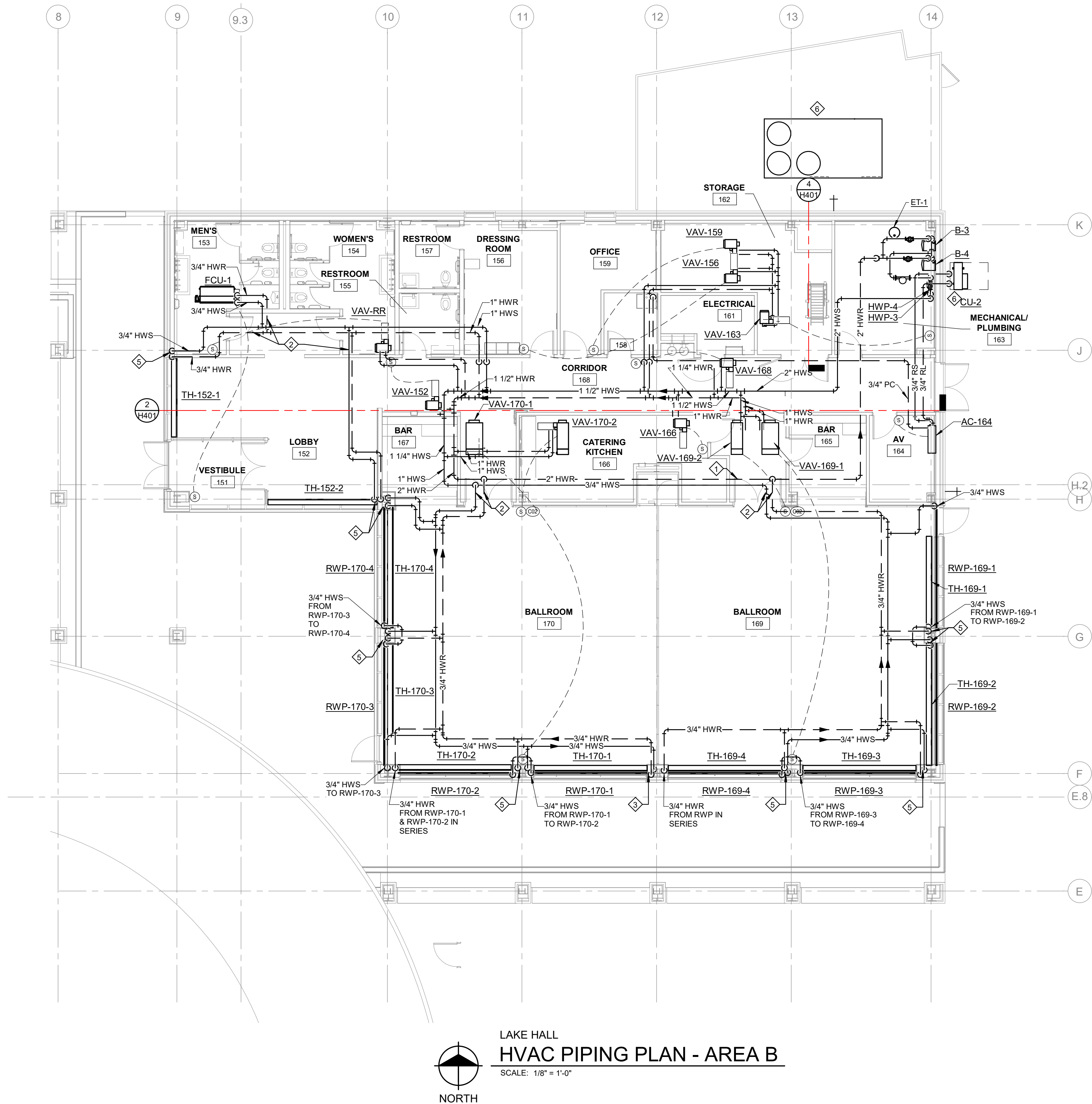
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2500281

SHEET NO.

H201

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LAKE HALL
HVAC PIPING PLAN - AREA B
SCALE: 1/8" = 1'-0"

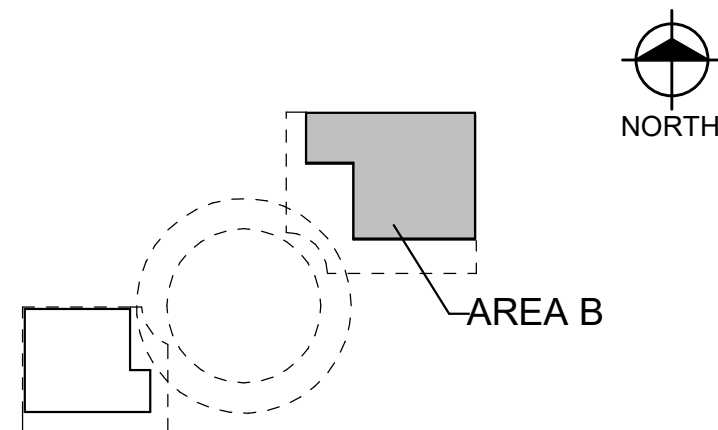
GENERAL NOTES

1. TO ALLOW PROPER ACCESS TO VALVES, DO NOT LOCATE VALVES ABOVE METAL CEILING LOCATED IN LOBBY 152, BALLROOM 169, AND 170 UNLESS NOTED OTHERWISE.
2. PROVIDE 3/4" HWS/R PIPING TO TERMINAL UNITS, UNLESS NOTED OTHERWISE.

KEY NOTES

1. LOCATE HW DIFFERENTIAL PRESSURE SENSOR TRANSMITTER.
2. LOCATE VALVES WITHIN LAY-IN CEILING TO ALLOW ACCESS.
3. 3/4" HWS DN TO RADIANT WALL PANEL AND 3/4" HWS/R TRENCH HEATER. VALVES SERVING TRENCH HEATER TO BE LOCATED WITHIN TRENCH OPENING.
4. LOCATE ALL VALVES AND CIRCUIT SETTERS ADJACENT TO ACCESS PANELS. REFER TO THE ARCHITECTURAL DRAWINGS FOR ACCESS PANEL LOCATIONS AND COORDINATE ACCORDINGLY.
5. 3/4" HWS/R DN TO TRENCH HEATER. VALVES SERVING TRENCH HEATER TO BE LOCATED WITHIN TRENCH OPENING.
6. PROVIDE CONDENSING UNIT WITH CURB.
7. ROUTE RTU CONDENSATE DRAIN TO GRADE. PROVIDE FULLY TRAPPED AND SLOPED PIPING IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

KEY PLAN



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Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

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PROJECT NO.
2500281

SHEET NO.

H202

Van Buren Township, MI

The Lakeside Park

REVISIONS

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09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
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02/09/2026	SD PROGRESS REVIEW

Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

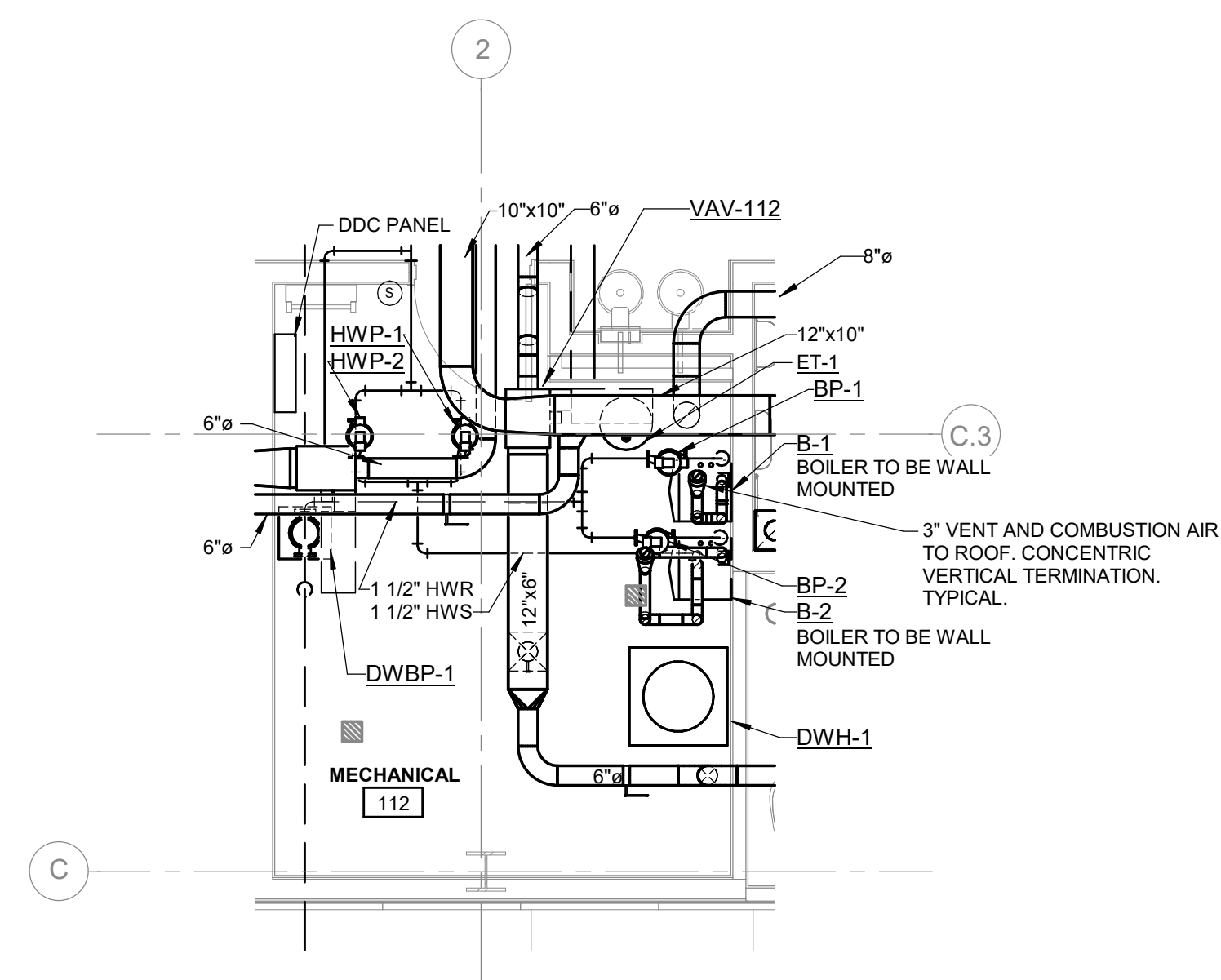
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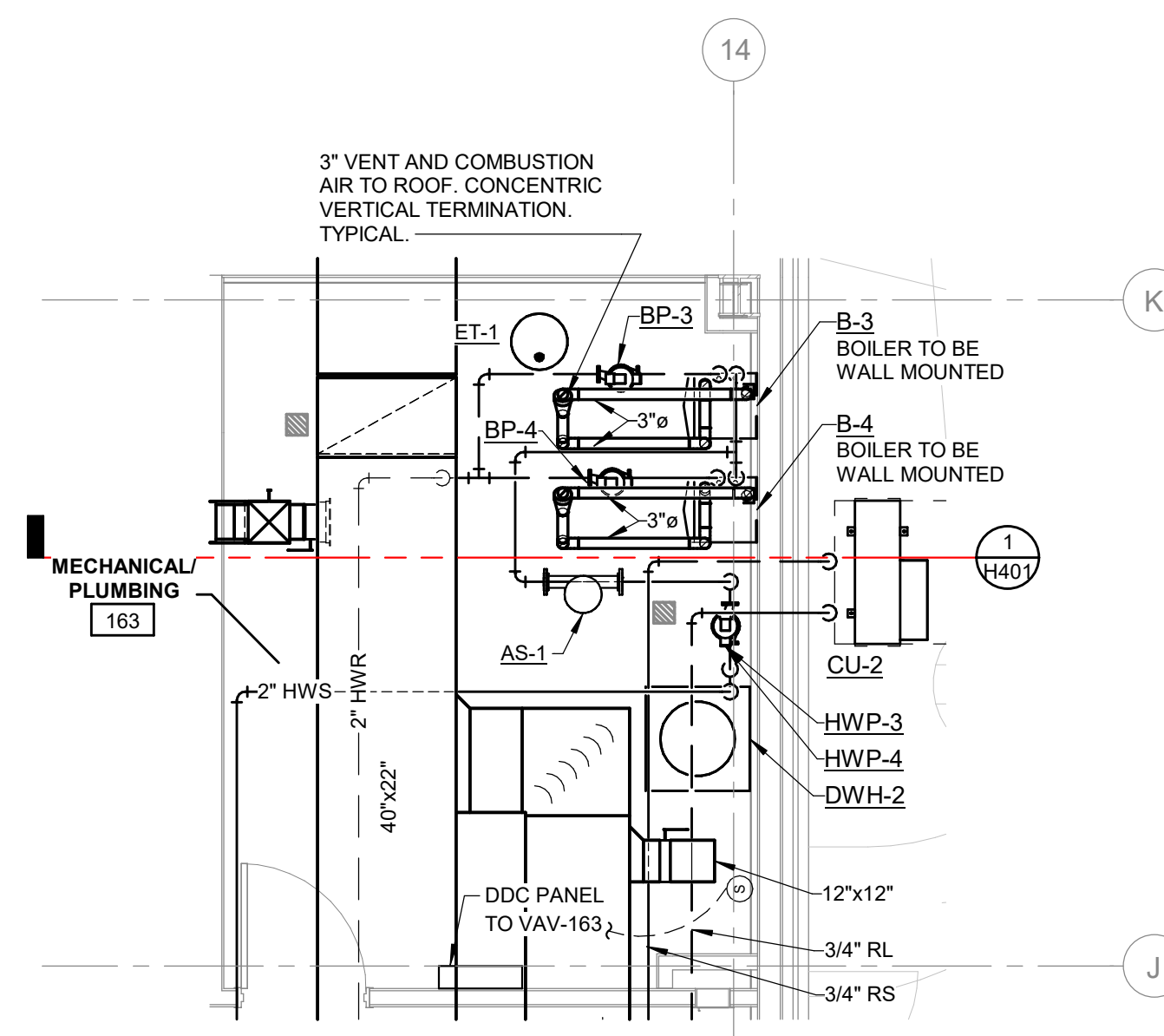
SHEET NO.

H301

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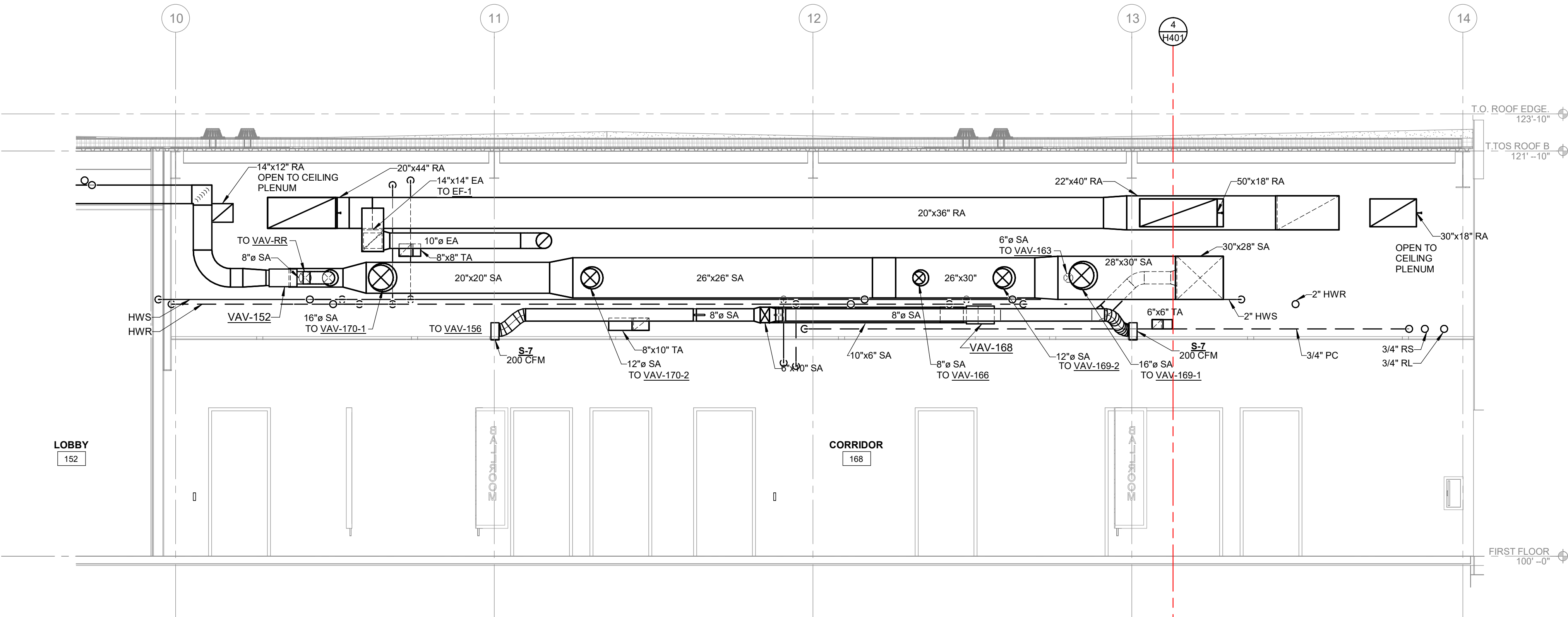


1 ENLARGED MECHANICAL ROOM PLAN - AREA A
SCALE: 1/4" = 1'-0"

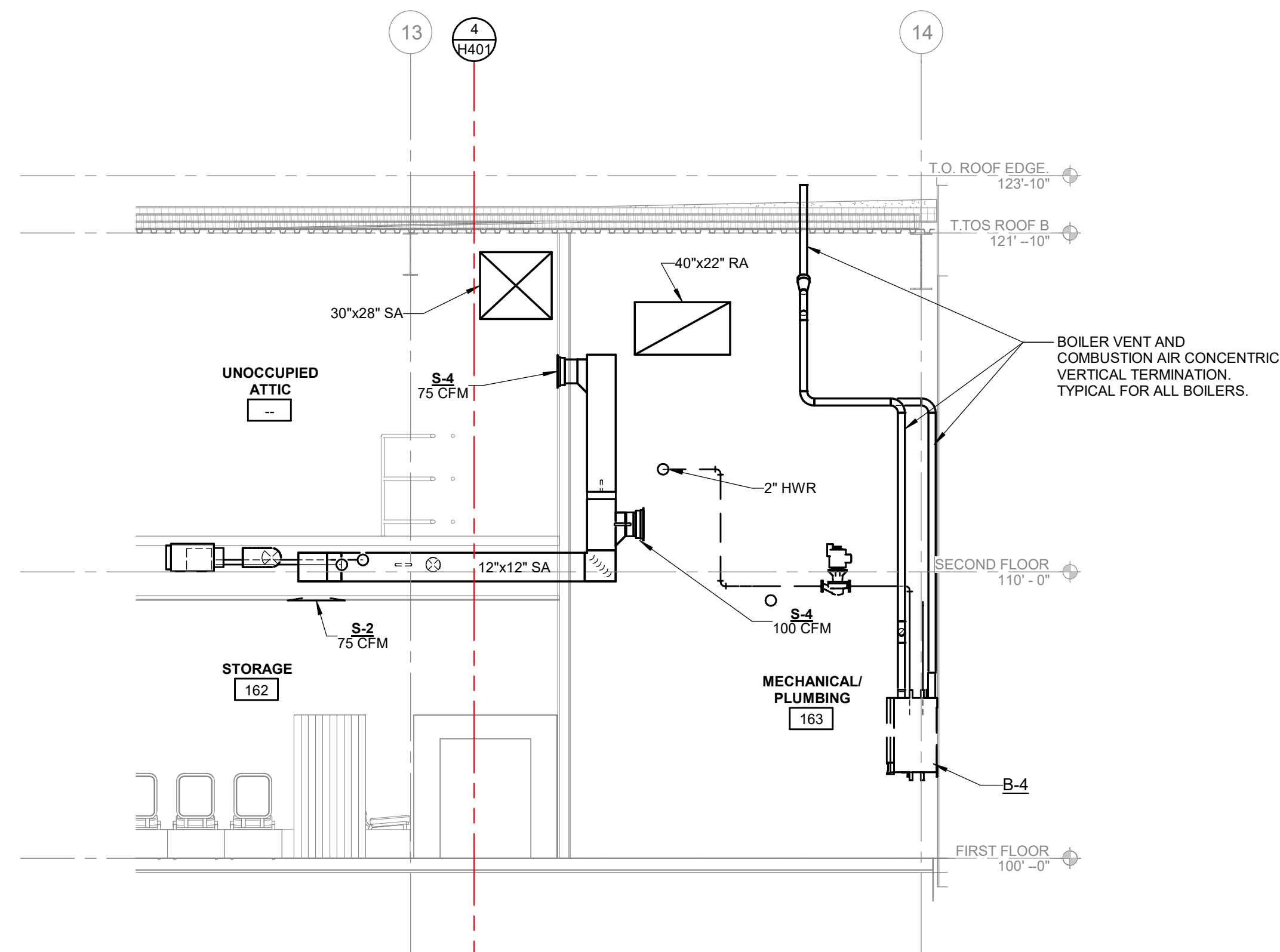


2 ENLARGED MECHANICAL ROOM PLAN - AREA B
SCALE: 1/4" = 1'-0"

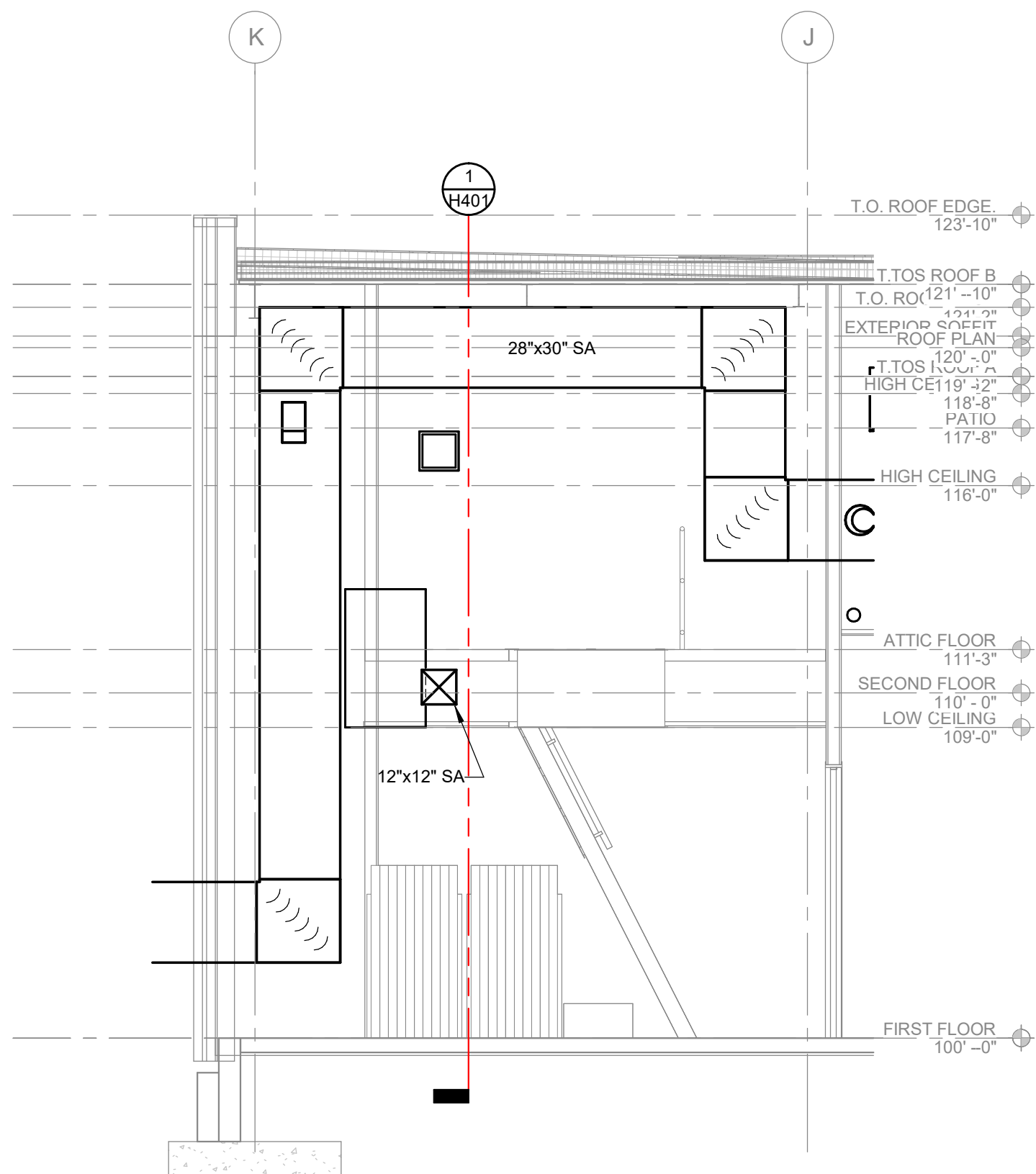
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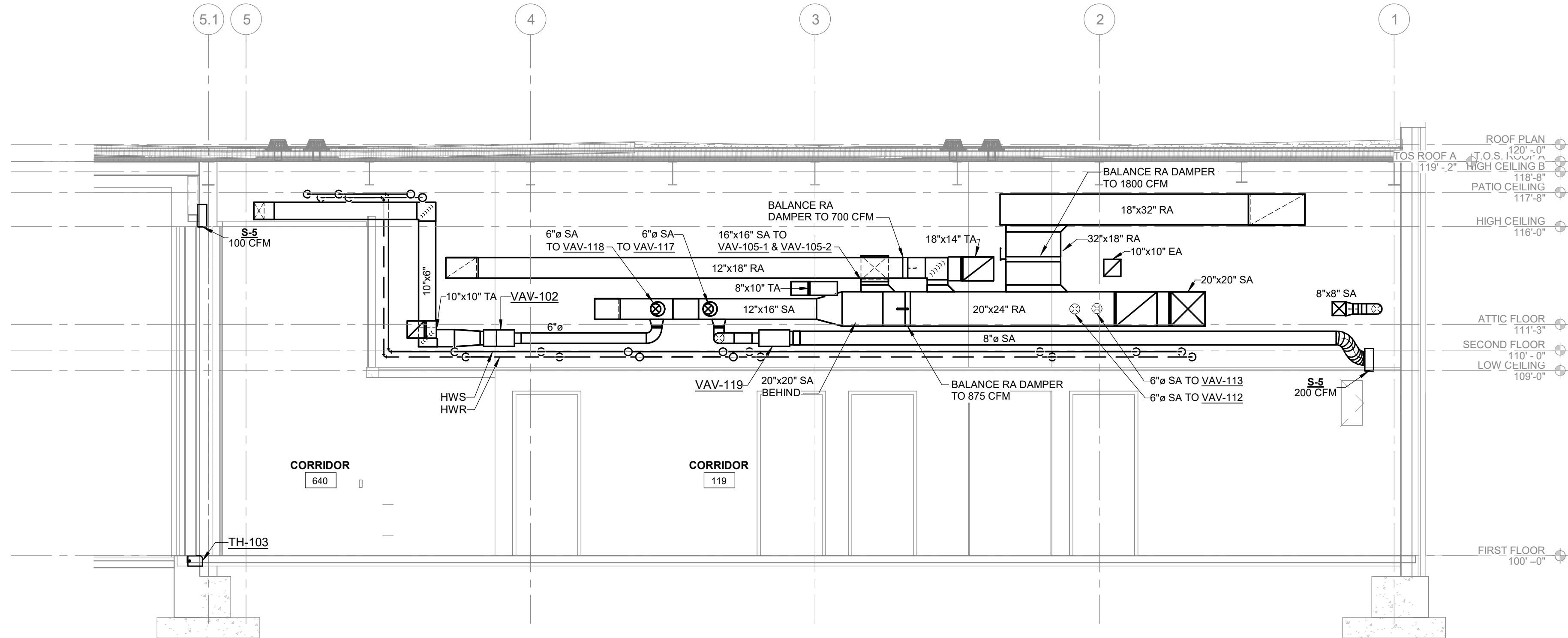
LAKE HALL
CORRIDOR SECTION
SCALE: 1/4" = 1'-0"



LAKE HALL
MEZZANINE SECTION
SCALE: 1/4" = 1'-0"



LAKE HOUSE ATTIC DUCT ROUTING
SCALE: 1/4" = 1'-0"



LAKE HOUSE
LAKE HOUSE CORRIDOR SECTION
SCALE: 1/4" = 1'-0"

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02/09/2026	SD PROGRESS REVIEW

Drawn By	Author
Designer	Designer
Reviewer	Checker
Manager	CKRETOVIC

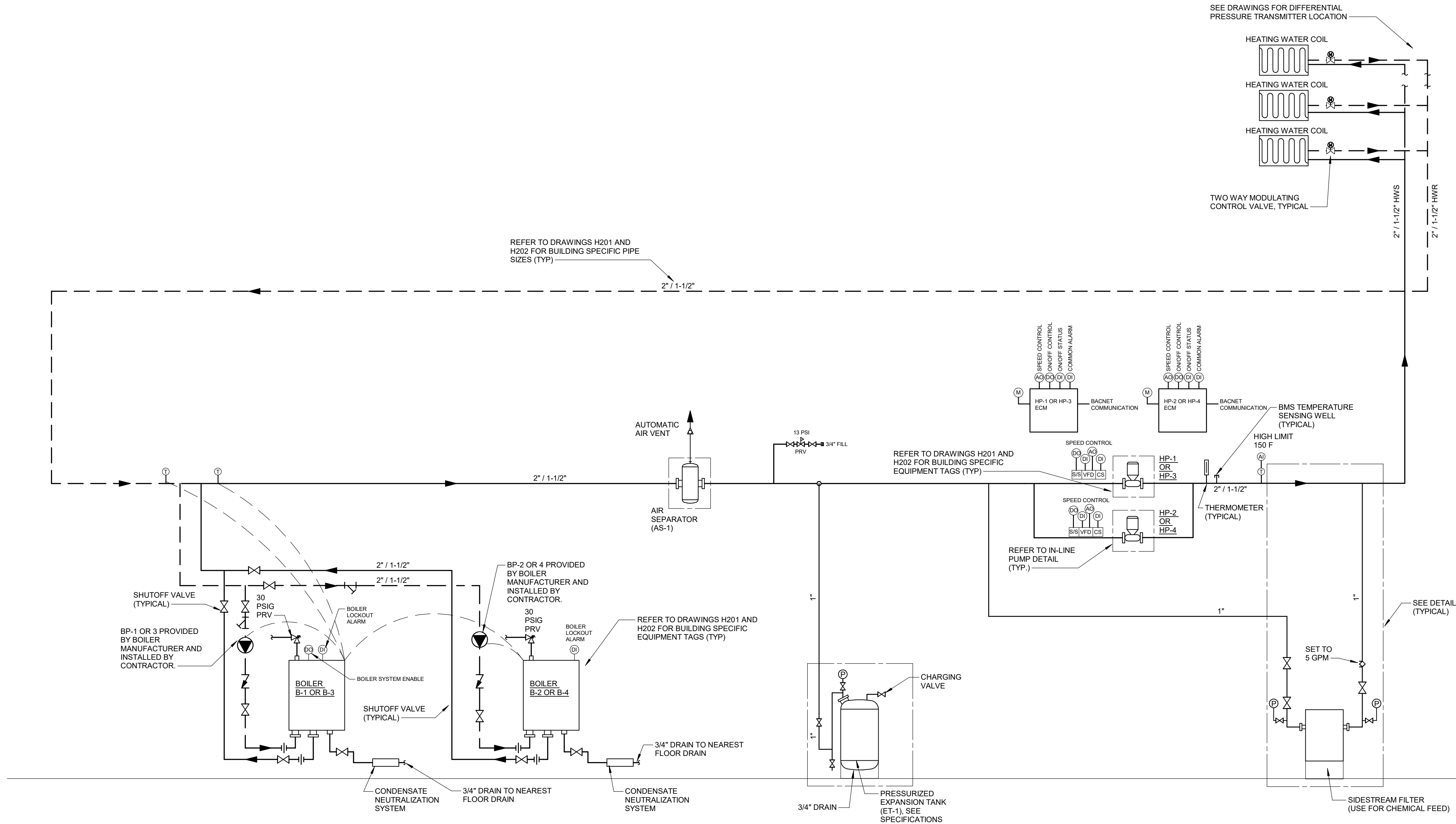
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PROJECT NO.
2500281

SHEET NO.

H401





SEQUENCE OF OPERATION:

- GENERAL:
- THE HEATING HOT WATER SYSTEM, INCLUDING BOILERS AND PUMPS ARE ENABLED TO OPERATE CONTINUOUSLY BY THE BMS. PROVIDE HAND, OFF, AUTO RELAY SWITCH FOR LOCAL OVERRIDE CONTROL OF BOILERS.
 - ONCE ENABLED BY THE BMS, THE SYSTEM PUMPS VARY SPEED BASED ON A REMOTE DIFFERENTIAL PRESSURE SENSOR VIA A CONTROL SIGNAL TO THE ECM PUMPS.
 - ONCE ENABLED BY THE BMS, THE PACKAGED BOILER CONTROLS RESPOND TO THE SYSTEM SUPPLY TEMPERATURE SENSOR TO MODULATE BOILER FIRE RATE AND STAGE ON ADDITIONAL BOILER TO SATISFY THE SUPPLY WATER TEMPERATURE SET POINT.
 - THE BMS SYSTEM CALCULATES THE SUPPLY WATER TEMPERATURE SET POINT BASED OFF AN OUTDOOR AIR RESET SCHEDULE AND TRANSMITS THE TEMPERATURE SET POINT TO THE PACKAGED BOILER CONTROLS. THE BOILER CONTROLS RESPOND BY MODULATING BOILER FIRING RATE AND BOILER STAGING TO SATISFY THE SET POINT.
 - ALL SETPOINTS AND TIME DELAY INTERVALS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATORS. APPROPRIATE DEADBANDS AND TIME DELAYS SHALL BE USED TO PREVENT SHORT CYCLING.

OPERATIONAL MODES:

- ALL PUMP MOTOR CONTROL SWITCHES AND BOILER ENABLE RELAYS SHALL NORMALLY BY IN THE AUTO POSITION.
- THE HEATING HOT WATER SYSTEM SHALL BE MANUALLY ENABLED FROM THE BMS TO RUN CONTINUOUSLY. THE SYSTEM HEATING WATER PUMP(S) AND BOILER PUMP(S) SHALL BE PROVEN ON BEFORE BOILERS ENERGIZED.
- ONCE ENABLED BY THE BMS, THE PACKAGED BOILER CONTROLS RESPOND TO THE SYSTEM SUPPLY TEMPERATURE SENSOR TO MODULATE THE OPERATING BOILER FIRING RATE TO SATISFY THE SUPPLY WATER TEMPERATURE SETPOINT.
- THE BOILERS AND ASSOCIATED PUMPS SHALL OPERATE IN AN OPERATING/STANDBY CONFIGURATION. ONLY ONE BOILER AND ITS ASSOCIATED BOILER PUMP AND HEATING WATER PUMP SHALL OPERATE AT ANY GIVEN TIME. THE DDC SYSTEM SHALL AUTOMATICALLY ROTATE THE OPERATING AND STANDBY DESIGNATIONS ON AN ADJUSTABLE SCHEDULE TO EQUALIZE EQUIPMENT RUN TIME. IF THE OPERATING BOILER AND ASSOCIATED PUMPS FAILS, OR IS TAKEN OUT OF SERVICE, THE STANDBY BOILER AND ASSOCIATED BOILER PUMP AND HEATING WATER PUMP SHALL AUTOMATICALLY BE ENABLED. A FAILURE ALARM SHALL BE GENERATED AT THE BMS.
- BOILER PUMPS ARE EQUIPPED WITH ECM PUMPS AND SPEED IS MODULATED BY A SIGNAL FROM THE PACKAGED BOILER CONTROLS. BOILER PUMP SPEED IS MODULATED TO MAINTAIN A CONSTANT TEMPERATURE DIFFERENCE BETWEEN SUPPLY AND RETURN WATER FROM THE BOILER OVER ITS FULL FIRING RANGE. BOILER PUMP SPEED SHALL BE LIMITED TO A MINIMUM OF 18 HZ OR AS DIRECTED BY PUMP MANUFACTURER (WHICHEVER IS GREATER).

- THE SYSTEM HEATING WATER PUMPS SHALL OPERATE IN AN OPERATING/STANDBY CONFIGURATION. ONLY ONE SYSTEM HEATING WATER PUMP SHALL OPERATE AT ANY GIVEN TIME. THE OPERATING PUMP SHALL MODULATE TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE SETPOINT. IF THE OPERATING PUMP FAILS OR IS TAKEN OUT OF SERVICE, THE STANDBY PUMP SHALL AUTOMATICALLY BE ENABLED AND AN ALARM SHALL BE GENERATED AT THE BMS. THE DDC SYSTEM SHALL AUTOMATICALLY ROTATE THE OPERATING AND STANDBY DESIGNATIONS ON AN ADJUSTABLE SCHEDULE TO EQUALIZE EQUIPMENT RUNTIME.
- THE SYSTEM HEATING WATER PUMP SPEED SHALL BE LIMITED TO A MINIMUM OF 18 HZ OR AS DIRECTED BY PUMP MANUFACTURER (WHICHEVER IS GREATER).
- A COMMON ALARM FROM EACH PUMP VFD SHALL BE MONITORED BY BMS.

DDC POINTS:

- THE FOLLOWING POINTS WILL BE MONITORED AND ALARMED ON THE BMS:
- BOILER SYSTEM ENABLED (DO)
 - HHW SYSTEM SUPPLY WATER TEMPERATURE SETPOINT (DO)
 - BOILER (B-1 AND B-3) INTEGRATION (BACNET IP)
 - BOILER (B-2 AND B-4) INTEGRATION (BACNET IP)
 - SYSTEM PUMP (HP-1 AND HP-3) VFD INTEGRATION (FLN)
 - SYSTEM PUMP (HP-1 AND HP-3) STATUS (DI)
 - SYSTEM PUMP (HP-2 AND HP-4) VFD INTEGRATION (FLN)
 - SYSTEM PUMP (HP-2 AND HP-4) STATUS (DI)
 - SYSTEM SUPPLY TEMPERATURE (AI)
 - SYSTEM RETURN TEMPERATURE (AI)
 - SYSTEM DIFFERENTIAL PRESSURE SENSOR (AI)

LAKE HOUSE/LAKE HALL
HEATING WATER PIPING SCHEMATIC
NO SCALE

REVISIONS

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Drawn By CUHLIG
Designer CUHLIG
Reviewer GLOUIS
Manager CKRETOVIC

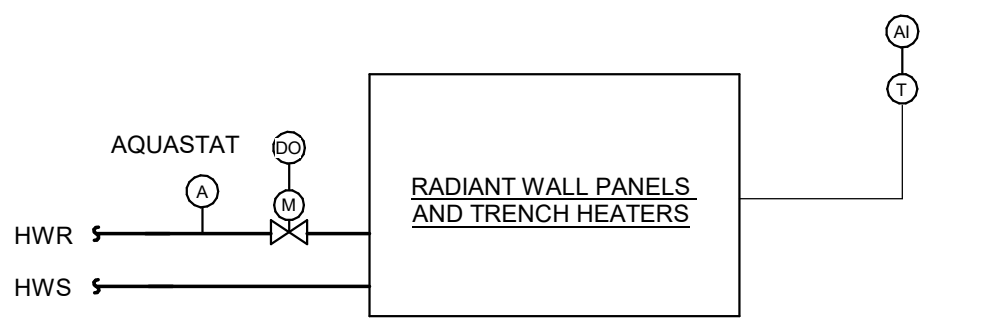
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PROJECT NO.

2500281

SHEET NO.

H602



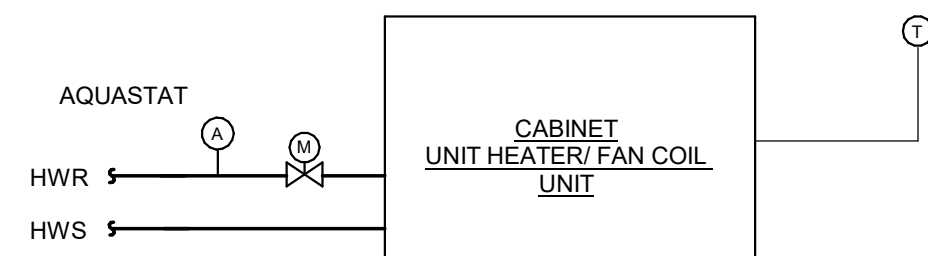
RADIANT WALL PANELS AND TRENCH HEATERS TO INTERFACE WITH BUILDING MANAGEMENT SYSTEM.

A SPACE TEMPERATURE SENSOR WILL MODULATE THE CONTROL VALVE UPON A CALL FOR HEAT. AN AQUASTAT SHALL ALLOW VALVE TO OPEN WHEN HOT WATER IS PRESENT (110 DEG F ADJ.) AND THERE IS A CALL FOR HEAT.

IF A DOOR CONTACT IS ENABLED, THE CONTROL VALVE TO MODULATE TO THE CLOSED POSITION.

DDC POINTS
THE FOLLOWING POINTS WILL BE MONITORED AND ALARMED ON THE BMS:
A. SPACE TEMPERATURE SENSOR (AI)
B. HEATING COIL VALVE WITH ACTUATOR OUTPUT (DO)
C. DOOR CONTACT (AI)

RADIANT CONVECTIVE WALL PANELS AND TRENCH HEATERS



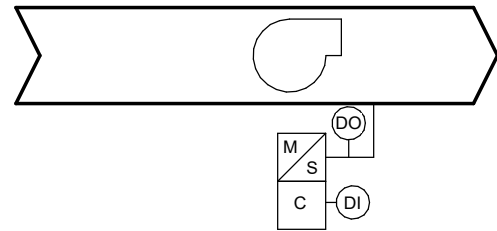
THE CABINET UNIT HEATER SHALL BE CONTROLLED BY THE BUILDING MANAGEMENT SYSTEM (BMS) THROUGH THE DDC SYSTEM.

THE BMS SHALL MONITOR THE SPACE TEMPERATURE AND MODULATE THE HEATING OUTPUT TO MAINTAIN THE ADJUSTABLE SPACE HEATING SETPOINT. UPON A CALL FOR HEAT, THE BMS SHALL COMMAND THE TWO-POSITION CONTROL VALVE OPEN.

A RETURN WATER TEMPERATURE AQUASTAT SHALL BE INSTALLED AND USED AS A FAN-ENABLE SAFETY. THE UNIT FAN SHALL BE ENERGIZED ONLY WHEN HOT WATER IS AVAILABLE AT THE UNIT, AS PROVEN BY THE AQUASTAT. THE AQUASTAT SHALL BE FIELD ADJUSTABLE AND INITIALLY SET FOR 110°F (ADJ.).

WHEN THE SPACE TEMPERATURE RISES ABOVE THE HEATING SETPOINT, THE BMS SHALL COMMAND THE CONTROL VALVE CLOSED AND DISABLE THE UNIT FAN.

CABINET HEATER/ HEATING ONLY FAN COIL UNIT



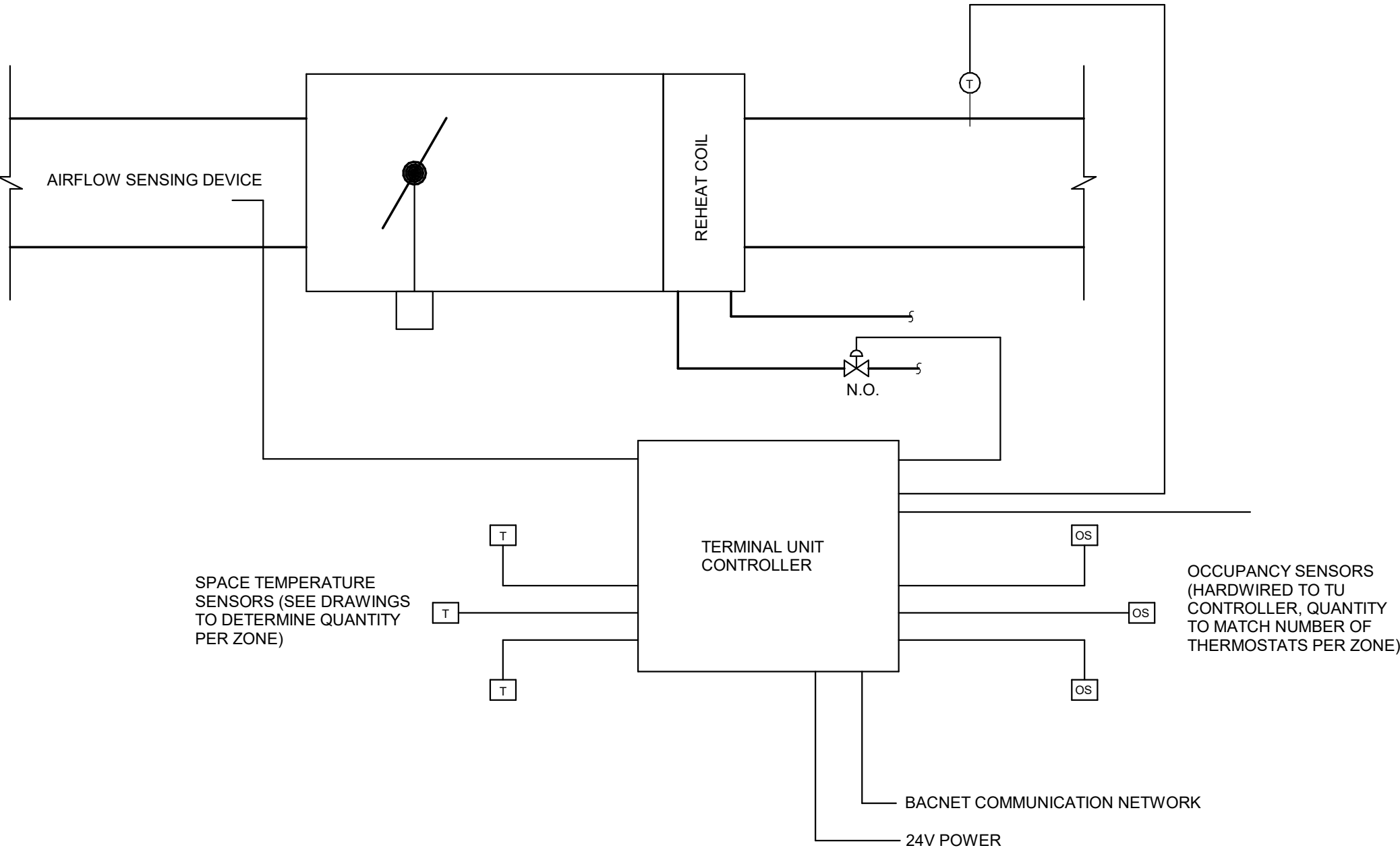
THE EXHAUST FAN SHALL BE CONNECTED TO THE BUILDING MANAGEMENT SYSTEM (BMS) THROUGH THE DDC CONTROLS SYSTEM.

THE EXHAUST FAN SHALL BE INTERLOCKED WITH THE ASSOCIATED RTU. WHEN THE DDC SYSTEM ENABLES THE EXHAUST FAN AND THE RTU IS PROVEN OPERATIONAL, THE EXHAUST FAN SHALL BE COMMANDED ON. UPON RTU SHUTDOWN, THE EXHAUST FAN SHALL BE COMMANDED OFF. THE EXHAUST FAN SHALL NOT OPERATE UNLESS THE RTU IS ENABLED AND PROVEN ON.

THE DDC SYSTEM, THROUGH A CURRENT SENSOR MONITORS THE FAN STATUS. IF ENABLED AND THE CURRENT SENSOR DOES NOT PROVE OPERATION, AFTER AN ADJUSTABLE TIME, AN ALARM WILL BE SENT THROUGH BMS.

ASSOCIATED CONTROL POINTS:
A. START STOP (DO)
B. STATUS (DI)

EXHAUST FAN



TERMINAL UNITS WITH HEATING COILS

NOTES:

- THE SPACE OCCUPANCY SENSOR IS FURNISHED AND MOUNTED BY THE ELECTRICAL CONTRACTOR. THE CONTROL WIRING BETWEEN THE TERMINAL BOX CONTROLLER AND THE OCCUPANCY SENSOR SHALL BE BY THE TEMPERATURE CONTROL CONTRACTOR.
- WHEN A TERMINAL BOX SERVES MULTIPLE ROOMS, THE OCCUPANCY SENSORS AND THERMOSTATS FROM ALL ROOMS SHALL BE USED AS INPUTS TO THE BOX CONTROLLER. IF ANY OF THE SPACES ARE OCCUPIED, THE BOX SHALL OPERATE IN THE OCCUPIED MODE OF OPERATION. THE TERMINAL UNIT CONTROLLER WILL USE THE AVERAGE OCCUPIED SPACE TEMPERATURE AND AVERAGE OCCUPIED SPACE TEMPERATURE SETPOINT OF ALL ROOMS WITHIN MULTI-ROOM ZONES (INCLUDING ROOMS THAT ARE UNOCCUPIED) TO DETERMINE TERMINAL UNIT CONTROL RESPONSE.
- THE TERMINAL BOX CONTROLLER, DAMPER ACTUATOR AND AIR FLOW PROBE ARE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR. THESE DEVICES SHALL BE SHIPPED TO THE MANUFACTURER. ALL OTHER FIELD MOUNTED CONTROL DEVICES ARE FURNISHED, MOUNTED AN WIRED BY THE TEMPERATURE CONTROL CONTRACTOR.

SEQUENCE OF OPERATION:

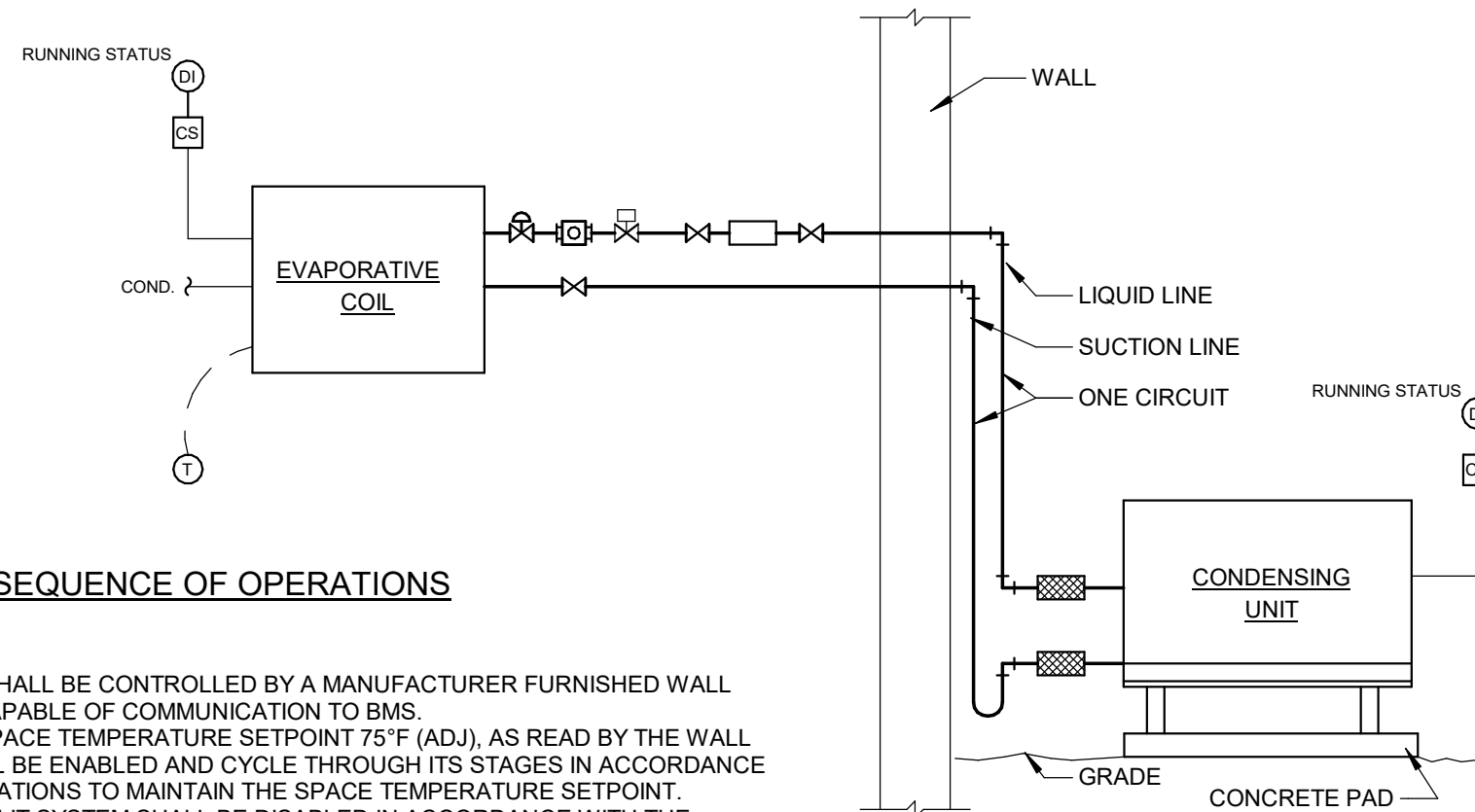
- THE OPERATING MODE OF THE TERMINAL BOX SHALL BE AUTOMATICALLY CYCLED FROM THE OCCUPIED MODE TO THE UNOCCUPIED MODE OF OPERATION BASED ON A TIME CLOCK SCHEDULE AND THE SPACE MOUNTED OCCUPANCY SENSOR.
 - IN THE OCCUPIED MODE OF OPERATION (SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED): THE SPACE TEMPERATURE SENSOR SHALL RESET THE TERMINAL BOX VOLUME CONTROLLER FROM MINIMUM DESIGN FLOW TO MAXIMUM DESIGN FLOW TO MAINTAIN THE SPACE AT THE COOLING SETPOINT. IF THE SPACE TEMPERATURE FALLS BELOW THE HEATING SETPOINT, THE TERMINAL BOX SHALL MAINTAIN THE MINIMUM DESIGN FLOW TO THE SPACE AND CONTROL THE TERMINAL BOX REHEAT COIL VALVES TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN THE SPACE TEMPERATURE IS BETWEEN THE HEATING AND COOLING SETPOINTS, THE TERMINAL UNIT SHALL MAINTAIN MINIMUM DESIGN FLOW TO THE SPACE AND THE REHEAT COIL CONTROL VALVE SHALL BE FULLY CLOSED.
 - IN THE UNOCCUPIED MODE OF OPERATION (SCHEDULED OCCUPIED AND SPACE SENSOR UNOCCUPIED): THE TERMINAL BOX SHALL CONTROL THE SAME AS IN SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED, BUT SHALL CONTROL TO STANDBY SPACE TEMPERATURE SETPOINTS AND MINIMUM AIRFLOW SETPOINT SHALL BE RESET TO STANDBY MINIMUM (AS SCHEDULED).
 - IF THE TERMINAL UNIT TIME CLOCK SCHEDULE IS UNOCCUPIED, THE TERMINAL BOX VOLUME DAMPER SHALL BE CLOSED AN THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.
 - IF THE AIR HANDLING UNIT THAT SERVES THE TERMINAL BOX IS NOT OPERATING, THE TERMINAL UNIT DAMPER SHALL BE FULLY CLOSED AND THE REHEAT COIL SHALL BE FULLY CLOSED.
 - IF THE AIR HANDLING UNIT SYSTEM THAT SERVES THE TERMINAL UNIT IS ENERGIZED IN THE UNITS UNOCCUPIED MODE OF OPERATION, THE TERMINAL UNIT SHALL CONTROL THE SAME AS IN SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED, BUT SHALL CONTROL TO UNOCCUPIED SPACE TEMPERATURE SETPOINTS AND MINIMUM AIRFLOW SETPOINT SHALL BE RESET TO STANDBY MINIMUM (AS SCHEDULED).
 - IF THE AIR HANDLING UNIT SYSTEM THAT SERVES THE TERMINAL UNIT IS ENERGIZED IN THE UNITS OPTIMIZED START MODE OF OPERATION, THE TERMINAL UNIT SHALL CONTROL TO OCCUPIED SPACE TEMPERATURE SETPOINTS AND AIRFLOW SETPOINTS.
- ASSOCIATED CONTROL POINTS
- SPACE TEMPERATURE SENSOR
 - TERMINAL UNIT CONTROLLER
 - OCCUPANCY SENSOR
 - AIR FLOW SENSOR
 - DISCHARGE AIR SENSOR
 - HEATING COIL VALVE WITH ACTUATOR
 - DAMPER ACTUATOR

TEMPERATURE SETPOINT SCHEDULE		
OCCUPANCY STATE	HEATING	COOLING
OCCUPIED	68	76
UNOCCUPIED STANDBY	66	78
UNOCCUPIED	62	80

NOTES:

- TIME OF DAY OCCUPIED / UNOCCUPIED HOURS TO BE DETERMINED BY VAN BUREN TOWNSHIP
- SETPOINTS TO BE OCCUPANT ADJUSTABLE BETWEEN SCHEDULED VALUES ABOVE. PROVIDE 2-DEGREE DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.

TERMINAL BOX WITH REHEAT COIL NO SCALE



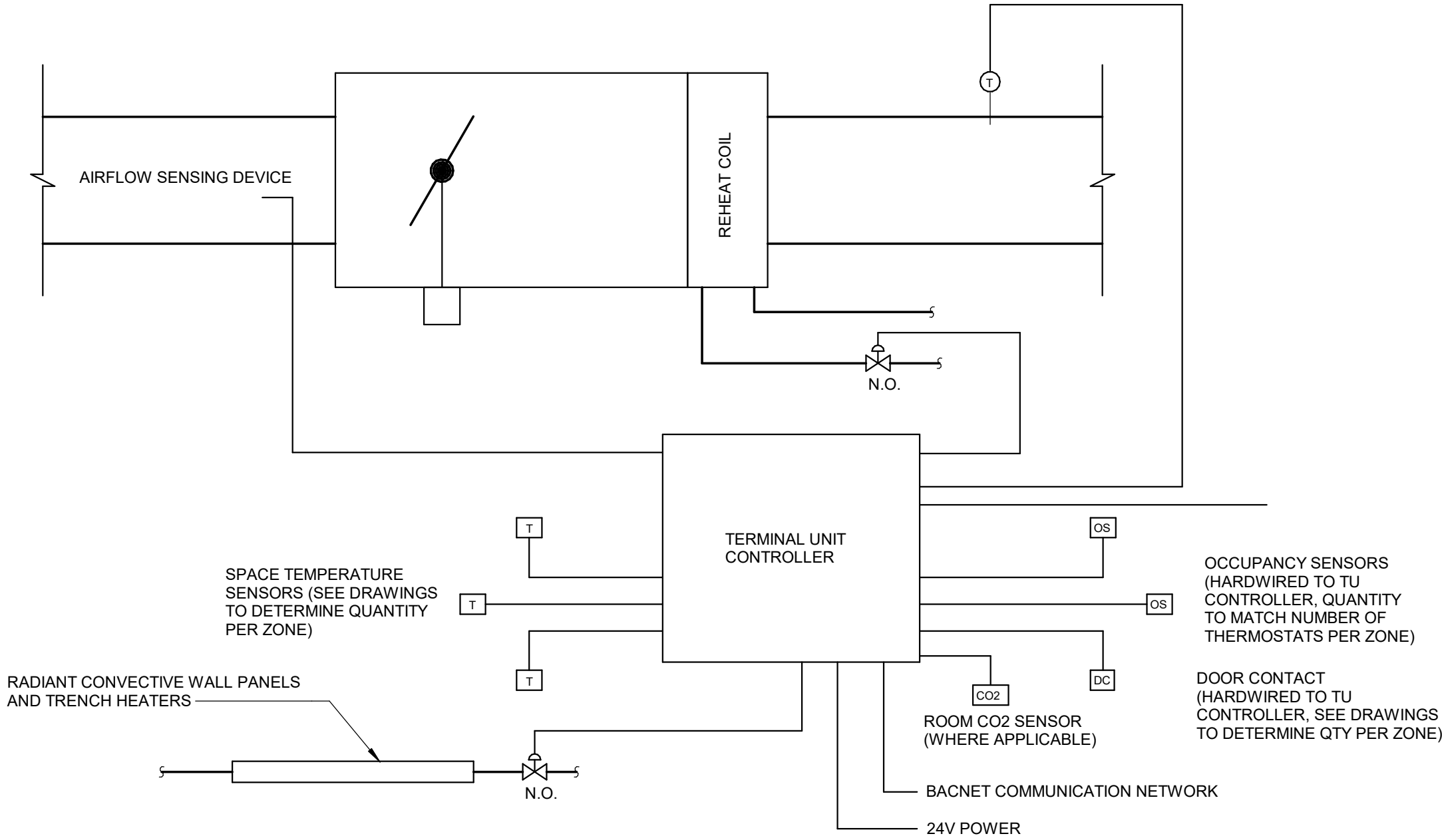
SPLIT SYSTEM AC SEQUENCE OF OPERATIONS

GENERAL:

- THE DUCTLESS SPLIT SYSTEM AIR CONDITIONER SHALL BE CONTROLLED BY A MANUFACTURER FURNISHED WALL MOUNTED THERMOSTAT, PROGRAMMABLE AND CAPABLE OF COMMUNICATION TO BMS.
- ON A RISE IN SPACE TEMPERATURE ABOVE THE SPACE TEMPERATURE SETPOINT 75°F (ADJ.), AS READ BY THE WALL MOUNTED THERMOSTAT, THE SPLIT SYSTEM SHALL BE ENABLED AND CYCLE THROUGH ITS STAGES IN ACCORDANCE WITH THE MANUFACTURER'S SEQUENCE OF OPERATIONS TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.
- ONCE SPACE TEMPERATURE IS SATISFIED, THE SPLIT SYSTEM SHALL BE DISABLED IN ACCORDANCE WITH THE MANUFACTURER'S SEQUENCE OF OPERATIONS.
- A HIGH CONDENSATE LEVEL SWITCH, LOCATED IN THE PRIMARY DRAIN PAN SHALL DE-ENERGIZE SPLIT SYSTEM UNIT.

ALARMS:

- IF THE SPACE TEMPERATURE, AS READ BY THE SPACE TEMPERATURE SENSOR, EXCEEDS 80°F (ADJ.), A HIGH TEMPERATURE ALARM SHALL BE TRANSMITTED THROUGH THE BUILDING MONITORING SYSTEM AND WIRED UNIT CONTROLLER.
- A HIGH CONDENSATE LEVEL SWITCH IN DRAIN PAN THAT CAUSES DE-ENERGIZATION OF SPLIT SYSTEM UNIT SHALL GENERATE AN ALARM AND SHALL BE TRANSMITTED THROUGH THE BUILDING MONITORING SYSTEM AND WIRED UNIT CONTROLLER.



TERMINAL UNITS WITH HEATING COILS

NOTES:

- THE SPACE OCCUPANCY SENSOR IS FURNISHED AND MOUNTED BY THE ELECTRICAL CONTRACTOR. THE CONTROL WIRING BETWEEN THE TERMINAL BOX CONTROLLER AND THE OCCUPANCY SENSOR SHALL BE BY THE TEMPERATURE CONTROL CONTRACTOR.
- WHEN A TERMINAL BOX SERVES MULTIPLE ROOMS, THE OCCUPANCY SENSORS AND THERMOSTATS FROM ALL ROOMS SHALL BE USED AS INPUTS TO THE BOX CONTROLLER. IF ANY OF THE SPACES ARE OCCUPIED, THE BOX SHALL OPERATE IN THE OCCUPIED MODE OF OPERATION. THE TERMINAL UNIT CONTROLLER WILL USE THE AVERAGE OCCUPIED SPACE TEMPERATURE AND AVERAGE OCCUPIED SPACE TEMPERATURE SETPOINT OF ALL ROOMS WITHIN MULTI-ROOM ZONES (INCLUDING ROOMS THAT ARE UNOCCUPIED) TO DETERMINE TERMINAL UNIT CONTROL RESPONSE.
- THE TERMINAL BOX CONTROLLER, DAMPER ACTUATOR AND AIR FLOW PROBE ARE PROVIDED BY THE TEMPERATURE CONTROL CONTRACTOR. THESE DEVICES SHALL BE SHIPPED TO THE MANUFACTURER. ALL OTHER FIELD MOUNTED CONTROL DEVICES ARE FURNISHED, MOUNTED AN WIRED BY THE TEMPERATURE CONTROL CONTRACTOR.

SEQUENCE OF OPERATION:

- THE OPERATING MODE OF THE TERMINAL BOX SHALL BE AUTOMATICALLY CYCLED FROM THE OCCUPIED MODE TO THE UNOCCUPIED MODE OF OPERATION BASED ON A TIME CLOCK SCHEDULE AND THE SPACE MOUNTED OCCUPANCY SENSOR.
 - IN THE OCCUPIED MODE OF OPERATION (SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED): THE SPACE TEMPERATURE SENSOR SHALL RESET THE TERMINAL BOX VOLUME CONTROLLER FROM MINIMUM DESIGN FLOW TO MAXIMUM DESIGN FLOW TO MAINTAIN THE SPACE AT THE COOLING SETPOINT. IF THE SPACE TEMPERATURE FALLS BELOW THE HEATING SETPOINT, THE TERMINAL BOX SHALL MAINTAIN THE MINIMUM DESIGN FLOW TO THE SPACE AND CONTROL THE TERMINAL BOX REHEAT COIL, RADIANT CONVECTIVE WALL PANELS, AND TRENCH HEATER VALVES IN UNISON TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN THE SPACE TEMPERATURE IS BETWEEN THE HEATING AND COOLING SETPOINTS, THE TERMINAL UNIT SHALL MAINTAIN MINIMUM DESIGN FLOW TO THE SPACE AND THE REHEAT COIL, RADIANT CONVECTIVE WALL PANELS, AND TRENCH HEATER CONTROL VALVES SHALL BE FULLY CLOSED.
 - FOR ZONES WITH SPACE CO2 SENSOR, THE SPACE CO2 SENSOR SHALL OVERRIDE THE NORMAL OPERATION OF THE TERMINAL UNIT. IF THE SPACE CO2 LEVEL EXCEEDS 800 PPM, THE AIRFLOW RATE TO THE SPACE SHALL BE RESET UPWARDS TO CONTROL THE SPACE CO2. THE FLOW RATE SHALL BE RESET FROM MINIMUM FLOW TO MAXIMUM DESIGN FLOW AS THE SPACE CO2 LEVEL RISES FROM 800 PPM TO 900 PPM.
 - FOR ZONES WITH DOOR CONTACTS, WHEN ANY DOOR CONTACT IS DISENGAGED (DOOR OPEN), NORMAL ZONE TEMPERATURE CONTROL SHALL BE OVERRIDDEN. THE ASSOCIATED VAV TERMINAL UNIT SHALL MODULATE TO MINIMUM AIRFLOW AND THE ZONE TEMPERATURE SETPOINTS SHALL AUTOMATICALLY RESET AS FOLLOWS:
HEATING SETPOINT: 55°F (ADJUSTABLE)
COOLING SETPOINT: 90°F (ADJUSTABLE)
 - IN THE UNOCCUPIED MODE OF OPERATION (SCHEDULED OCCUPIED AND SPACE SENSOR UNOCCUPIED): THE TERMINAL BOX SHALL CONTROL THE SAME AS IN SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED, BUT SHALL CONTROL TO STANDBY SPACE TEMPERATURE SETPOINTS AND MINIMUM AIRFLOW SETPOINT SHALL BE RESET TO STANDBY MINIMUM (AS SCHEDULED).
 - IF THE TERMINAL UNIT TIME CLOCK SCHEDULE IS UNOCCUPIED, THE TERMINAL BOX VOLUME DAMPER SHALL BE CLOSED AND THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED. THE RADIANT CONVECTIVE WALL PANELS AND TRENCH HEATERS SHALL BE MODULATED TO CONTROL TO UNOCCUPIED SPACE TEMPERATURE SETPOINT.
 - IF THE AIR HANDLING UNIT THAT SERVES THE TERMINAL BOX IS NOT OPERATING, THE TERMINAL UNIT DAMPER SHALL BE FULLY CLOSED AND THE REHEAT COIL SHALL BE FULLY CLOSED. THE RADIANT CONVECTIVE WALL PANELS AND TRENCH HEATERS ARE USED TO HEAT THE BUILDING. THE RADIANT CONVECTIVE WALL PANELS AND TRENCH HEATERS SHALL BE MODULATED TO CONTROL TO UNOCCUPIED SPACE TEMPERATURE SETPOINT.
 - THE NORMAL OPERATION OF THE RADIANT CONVECTIVE WALL PANELS AND TRENCH HEATERS CONTROL VALVE SHALL BE OVERRIDDEN ON OUTSIDE AIR TEMPERATURE. THE VALVES SHALL BE FULLY CLOSED WHEN THE OUTSIDE AIR TEMPERATURE EXCEEDS 55°F.
 - IF THE AIR HANDLING UNIT SYSTEM THAT SERVES THE TERMINAL UNIT IS ENERGIZED IN THE UNITS UNOCCUPIED MODE OF OPERATION, THE TERMINAL UNIT SHALL CONTROL THE SAME AS IN SCHEDULED OCCUPIED AND SPACE SENSOR OCCUPIED, BUT SHALL CONTROL TO UNOCCUPIED SPACE TEMPERATURE SETPOINTS AND MINIMUM AIRFLOW SETPOINT SHALL BE RESET TO STANDBY MINIMUM (AS SCHEDULED).
 - IF THE AIR HANDLING UNIT SYSTEM THAT SERVES THE TERMINAL UNIT IS ENERGIZED IN THE UNITS OPTIMIZED START MODE OF OPERATION, THE TERMINAL UNIT SHALL CONTROL TO OCCUPIED SPACE TEMPERATURE SETPOINTS AND AIRFLOW SETPOINTS.
- ASSOCIATED CONTROL POINTS
- SPACE TEMPERATURE SENSOR
 - TERMINAL UNIT CONTROLLER
 - OCCUPANCY SENSOR
 - AIR FLOW SENSOR
 - DISCHARGE AIR SENSOR
 - HEATING COIL VALVE WITH ACTUATOR
 - RADIANT CONVECTIVE WALL PANEL VALVE WITH ACTUATOR
 - TRENCH HEATER VALVE WITH ACTUATOR
 - DAMPER ACTUATOR
 - CO2 SENSOR (BALL ROOMS, MULTIPURPOSE ROOM, AND COMMUNITY LIVING ROOM ONLY)
 - DOOR CONTACT (BALL ROOMS, MULTIPURPOSE ROOM, AND COMMUNITY LIVING ROOM ONLY)

TEMPERATURE SETPOINT SCHEDULE				
OCCUPANCY STATE	HEATING		COOLING	
	BALL ROOM/ MULTIPURPOSE ROOM	LIVING ROOM	BALL ROOM/ MULTIPURPOSE ROOM	LIVING ROOM
OCCUPIED	68	70	72	74
UNOCCUPIED STANDBY	66	66	78	78
UNOCCUPIED	62	62	80	80
DOOR CONTACT	55	55	90	90

NOTES:

- TIME OF DAY OCCUPIED / UNOCCUPIED HOURS TO BE DETERMINED BY VAN BUREN TOWNSHIP
- SETPOINTS TO BE OCCUPANT ADJUSTABLE BETWEEN SCHEDULED VALUES ABOVE. PROVIDE 2-DEGREE DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.

TERMINAL BOX WITH REHEAT COIL AND PERIMETER HEAT NO SCALE

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 80 % PROGRESS
05/18/2026	DD 50 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn By CUHLIG
Designer CUHLIG
Reviewer GLOUIS
Manager CKRETOVIC

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
2500281

SHEET NO.

H603

ROOFTOP UNIT SCHEDULE - GAS FIRED HEAT & DX COOLING																																																		
ID TAG	SERVICE	MANUFACTURER	MODEL	OUTDOOR AIR		SUPPLY FAN SECTION										DX COOLING SECTION										HOT-GAS REHEAT SECTION				INDIRECT GAS HEATING SECTION						EXHAUST FAN SECTION					ELECTRICAL				ACCESSORIES				WEIGHT (LBS)	NOTES
				MAX CFM	MIN CFM	WHEEL TYPE	DRIVE TYPE	CFM	ESP (IN WC)	TSP (IN WC)	BHP	HP	RPM	VFD	EAT DB	EAT WB	LAT DB	LAT WB	SENSIBLE MBH	LATENT MBH	TOTAL MBH	NUMBER OF ROWS	EER	IEER	EAT DB	LAT DB	TOTAL MBH	CONTROL	EAT DB	LAT DB	TURN DOWN	AIR TEMP RISE (F)	INPUT MBH	OUTPUT MBH	GAS PRESSURE	WHEEL TYPE	DRIVE TYPE	RPM	ESP (IN WC)	HP	VOLTAGE (V/PH/Hz)	MCA	MOCP	MIN EER	CURB	GFCI	CONTROL	DISCONNECT		
RTU-1	LAKE HOUSE	TRANE	PRECEDENT YKZ120A3	3900	450	BC PLENUM	DIRECT	3900	2.3	2.483	2.42	3	1272	MANUFACTURER PROVIDED	79	66	55	54	106	38	144	2	13.6	25	73	75	107	MODULATING	52	9997	10:1	47	250	202.5	4.0"-14.0"	PROPELLER	DIRECT	1000	0.25	2	208/3/60	76	110	13.6	BY MANUF.	BY ELECTRICAL	SYMBIO 700	BY MANUF.	2310	1,2,4,5,6
RTU-2	LAKE HALL	TRANE	VOYAGER YCH330DE	8100	1000	FC	DIRECT	8100	2.3	3.121	8.99	10	808	MANUFACTURER PROVIDED	79	66	55	53	238	104	342	5	11.7	16.9	73	70	310	MODULATING	48	81	5:1	33	350	284	4.0"-14.0"	PROPELLER	DIRECT	1000	0.25	5	208/3/60	167	200	11.7	BY MANUF.	BY ELECTRICAL	BACnet/Modbus	BY MANUF.	5361	3,4,6
NOTES: 1. PROVIDE WITH HIGH STATIC KIT TO GET 2.3" ESP. 2. PROVIDE EQUIPMENT PAD THAT IS 10'-8 15/16" x 7'-10 3/4". REFER TO ISOLATED EQUIPMENT PAD STRUCTURAL DETAIL ON SHEET S002. 3. PROVIDE EQUIPMENT PAD THAT IS 15'-7 3/4" x 8'-2 1/6". REFER TO ISOLATED EQUIPMENT STRUCTURAL DETAIL ON SHEET S002. 4. PROVIDE WITH FULL ECONOMIZER. 5. EXHAUST FAN IS SEPARATE FROM RTU AND REQUIRES ITS OWN POWER SUPPLY AND DISCONNECT BY ELECTRICAL. 208/3Ø, MCA: 17, MOCP: 30.6. FACTORY PROVIDED VFD. POWER EXHAUST PAINTED TO MATCH RTU. 6. REFRIGERANT TYPE R454B.																																																		

REGISTER, GRILLE, AND DIFFUSER SCHEDULE												
ID TAG	MANUFACTURER	MODEL	NECK SIZE (IN)	FACE SIZE (IN)	MAX CFM	MAX APD	MAX NC	MATERIAL	MOUNTING	FINISH	DAMPER (Y/N)	NOTES
E-1	TITUS	50F	6	12x12	528	0.054	12	STEEL	ACP	WHITE	NO	
E-2	TITUS	50F	N/A	24x24	2250	0.054	14	STEEL	ACP	WHITE	NO	
R-1	TITUS	50F	N/A	24x24	2250	0.054	14	STEEL	ACP	WHITE	NO	
R-2	TITUS	FL-10	N/A	4 FT. (2) 1" SLOTS	200	0.028	10	STEEL	NOTE 2	BLACK	NO	
R-3	TITUS	FL-25	12	4 FT. (2) 2.5" SLOTS	1200	0.068	25	STEEL	NOTE 2	BLACK	NO	3
S-1	TITUS	OMNI	6	12x12	118	0.109	12	STEEL	DUCT	WHITE	NO	
S-2	TITUS	OMNI	6	24x24	196	0.099	21	STEEL	ACP	WHITE	NO	
S-3	TITUS	OMNI	8	24x24	279	0.064	19	STEEL	ACP	WHITE	NO	
S-4	TITUS	111RL	10x10	12x12	354	0.065	15	STEEL	SIDEWALL	WHITE	NO	
S-5	TITUS	FL-10	8	4 FT. (2) 1" SLOTS	230	0.064	10	STEEL	NOTE 2	BLACK	YES	1,3,4,5
S-6	TITUS	FL-15	12	4 FT. (2) 1.5" SLOTS	360	0.087	18	STEEL	NOTE 2	BLACK	YES	1,3,4,5
S-7	TITUS	FL-10	8	6 FT. (2) 1" SLOTS	230	0.064	10	STEEL	NOTE 2	BLACK	YES	1,3,4,5
S-8	TITUS	FL-10-JT	8	4 FT. (1) 1" SLOT	250	0.099	18	STEEL	NOTE 2	BLACK	YES	1,3,4,5
S-9	TITUS	FL-25-JT	12	4 FT. (2) 2.5" SLOTS	1260	0.235	25	STEEL	NOTE 2	BLACK	YES	1,3,4,5
NOTES: 1. PROVIDE YOUNG REGULATOR COMPANY 270-275 WITH 5020CC DAMPER FOR REMOTE DAMPER CONTROL. 2. PROVIDE WITH TITUS CEILING/CEILING BORDER 66 WITH HANGER CLIP FOR MOUNTING IN CONTINUOUS CEILING SECTIONS. 3. PROVIDE DIFFUSER WITH 4" ATTACHED PLENUM. 4. DIFFUSERS GOING INTO PCS 1a CEILING NEED HAVE A WIDTH OF LESS THAN 7 3/4". 5. LINEAR SLOT DIFFUSER WITH (2) SLOTS TO BE 2CRA STYLE.												

VAV TERMINAL UNIT SCHEDULE																	
ID TAG	MANUFACTURER	MODEL	SIZE	CFM			REHEAT COIL						VALVE		NOTES		
				MAX	MIN	HEATING	EWT (F)	GPM	EAT (F DB)	LAT (F DB)	APD* (IN WC)	WPD (FT HD)	# OF ROWS	2-WAY		3-WAY	
VAV-102	TITUS	DESV	6"	200	100	100	140	0.8	55	85	0.06	0.14	2	Yes	No		
VAV-103	TITUS	DESV	6"	100	50	50	140	0.8	55	85	0.02	0.14	2	Yes	No		
VAV-104	TITUS	DESV	10"	700	350	350	140	1.3	55	85	0.16	0.19	2	Yes	No	1	
VAV-105-1	TITUS	DESV	10"	500	250	250	140	0.9	55	85	0.17	0.2	2	Yes	No	1	
VAV-105-2	TITUS	DESV	14"	1300	650	650	140	2.7	55	85	0.14	0.37	2	Yes	No	1	
VAV-112	TITUS	DESV	6"	150	75	75	140	0.8	55	85	0.04	0.14	2	Yes	No		
VAV-113	TITUS	DESV	6"	300	150	300	140	0.8	55	85	0.08	0.14	2	Yes	No		
VAV-117	TITUS	DESV	6"	225	115	225	140	0.8	55	85	0.08	0.14	2	Yes	No		
VAV-118	TITUS	DESV	6"	250	125	125	140	0.8	55	85	0.09	0.14	2	Yes	No		
VAV-119	TITUS	DESV	6"	200	100	100	140	0.8	55	85	0.06	0.14	2	Yes	No		
VAV-152	TITUS	DESV	8"	400	200	200	140	0.8	55	85	0.12	0.19	2	Yes	No		
VAV-156	TITUS	DESV	8"	275	140	140	140	0.8	55	85	0.07	0.19	2	Yes	No		
VAV-159	TITUS	DESV	6"	150	75	75	140	0.8	55	85	0.04	0.14	2	Yes	No		
VAV-163	TITUS	DESV	6"	250	125	175	140	0.8	55	85	0.09	0.14	2	Yes	No		
VAV-166	TITUS	DESV	8"	400	200	200	140	0.8	55	85	0.12	0.19	2	Yes	No		
VAV-168	TITUS	DESV	8"	400	200	200	140	0.8	55	85	0.12	0.19	2	Yes	No		
VAV-169-1	TITUS	DESV	16"	1800	900	900	140	3.3	55	85	0.18	0.23	2	Yes	No	1	
VAV-169-2	TITUS	DESV	12"	900	450	450	140	1.8	55	85	0.15	0.34	2	Yes	No	1	
VAV-170-1	TITUS	DESV	16"	1600	800	800	140	3.1	55	85	0.2	0.42	2	Yes	No	1	
VAV-170-2	TITUS	DESV	12"	1000	500	500	140	1.8	55	85	0.15	0.34	2	Yes	No	1	
VAV-RR	TITUS	DESV	8"	450	225	265	140	0.9	55	85	0.15	0.22	2	Yes	No		
NOTES: 1. PROVIDE WITH DUCT ATTENUATOR AT VAV BOX OUTLET.																	

FAN SCHEDULE																						
ID TAG	LOCATION	SERVICE	MANUFACTURER	MODEL	FAN TYPE	CFM	TSP (IN WC)	ESP (IN WC)	MOTOR	MAX (IN WC)	FAN RPM	WHEEL		DRIVE TYPE	SOUND		VOLTAGE (V/PH/Hz)	MOTOR CONTROLLER		MAX WEIGHT (LBS)	NOTES	
												MATERIAL	DIA (IN)		TYPE	SONES		DBA	MOTOR STARTER (E/S)			DISCONNECT SWITCH (E/S)
EF-1	ROOF	LAKE HOUSE	GREENHECK	G-090-VG	EXHAUST	450	0.70	0.50	0.17	0.09	1655	ALUMINUM	10 7/8"	CENTRIFUGAL	DIRECT	8.2	56	208/60/1	ECM	S	41	1,2
EF-2	ROOF	LAKE HALL	GREENHECK	G-120-VG	EXHAUST	925	0.70	0.50	0.25	0.13	1104	ALUMINUM	13 1/16"	CENTRIFUGAL	DIRECT	7.6	55	208/60/1	ECM	S	59	1,2
NOTES: 1. PROVIDE A FACTORY MOUNTED ELECTRONICALLY COMMUTATED (EC) MOTOR WITH INTEGRAL DRIVE. 2. MANUFACTURER TO PROVIDE 14" HIGH ROOF CURB.																						

SPLIT SYSTEM INDOOR UNIT SCHEDULE																		
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	NOMINAL TONS	ODU ID TAG	SUPPLY FAN	COOLING		ELECTRICAL		ACCESSORIES			WEIGHT (LBS)	NOTES		
							SA CFM	SENSIBLE MBH	TOTAL MBH	VOLTAGE (V/PH/Hz)	MCA	COND PUMP	CONTROL	DISCONNECT				
AC-115	IT/AV-115	MITSUBISHI ELECTRIC	MSY-GX18NA	WALL MOUNT	1.5	CU-1	250	13.9	18	208/1/60	1	YES	THERMOSTAT	INCLUDE	28	1,2		
AC-164	AV-164	MITSUBISHI ELECTRIC	MSY-GX30NA	WALL MOUNT	2.5	CU-2	374	22.0	30.6	208/1/60	1	YES	THERMOSTAT	INCLUDE	45	1,2,3		
NOTES: 1. MOUNT 1'-0" ABOVE IT/AV CABLE TRAY. APPROXIMATELY 8"6" A.F.F. 2. MANUFACTURER TO PROVIDE REMOTE WALL MOUNTED THERMOSTAT. 3. PROVIDE WITH CONDENSATE PUMP.																		

SPLIT SYSTEM OUTDOOR UNIT SCHEDULE																				
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	NOMINAL TONS	IDU ID TAG	REFRIGERANT	COOLING				COMPRESSORS		ELECTRICAL		DBA	DISCONNECT	WEIGHT (LBS)	NOTES	
								AMB (HI/LOW)	SENSIBLE MBH	TOTAL MBH	EFFICIENCY (SEER2)	QUANTITY	TYPE	VOLTAGE (V/PH/Hz)	MCA					MOCP
CU-1	LAKE HOUSE AV ROOM	mitsubishi electric	MUY-GS18NA	COOLING ONLY	1.5	AC-115	R410A	95	13.86	18	21.5	1	TWIN ROTARY	208/1/60	12	15	54	INCLUDE	119	
CU-2	LAKE HALL AV ROOM	mitsubishi electric	MUY-GX30NL	COOLING ONLY	2.5	AC-164	R454B	95	22.0	30.6	19.2	1	TWIN ROTARY	208/1/60	19	20	55	INCLUDE	121	

HYDRONIC CABINET HEATER SCHEDULE																			
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	FAN		HYDRONIC HEATING SECTION							ELECTRICAL		ACCESSORIES		WEIGHT (LBS)	NOTES
					CFM	HP	EAT DB	OUTPUT MBH	FLUID	EWT (F)	LWT (F)	GPM	WPD (FT HD)	VOLTAGE (V/PH/Hz)	FLA	CONTROL	DISCONNECT		
CUH-1	LAKE HOUSE VESTIBULE	ZEHNDER-RITTLING	RC/W-420-06	WALL RECESSED	620	1/15	65	24.7	WATER	140	100	1.3	0.6	120/1/60	1.13	THERMOSTAT	BY MANUF.	130	

PLOT INFO: 10/12/2026 2:04:52 PM Autodesk Docs://500281 - Van Buren Twp Lake House/2006_M_2500281.rvt

MISCELLANEOUS EQUIPMENT SCHEDULE	
ID TAG	DESCRIPTION
AS-1	AIR SEPARATOR, SPIROTHERM MODEL VJR-1C
ET-1	PRESSURIZED EXPANSION TANK, AMTROL MODEL AX-10-DD
SS-1	SIDE STREAM FILTER , SHELCO MODEL F0-78

IN-FLOOR TRENCH HEATER SCHEDULE													
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	BTUH	TRENCH LENGTH	TRENCH WIDTH	HEIGHT	MOUNTING	CFM	FLUID	AVERAGE WATER TEMP (F)	GPM
TH-103	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-104-1	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	544	30"	8.5"	6"	IN FLOOR	23	WATER	130	0.05
TH-104-3	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-104-4	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-105-1	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-105-2	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-105-3	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-105-4	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-152-1	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-152-2	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-169-1	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-169-2	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-169-3	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-169-4	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-170-1	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-170-2	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-170-3	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
TH-170-4	PERIMETER HEAT	KAMPMANN	KATHERM QK 215	FAN ASSISTED TRENCH HEATER	3266	116"	8.5"	6"	IN FLOOR	86	WATER	130	0.28
NOTES: 1. PROVIDE WITH EXTENDED TRENCH TO COVER ENTIRE DISTANCE BETWEEN COLUMNS 2. PROVIDE WITH ROLL UP GRILLE FOR MAINTENANCE TO ALLOW GRILLES TO BE REMOVED AND CLEANED PERIODICALLY. 3. PROVIDE 24V POWER FOR FAN. 4. STAINLESS STEEL GRILLE 5. EPOXY-COATED ELEMENT 6. POWER-COATED OR ANODIZED VISIBLE METAL. 7. LEGS TO ACCOMMODATE 8" DEEP TRENCH.													

DUCT SILENCER SCHEDULE																	
ID TAG	MANUFACTURER	MODEL	CFM	SP (IN WC)	VELOCITY (FPM)	DIMENSIONS (IN)			MINIMUM INSERTION LOSS RATINGS (dB)								NOTES
						WIDTH	HEIGHT	LENGTH	63	125	250	500	1000	2000	4000	8000	
DS-RTU-1RA	PRICE	RMX72/3E	3900	0.18	1170	24	20	72	9	16	29	44	46	38	25	16	
DS-RTU-2RA	PRICE	RM60/VA	8100	0.19	1325	40	22	48	5	9	17	29	29	21	16	12	
DS-RTU-2SA	PRICE	RM48/WA	8100	0.08		36	0	0									

RADIANT WALL PANEL SCHEDULE									
ID TAG	LOCATION	MANUFACTURER	MODEL	BTUH/LF	FIN TUBE LENGTH	AVERAGE WATER TEMP (F)	GPM	NOTES	
RWP-104-1	LAKE HOUSE	RUNTAL	RF-1	182	7'4"	130	0.13	2	
RWP-104-2	LAKE HOUSE	RUNTAL	RF-1	182	2' 6"	130	0.13	2	
RWP-104-3	LAKE HOUSE	RUNTAL	RF-1	182	10' 8"	130	0.19	1	
RWP-104-4	LAKE HOUSE	RUNTAL	RF-1	182	10' 8"	130	0.19	1	
RWP-105-1	LAKE HOUSE	RUNTAL	RF-1	182	10' 8"	130	0.19	1	
RWP-105-2	LAKE HOUSE	RUNTAL	RF-1	182	10' 6"	130	0.19	1	
RWP-105-3	LAKE HOUSE	RUNTAL	RF-1	182	10' 6"	130	0.19	1	
RWP-105-4	LAKE HOUSE	RUNTAL	RF-1	182	22' 8"	130	0.41	2	
RWP-169-1	LAKE HALL	RUNTAL	RF-1	182	15' 2"	130	0.28	2	
RWP-169-2	LAKE HALL	RUNTAL	RF-1	182	15' 4"	130	0.28	2	
RWP-169-3	LAKE HALL	RUNTAL	RF-1	182	14' 4"	130	0.26	1	
RWP-169-4	LAKE HALL	RUNTAL	RF-1	182	14' 4"	130	0.26	1	
RWP-170-1	LAKE HALL	RUNTAL	RF-1	182	14' 4"	130	0.26	1	
RWP-170-2	LAKE HALL	RUNTAL	RF-1	182	14' 4"	130	0.26	1	
RWP-170-3	LAKE HALL	RUNTAL	RF-1	182	15' 6"	130	0.28	2	
RWP-170-4	LAKE HALL	RUNTAL	RF-1	182	15' 6"	130	0.28	2	
NOTES: 1. PROVIDE WITH 1/2" TALL CUSTOM PEDESTAL TO BE MOUNTED ON STRUCTURAL TUBE. 2. PROVIDE KR30 CANTILEVER BRACKET FOR MOUNTING TO THE MULLIONS.									

BOILER SCHEDULE																						
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	REQUIRED OUTPUT (MBH)	BURNER			TURNDOWN RATIO	EWT (F)	LWT (F)	GPM	FLUID	MAX PD (FT HD)	MIN AHRI EFFICIENCY %	MAX WORKING PRESSURE (PSIG)	RELIEF VALVE SET PRESSURE (PSIG)	ELECTRICAL				NOTES
						FUEL TYPE	INPUT (MBH)	GAS PRESSURE (IN W.C.)										VOLTAGE (V/PH/Hz)	FLA	MCA	DISCONNECT	
B-1	LAKE HOUSE	LOCHINVAR	WHB199N	WALL-HUNG	146	NATURAL GAS	199	4.0-14.0	10:1	120	140	19	WATER	1.13	95	80	30	120	3.3	4.2	1-5	
B-2	LAKE HOUSE	LOCHINVAR	WHB199N	WALL-HUNG	146	NATURAL GAS	199	4.0-14.0	10:1	120	140	19	WATER	1.13	95	80	30	120	3.3	4.2	1-5	
B-3	LAKE HALL	LOCHINVAR	WHB285N	WALL-HUNG	215	NATURAL GAS	285	4.0-14.0	10:1	120	140	27	WATER	2.42	95	80	30	120	3.6	4.5	1-5	
B-4	LAKE HALL	LOCHINVAR	WHB285N	WALL-HUNG	215	NATURAL GAS	285	4.0-14.0	10:1	120	140	27	WATER	2.42	95	80	30	120	3.6	4.5	1-5	
NOTES: 1. PROVIDE WITH BOILER PUMPS, SEE PUMP SCHEDULE 2. PROVIDE 30 PSI PRESSURE RELIEF VALVE 3. PROVIDE CONDENSATE NEUTRALIZATION KIT 4. PROVIDE CONCENTRIC VENTING KIT 5. PROVIDE WALL MOUNTING KIT																						

PUMP SCHEDULE																	
ID TAG	SERVICE	MANUFACTURER	MODEL	TYPE	GPM	TDH (FT HD)	OPERATING RPM	FLUID	EFFICIENCY MIN %	SUCTION SIZE (IN)	DISCHARGE SIZE (IN)	MOTOR		ELECTRICAL	MOTOR CONTROL		NOTES
BP-1	LAKE HOUSE B-1	GRUNDFOS	UPXML	IN-LINE	19	16	-	WATER	-	1.5	1.5	-	120 W	-	115/1	ECM	1
BP-2	LAKE HOUSE B-2	GRUNDFOS	UPXML	IN-LINE	19	16	-	WATER	-	1.5	1.5	-	120 W	-	115/1	ECM	1
BP-3	LAKE HALL B-3	GRUNDFOS	UPXML	IN-LINE	27	8	-	WATER	-	2	2	-	120 W	-	115/1	ECM	1
BP-4	LAKE HALL B-4	GRUNDFOS	UPXML	IN-LINE	27	8	-	WATER	-	1.61	1.61	-	120 W	-	115/1	ECM	1
HWP-1	LAKE HOUSE	B&G	Ecocirc XL 65-130	IN-LINE	20	40	2777	WATER	31.8	1.61	1.61	2777	1	0.634	208/1/60	ECM	
HWP-2	LAKE HOUSE	B&G	Ecocirc XL 65-130	IN-LINE	20	40	2777	WATER	31.8	1.61	1.61	2777	1	0.634	208/1/60	ECM	
HWP-3	LAKE HALL	B&G	Ecocirc XL 65-130	IN-LINE	30	45	2960	WATER	39.6	1.61	1.61	2960	1	0.86	208/1/60	ECM	
HWP-4	LAKE HALL	B&G	Ecocirc XL 65-130	IN-LINE	30	45	2960	WATER	39.6	1.61	1.61	2960	1	0.86	208/1/60	ECM	
NOTES: 1. CIRCULATOR PUMPS PROVIDED WITH BOILER BY MANUFACTURER.																	

REVISIONS

10/12/2026	BIDS & PERMIT
09/21/2026	CD PEER REVIEW
09/09/2026	CD TEAM REVIEW
08/10/2026	CD 50% PROGRESS
08/22/2026	DD OWNER REVIEW
06/15/2026	DD PEER REVIEW
06/08/2026	DD 90 % PROGRESS
05/18/2026	DD 90 % PROGRESS
02/23/2026	SD OWNER REVIEW
02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn ByCUHLIG

DesignerCUHLIG

ReviewerGLOUIS

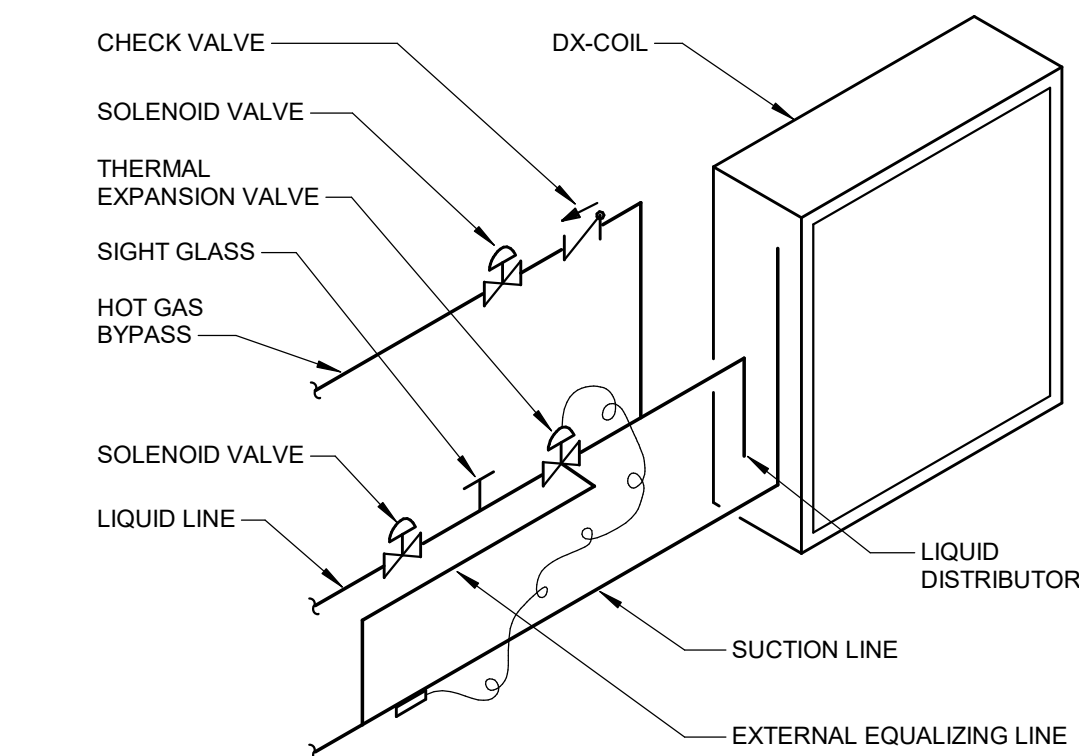
ManagerCKRETOVIC

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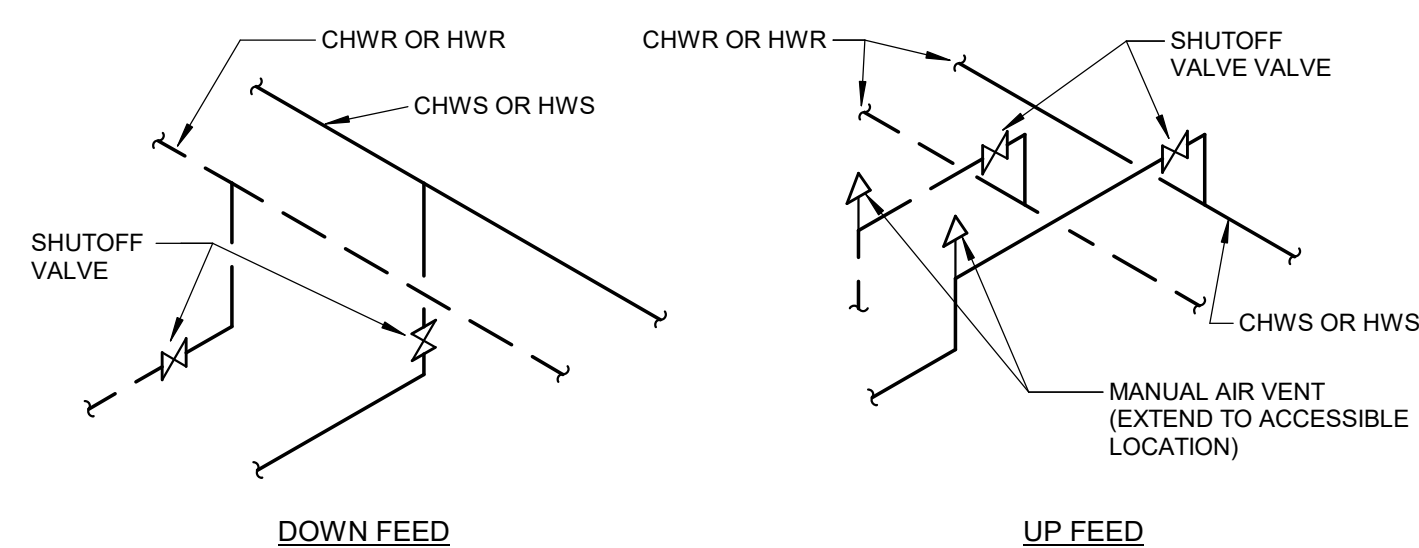
PROJECT NO.
2500281

SHEET NO.

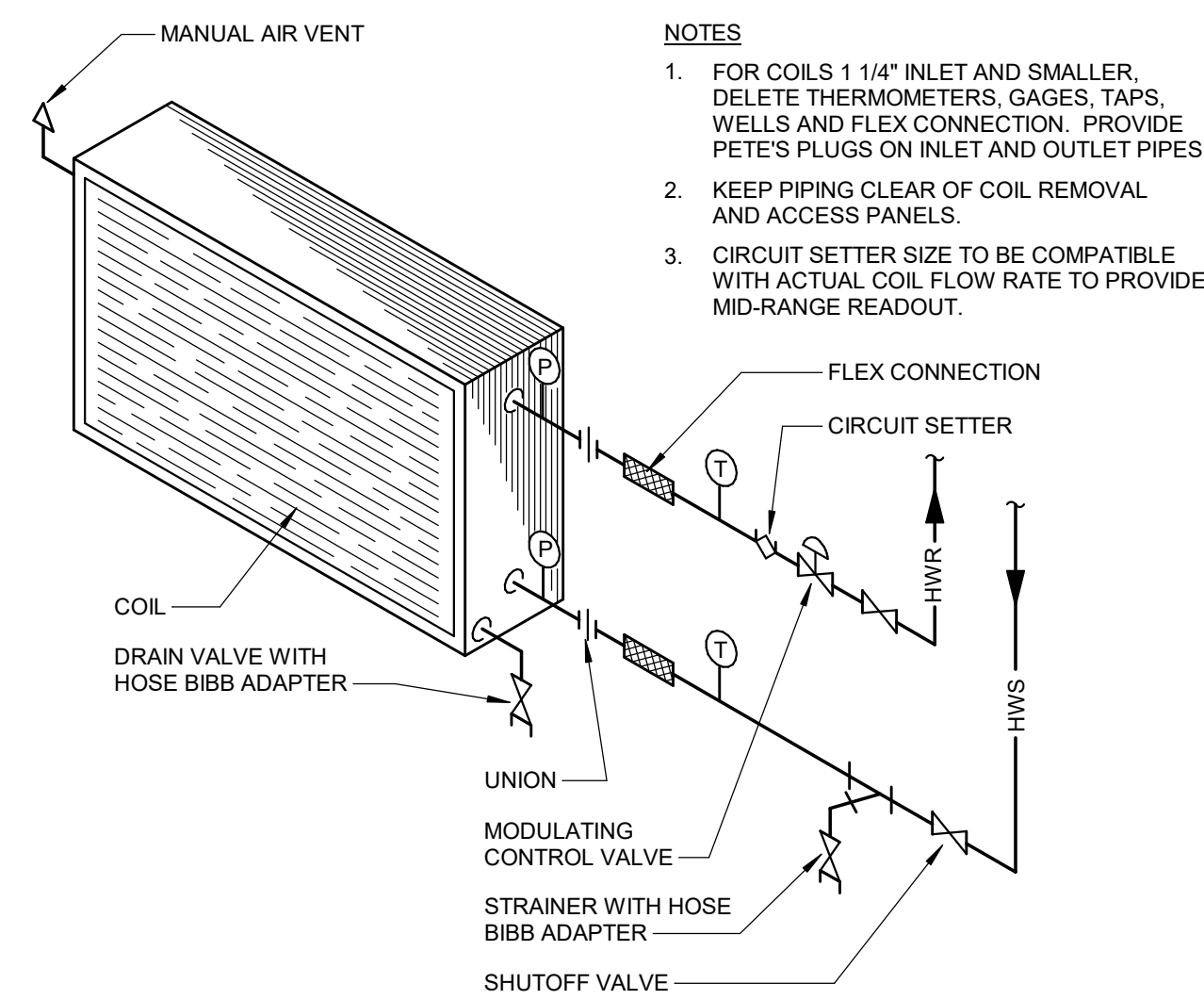
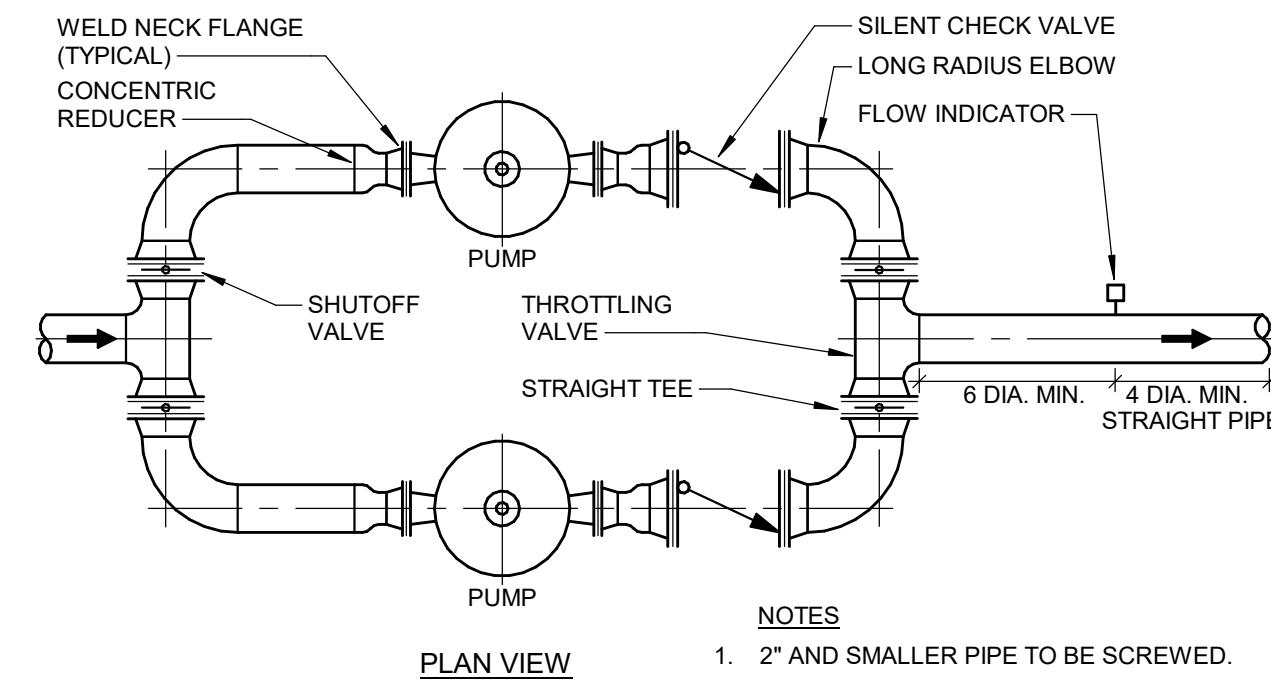
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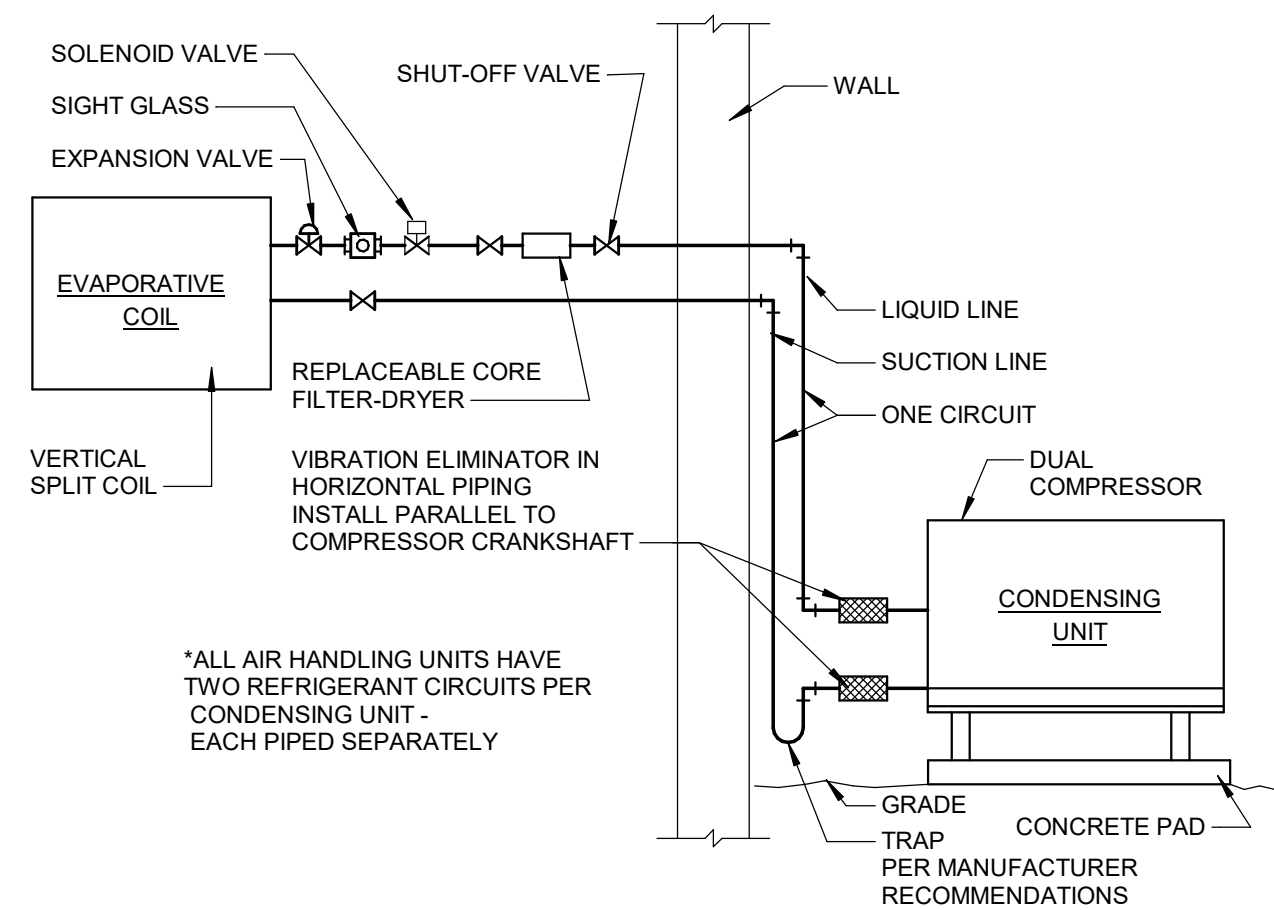
DIRECT EXPANSION COIL PIPING SCHEMATIC
NO SCALE



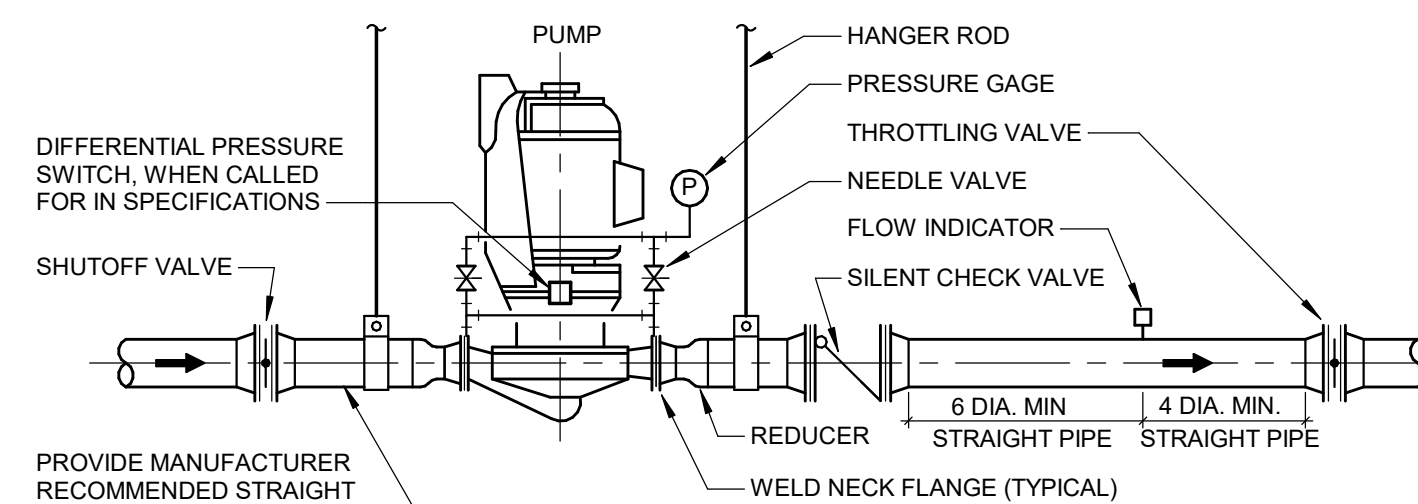
PIPING TAKE OFF DETAILS
NO SCALE



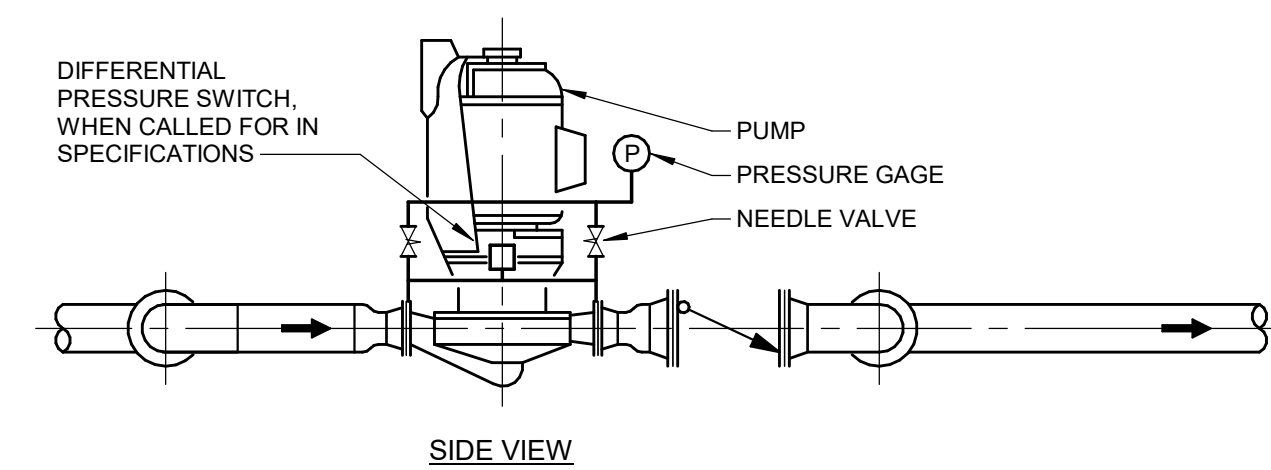
(2-WAY VALVE)
HOT WATER COIL PIPING DETAIL
NO SCALE



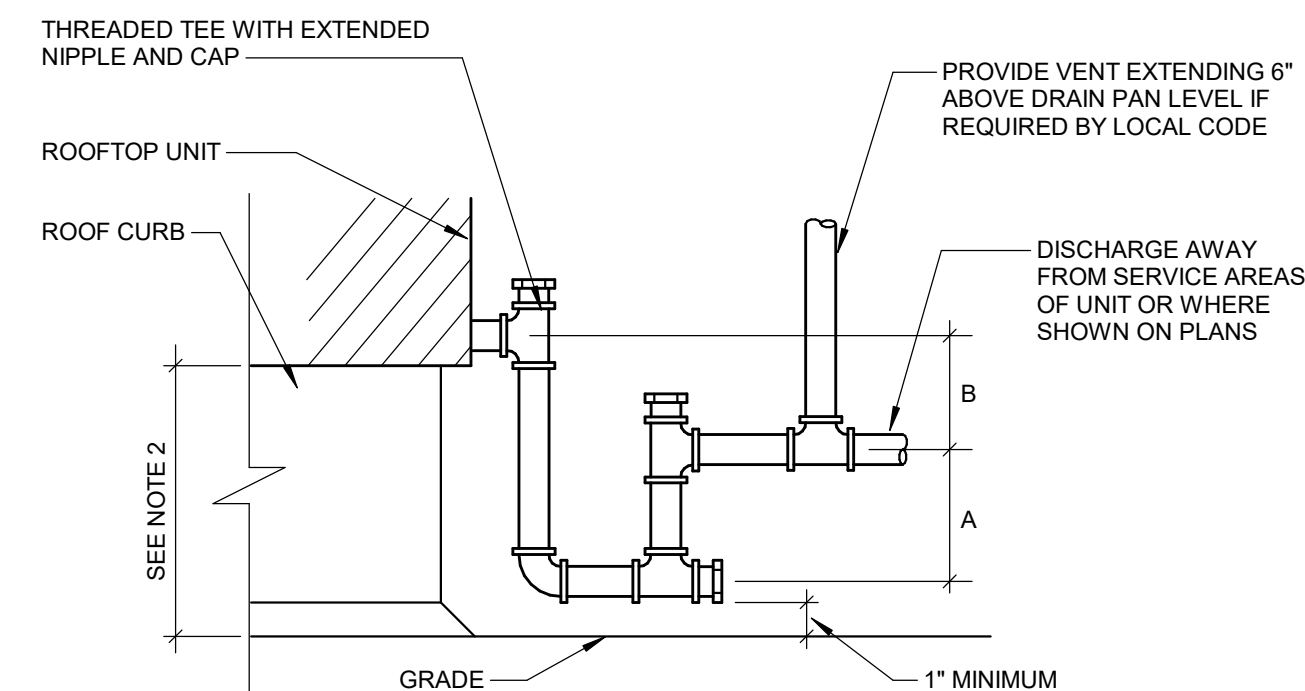
REFRIGERANT PIPING SCHEMATIC
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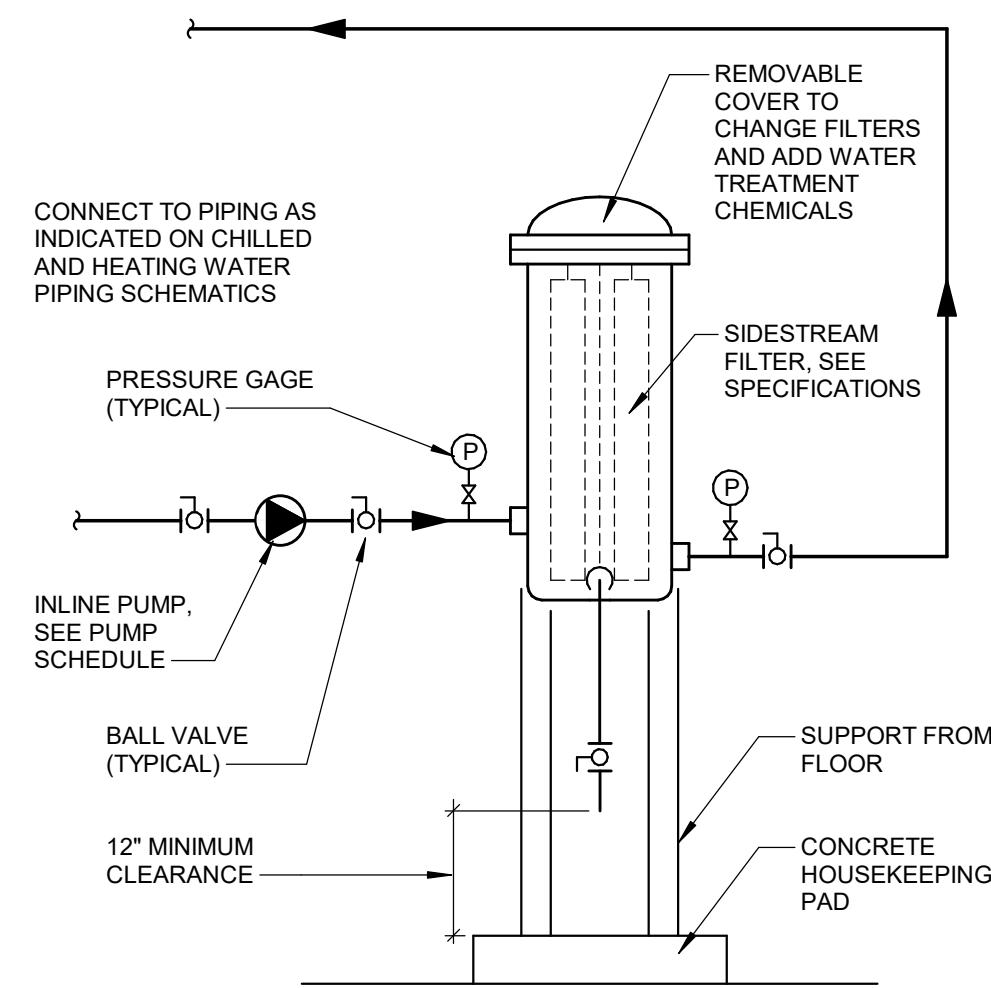
IN-LINE PUMP DETAIL
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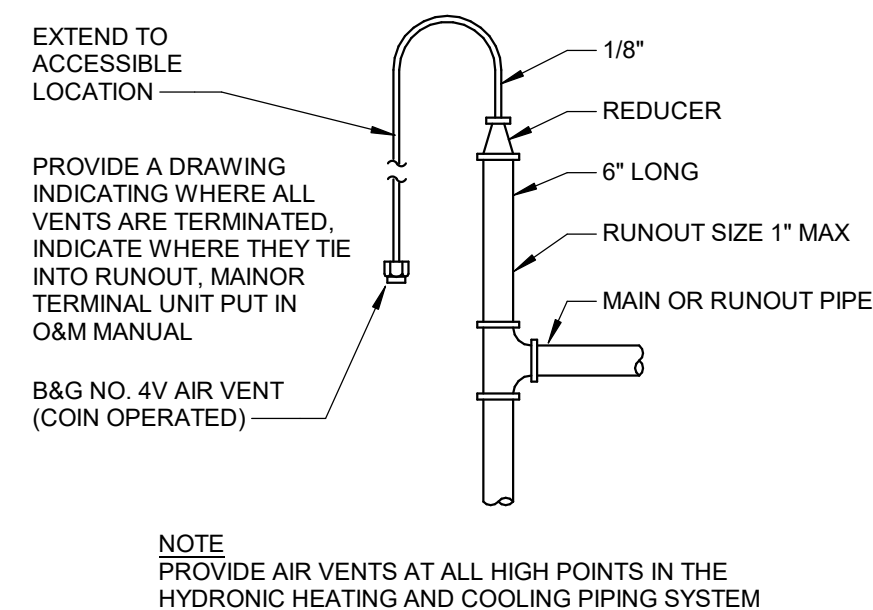
PARALLEL PUMP DETAIL
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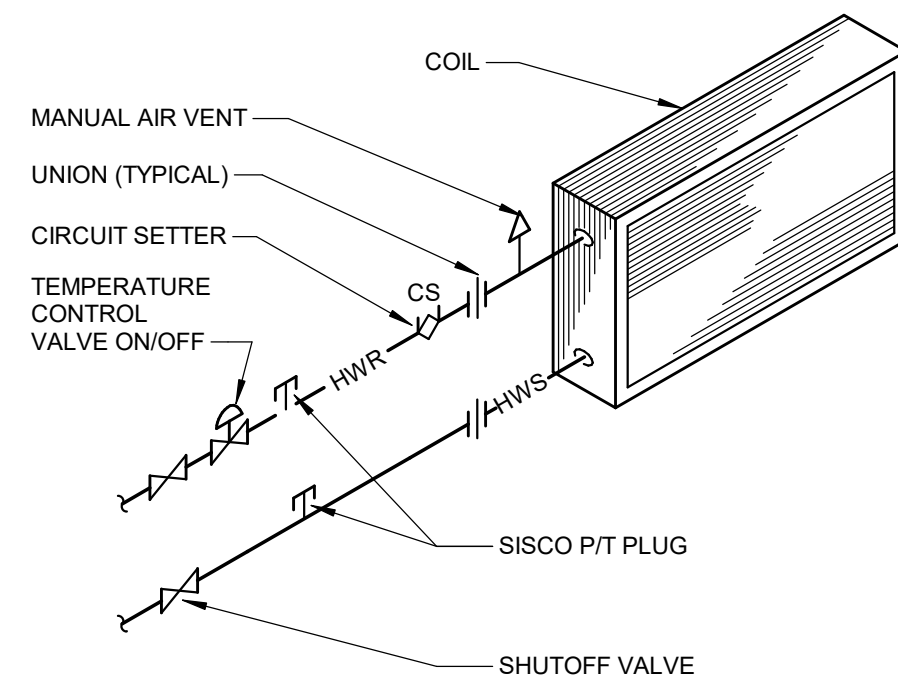
CONDENSATE DRAIN TRAP DETAIL
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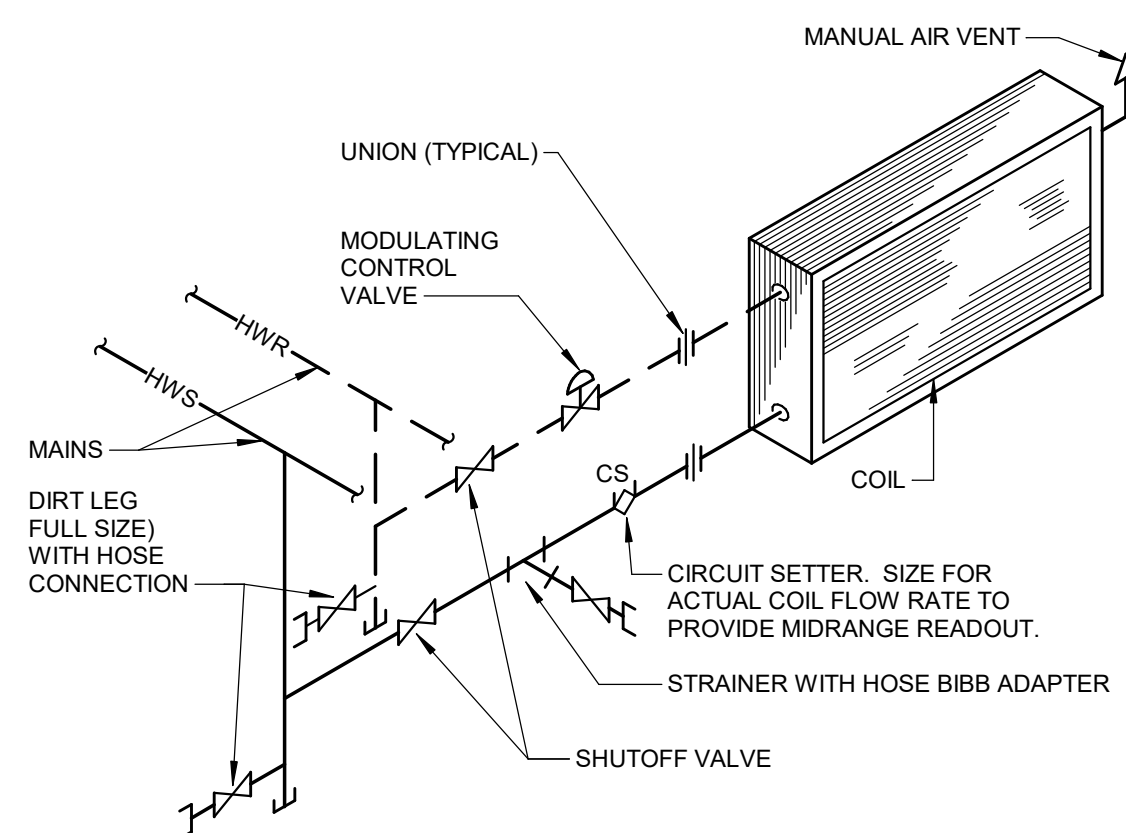
SIDESTREAM FILTER DETAIL
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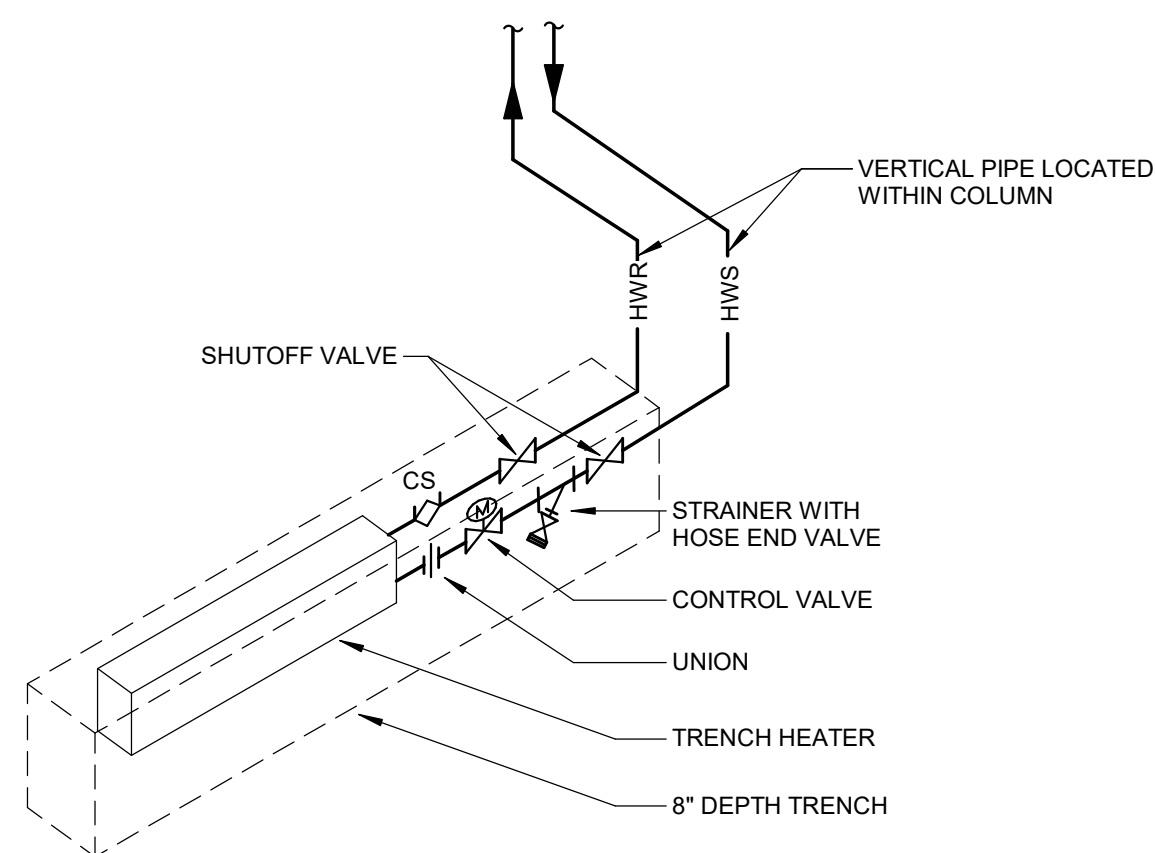
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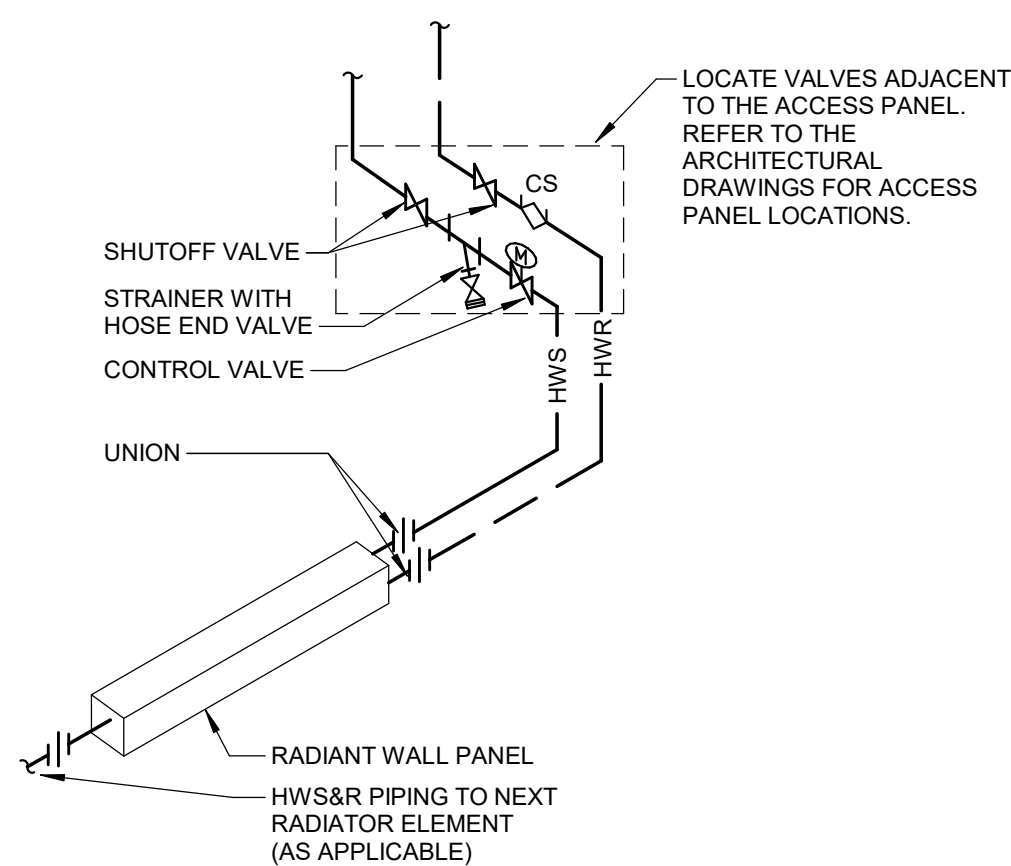
CABINET HEATER PIPING DETAIL
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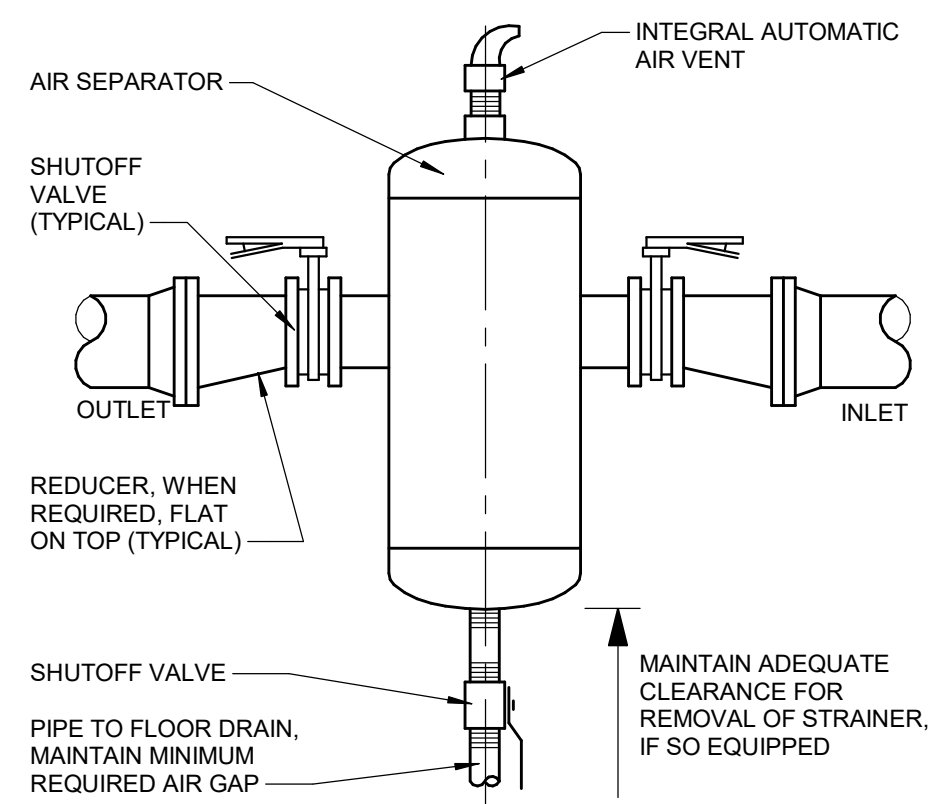
(2-WAY VALVE)
FAN COIL INDUCTION UNIT PIPING DETAIL
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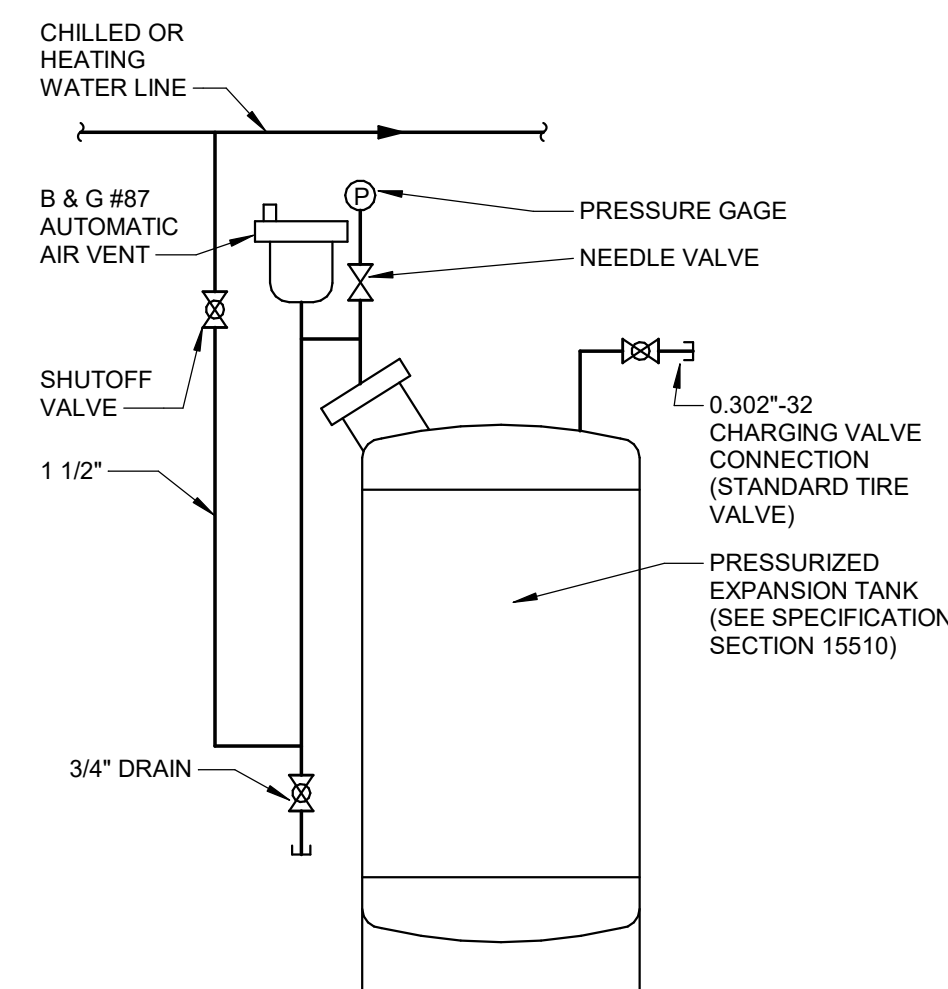
TRENCH HEATER PIPING DETAIL
NO SCALE



RADIANT WALL PANEL PIPING DETAIL
NO SCALE



AIR ELIMINATOR & DIRT SEPARATOR DETAIL
NO SCALE



PRESSURIZED EXPANSION TANK DETAIL
NO SCALE

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02/13/2026	SD PEER REVIEW
02/09/2026	SD PROGRESS REVIEW

Drawn By	CUHLIG
Designer	CUHLIG
Reviewer	GLOUIS
Manager	CKRETOVIC

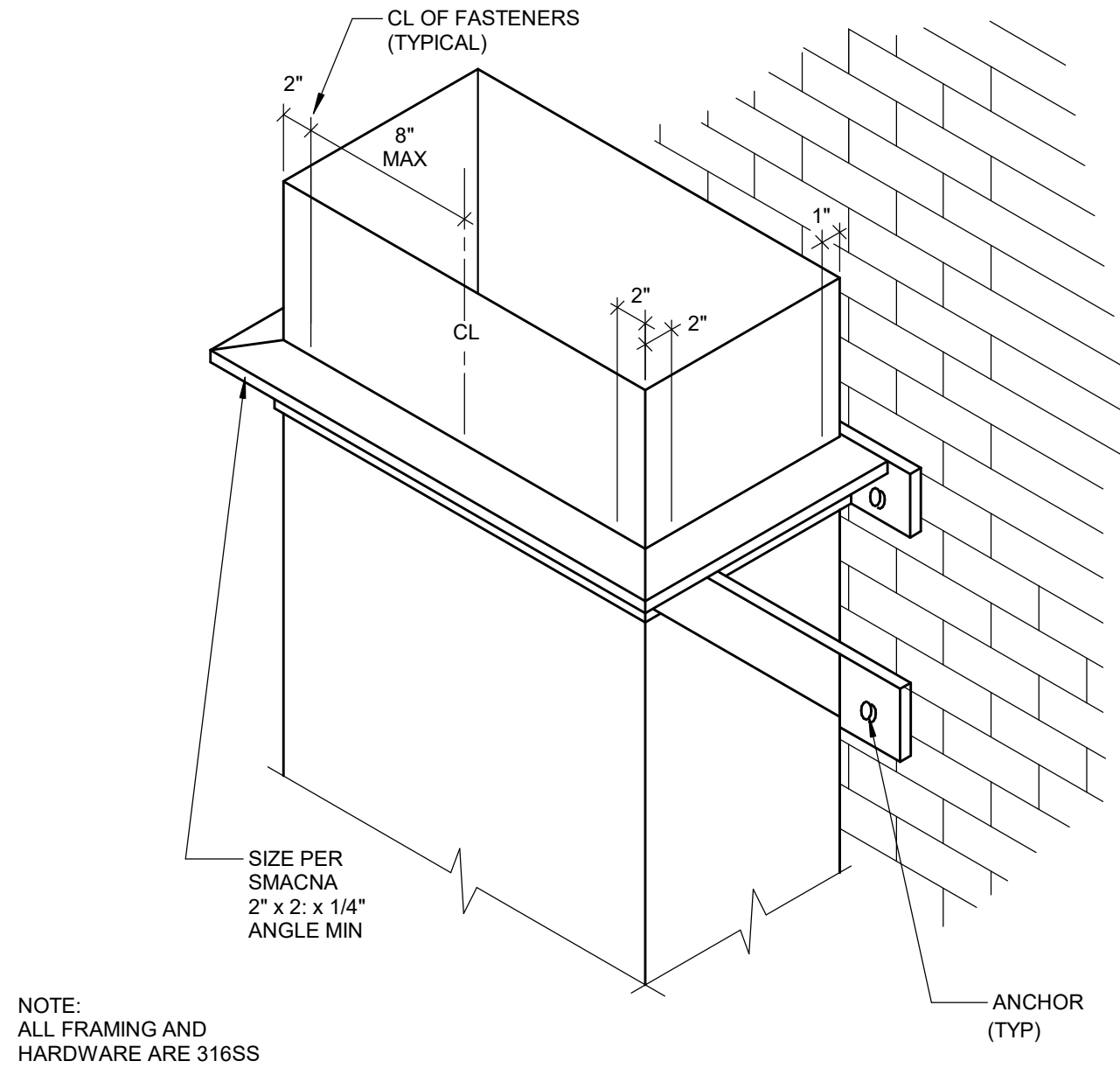
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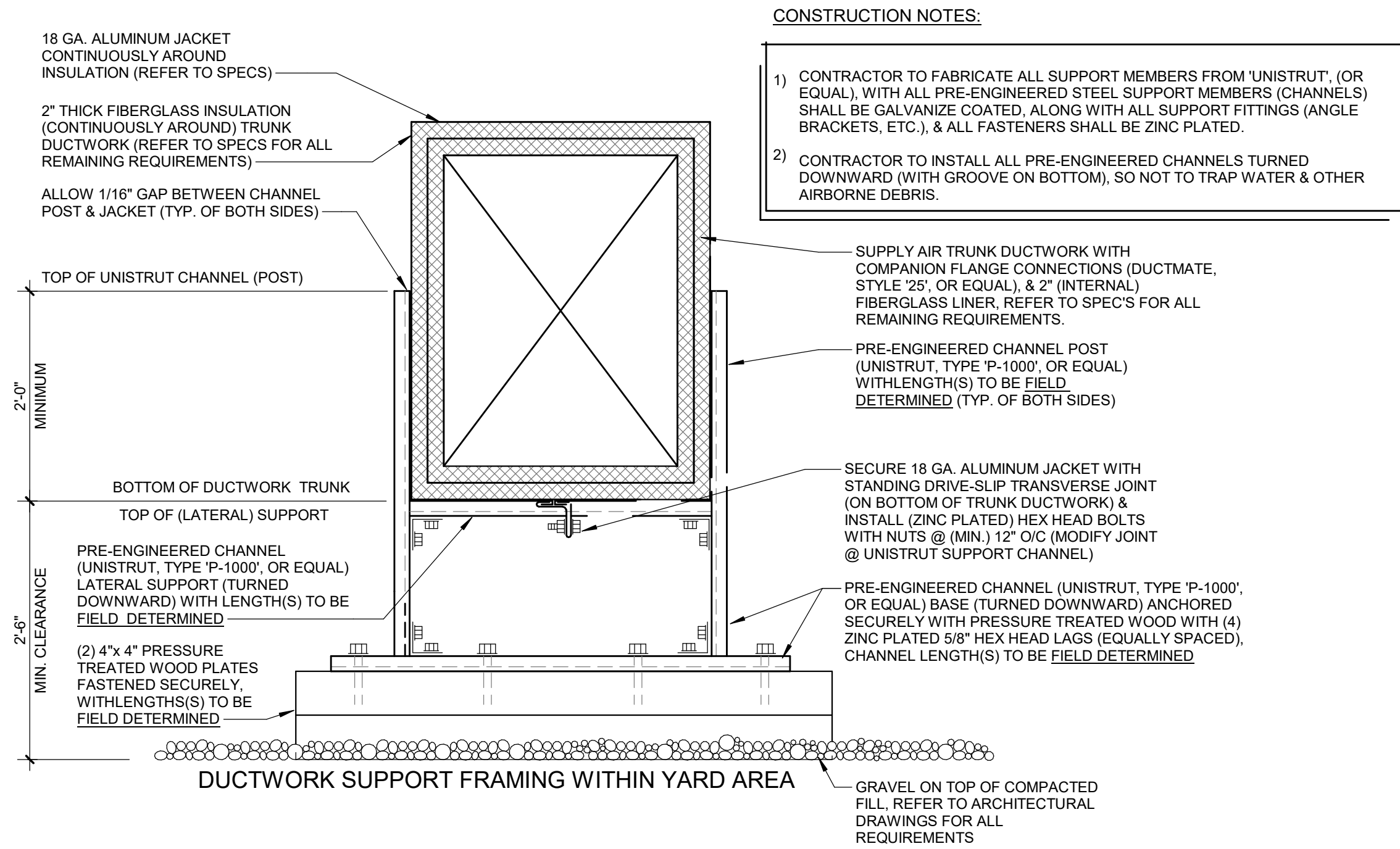
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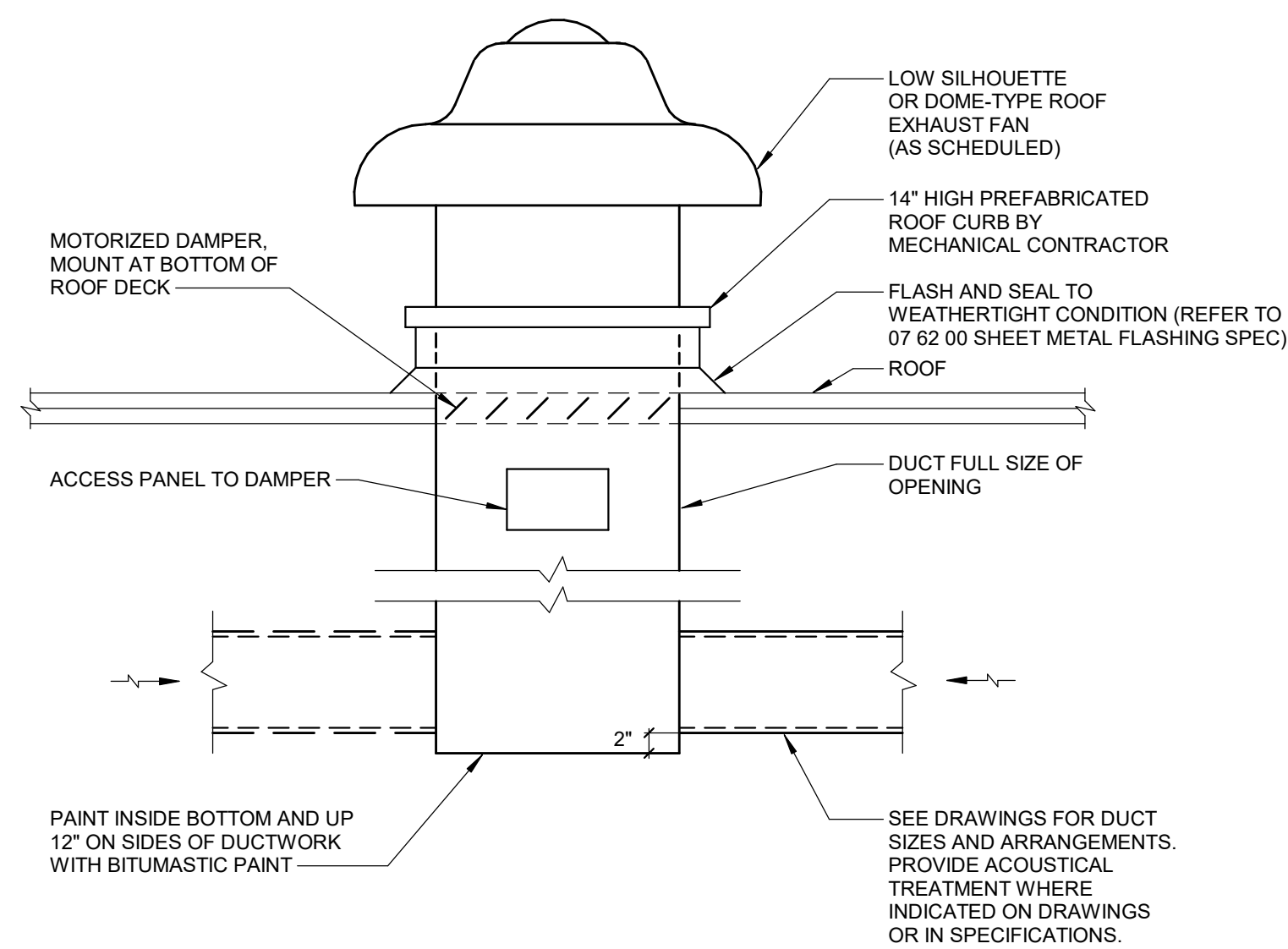
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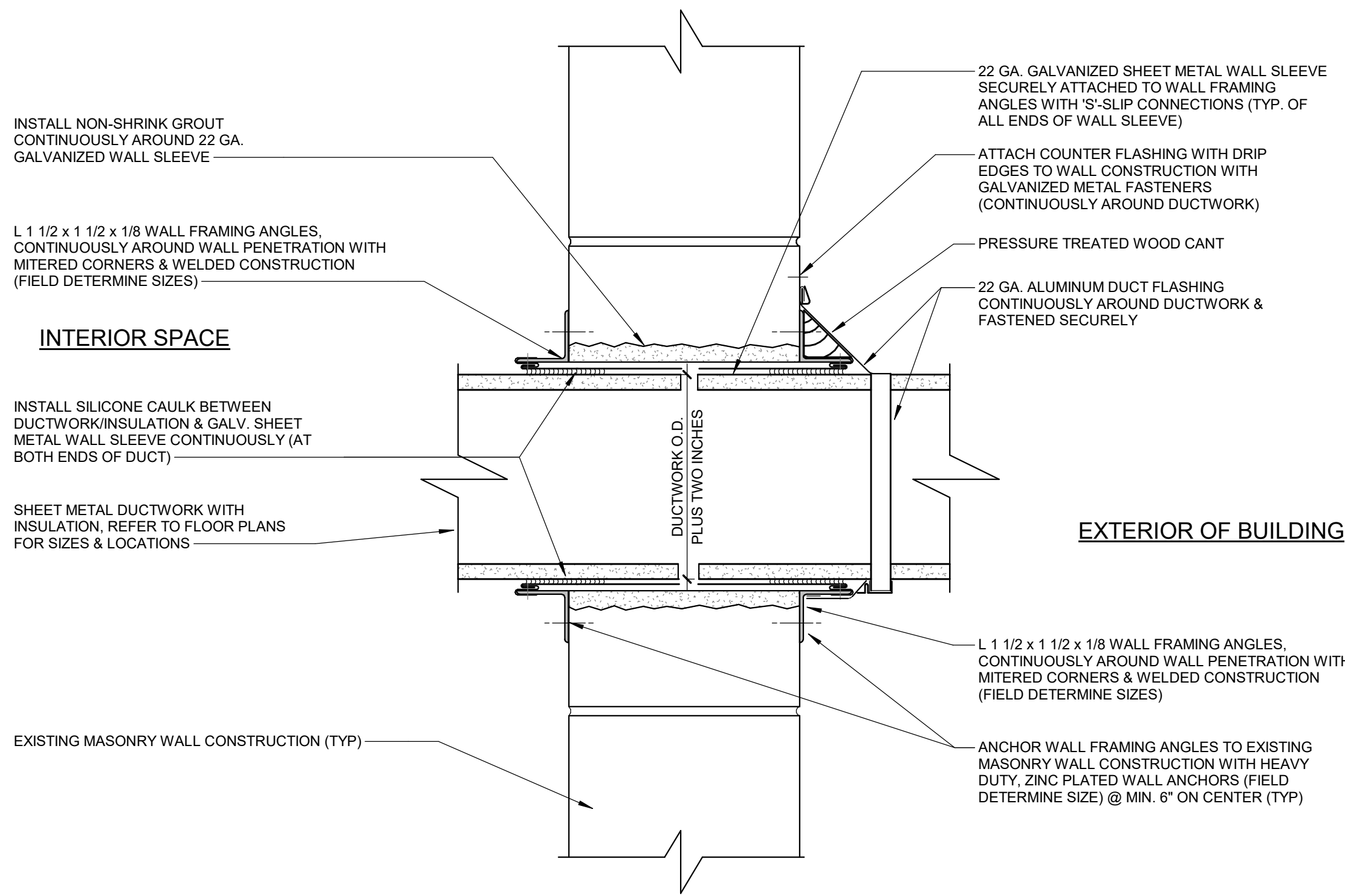
VERTICAL DUCT SUPPORT FROM WALL DETAIL
NO SCALE



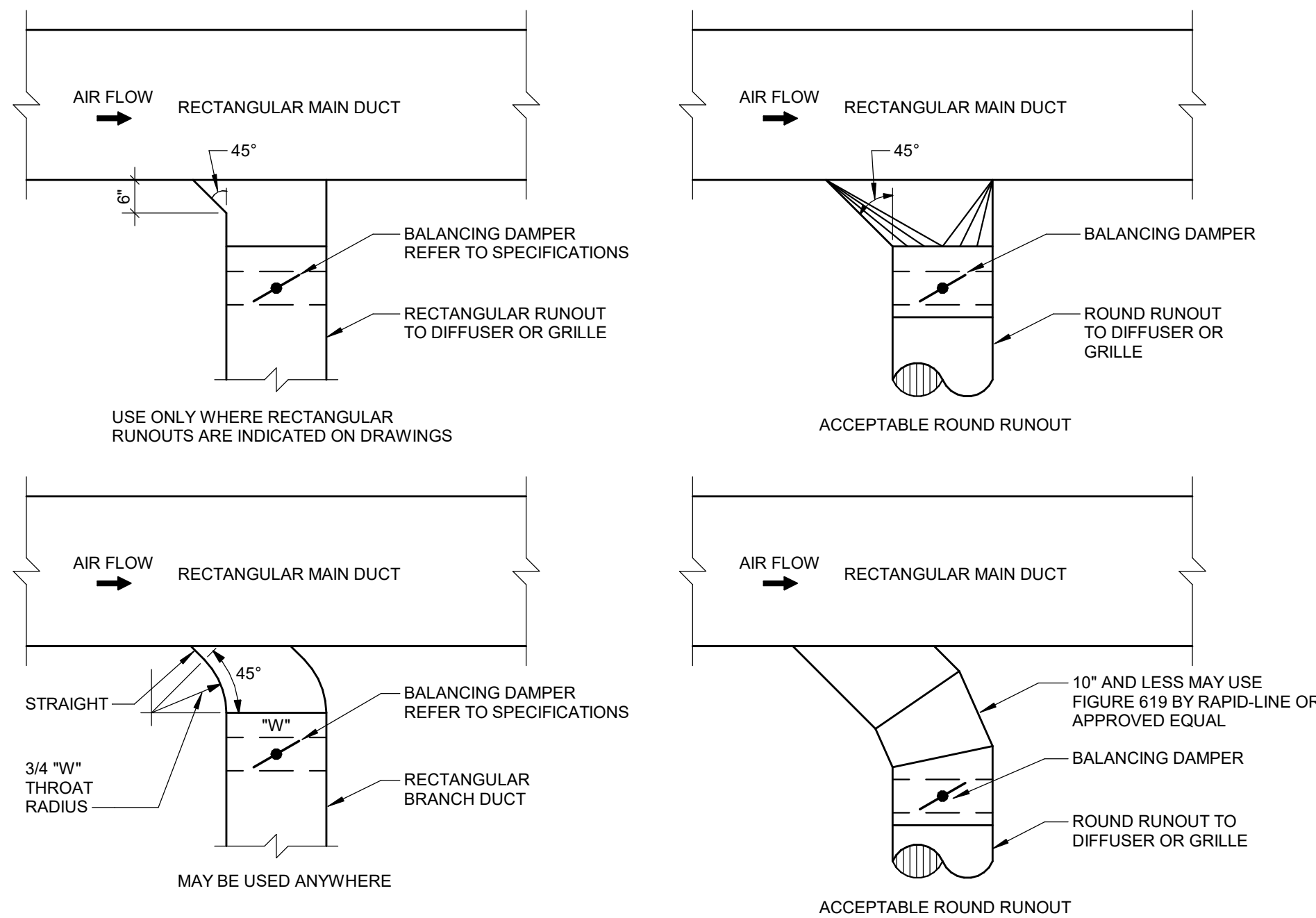
DUCTWORK SUPPORT FRAMING WITHIN YARD AREA



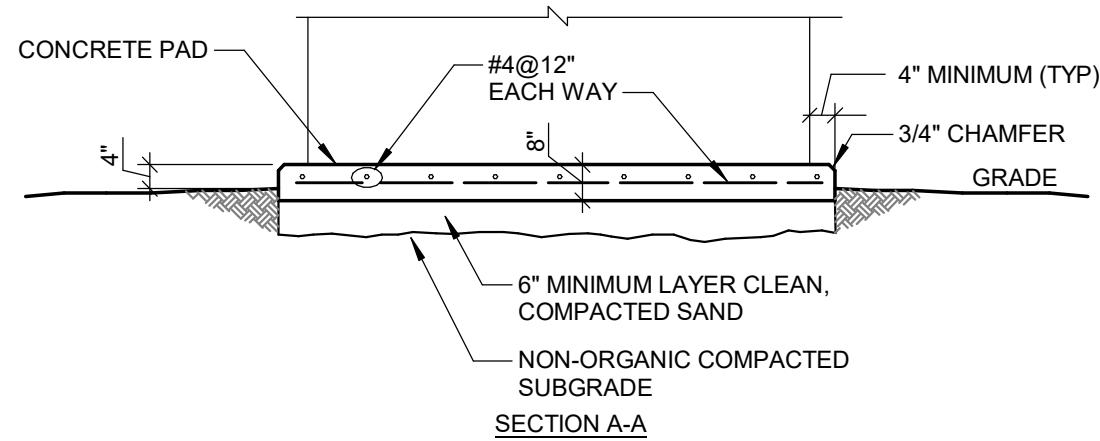
ROOF EXHAUST FAN DETAIL (WITH DUCTWORK)
NO SCALE



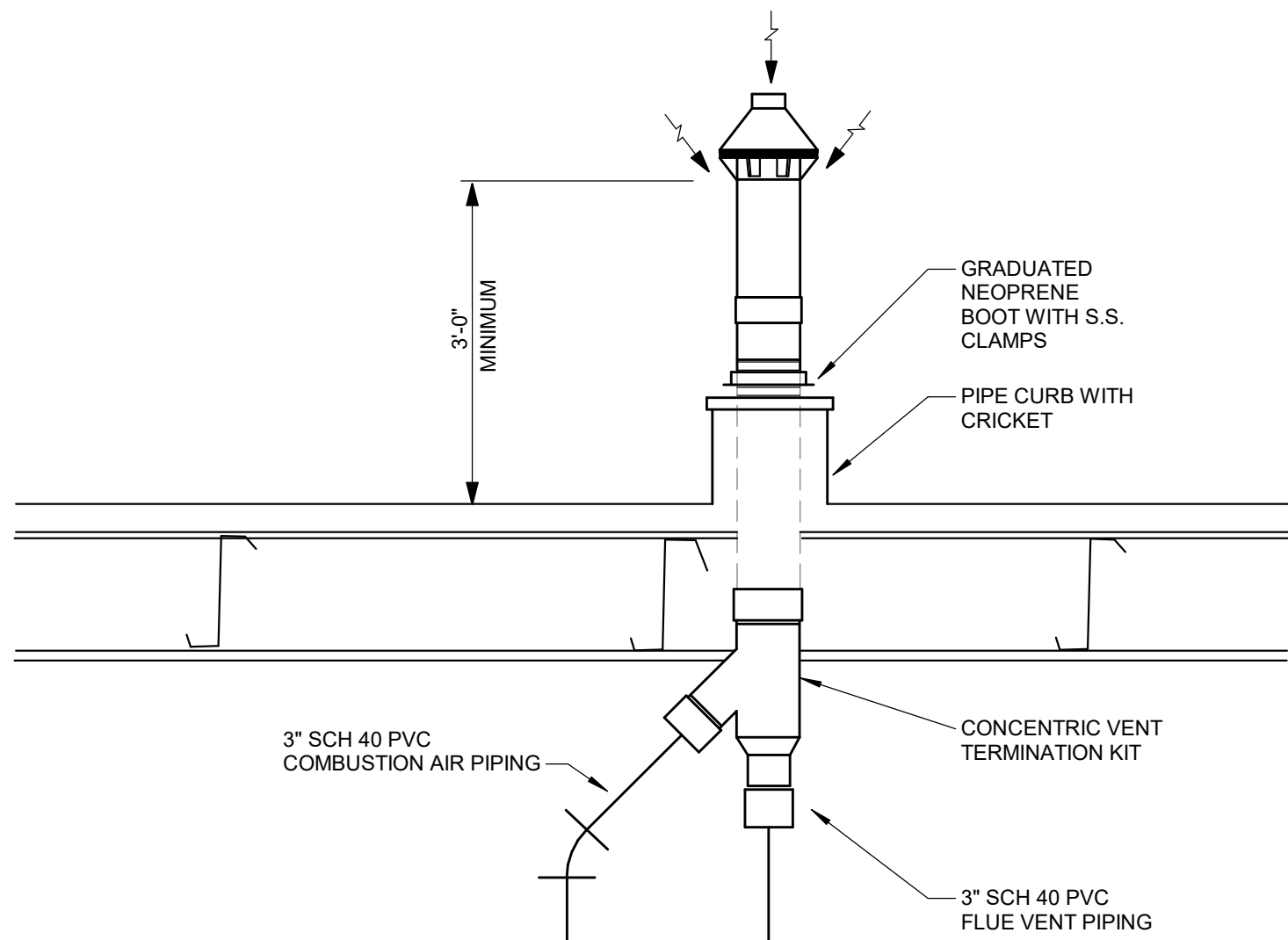
EXTERIOR OF BUILDING



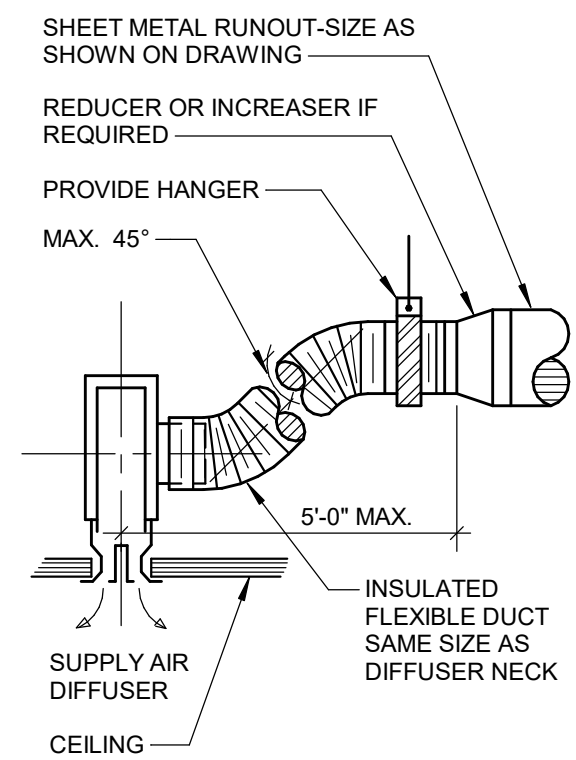
RUNOUT AND BRANCH CONNECTIONS
NO SCALE



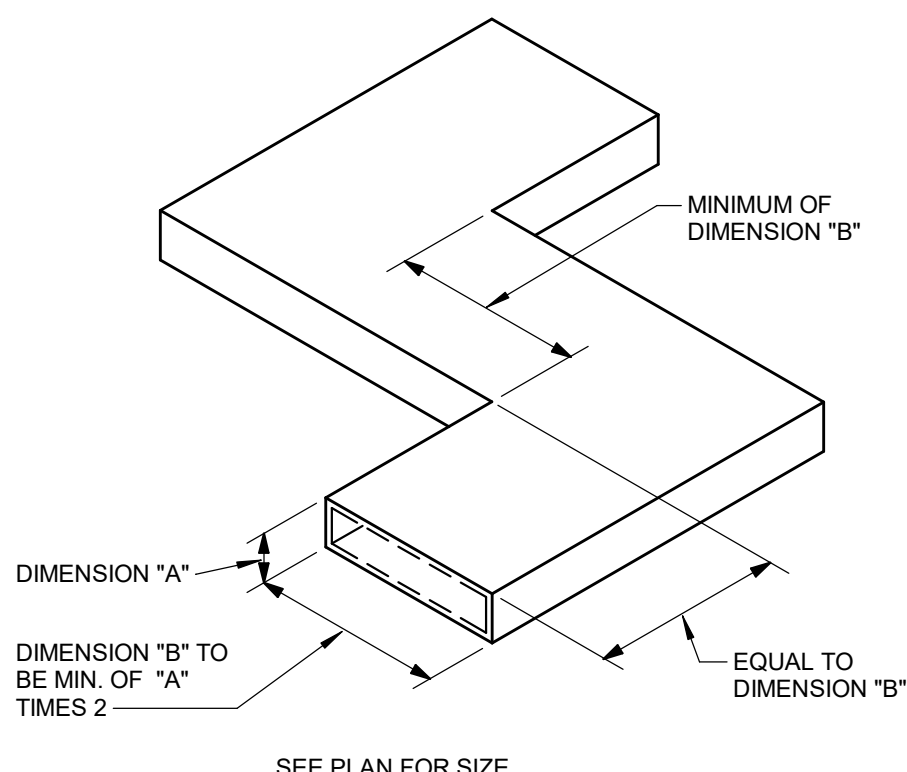
EQUIPMENT PAD DETAIL
NO SCALE



CONCENTRIC VENT KIT DETAIL
NO SCALE



TYPICAL LINEAR DIFFUSER INSTALLATION
NO SCALE



TYPICAL TRANSFER DUCT
NO SCALE

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Drawn By CUHLIG
Designer CUHLIG
Reviewer GLOUIS
Manager CKRETOVIC

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H802