

△ Date	Description
- 2021.05.19	BP3: GOLDWALK - ISSUE FOR BID AND PERMIT

Seal / Signature



05/18/202

Project Name

SSRC | BASE AREA  
IMPROVEMENTS

Project Number

003.7835.000

Description
GOLD WALK - MECHANICAL LEGEND

Scale

$$1/8'' = 1'-0$$

**1B-M0.000**



GENERAL MECHANICAL CONTRACT REQUIREMENTS:

GENERAL:

1. UNLESS OTHERWISE NOTED, THE WORK DESCRIBED ON THE PLANS AND SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF ALL LABOR AND MATERIALS NECESSARY FOR COMPLETE AND OPERATIONAL HVAC, FIRE PROTECTION AND PLUMBING SYSTEMS. CONTRACTOR SHALL FURNISH THESE EVEN IF ITEMS REQUIRED TO ACHIEVE THIS (I.E. OFFSETS, ISOLATION AND BALANCING DEVICES, MAINTENANCE CLEARANCES, ETC.) ARE NOT SPECIFICALLY SHOWN.

2. DATA GIVEN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED AND THE CONTRACTOR SHALL OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS OF THE JOB.

3. THE DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHALL NOT BE SCALED. THEY SHOW CERTAIN PHYSICAL RELATIONSHIPS WHICH MUST BE ESTABLISHED WITHIN THE DIVISION 21,22 AND 23 WORK AND ITS INTERFACE WITH OTHER WORK. ESTABLISHING THIS RELATIONSHIP IN THE FIELD IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THIS DIVISION SHALL COORDINATE ITS WORK WITH ALL DIVISIONS OF THE WORK AND ADJUST ITS WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.

A. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THE PROJECT. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

B. CERTAIN SYSTEMS REQUIRE ENGINEERING OF INSTALLATION DETAILS BY CONTRACTOR. UNLESS FULLY DETAILED IN THE CONTRACT DOCUMENTS, SUCH ENGINEERING IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.

C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE WHERE CLEARANCES ARE LIMITED, AND WHERE INSTALLATION DRAWINGS OR SCHEMATICS, "CONSTRUCTION DRAWINGS", OR COORDINATION DRAWINGS MAY BE REQUIRED IN ACCORDANCE WITH, OR IN EXCESS OF, THOSE REQUIRED BY THE SPECIFICATIONS. THE CONTRACTOR SHALL PREPARE ALL SUCH COORDINATION DRAWINGS AS PART OF THE BASE CONTRACT. SUCH DRAWINGS MAY BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR RECORD AND COMMENT. ANY WORK INSTALLED WITHOUT APPROVED COORDINATION DRAWINGS IS DONE AT THE CONTRACTOR'S RISK.

4. THESE NOTES ONLY SUPPLEMENT, AND DO NOT REPLACE, THE SPECIFICATIONS.

5. DEFINITIONS AND TERMINOLOGY

A. THE DEFINITIONS OF DIVISION 1 AND THE GENERAL CONDITIONS OF THIS SPECIFICATION ALSO APPLY TO THE DIVISION 21,22 AND 23 CONTRACT DOCUMENTS.

B. "CONTRACT DOCUMENTS" CONSTITUTE THE DRAWINGS, SPECIFICATIONS, GENERAL CONDITIONS, PROJECT MANUALS, ETC., PREPARED BY ENGINEER (OR OTHER DESIGN PROFESSIONAL IN ASSOCIATION WITH ENGINEER) FOR CONTRACTOR'S BID OR CONTRACTOR'S NEGOTIATIONS WITH THE OWNER. THE DIVISION 21,22 AND 23 DRAWINGS AND SPECIFICATIONS PREPARED BY THE ENGINEER ARE NOT CONSTRUCTION DOCUMENTS.

C. "CONSTRUCTION DOCUMENTS": "CONSTRUCTION DRAWINGS", AND SIMILAR TERMS FOR DIVISION 21,22 AND 23 WORK REFER TO INSTALLATION DIAGRAMS, SHOP DRAWINGS AND COORDINATION DRAWINGS PREPARED BY THE CONTRACTOR USING THE DESIGN INTENT INDICATED ON THE ENGINEER'S CONTRACT DOCUMENTS. THESE SPECIFICATIONS DETAIL THE CONTRACTOR'S RESPONSIBILITY FOR "ENGINEERING BY CONTRACTOR" AND FOR PREPARATION OF CONSTRUCTION DOCUMENTS.

D. "NY" INDICATES "NEW" EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT.

E. "EY" INDICATES "EXISTING" EQUIPMENT ON SITE WHICH MAY OR MAY NOT NEED TO BE RELOCATED AS A PART OF THIS WORK.

F. "RY" INDICATES EXISTING EQUIPMENT TO BE RELOCATED AS PART OF THIS WORK.

G. "FURNISH" MEANS TO "SUPPLY" AND USUALLY REFERS TO AN ITEM OF EQUIPMENT.

H. "INSTALL" MEANS TO "SET IN PLACE, CONNECT AND PLACE IN FULL OPERATIONAL ORDER".

I. "PROVIDE" MEANS TO "FURNISH AND INSTALL".

J. "EQUIVALENT" MEANS "MEETS THE SPECIFICATIONS OF THE REFERENCE PRODUCT OR ITEM IN ALL SIGNIFICANT ASPECTS". SIGNIFICANT ASPECTS SHALL BE AS DETERMINED BY THE ARCHITECT/ENGINEER.

K. "WORK BY OTHER(S) DIVISIONS": "RE: XX DIVISION", AND SIMILAR EXPRESSIONS MEANS WORK TO BE PERFORMED UNDER THE CONTRACT DOCUMENTS, BUT NOT NECESSARILY UNDER THE DIVISION OR SECTION OF THE WORK ON WHICH THE NOTE APPEARS. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE THE WORK OF THE CONTRACT BETWEEN HIS/HER SUPPLIERS, SUBCONTRACTORS AND EMPLOYEES. IF CLARIFICATION IS REQUIRED, CONSULT ARCHITECT/ENGINEER BEFORE SUBMITTING BID.

L. BY INFERENCE, ANY REFERENCE TO A "CONTRACTOR" OR "SUB-CONTRACTOR" MEANS THE ENTITY WHICH HAS CONTRACTED WITH THE OWNER FOR THE WORK OF THE CONTRACT DOCUMENTS.

M. "ENGINEER" MEANS THE DESIGN PROFESSIONAL FIRM WHICH HAS PREPARED THESE CONTRACT DOCUMENTS. ALL QUESTIONS, SUBMITTALS, ETC. OF THIS DIVISION SHALL BE ROUTED THROUGH THE ARCHITECT TO THE ENGINEER (THROUGH PROPER CONTRACTUAL CHANNELS).

EXISTING BUILDING:

1. THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE EXISTING BUILDING WILL BE OCCUPIED BY THE OWNER DURING CONSTRUCTION. CONTINUED OPERATION OF THE FACILITY SHALL NOT BE HINDERED BY THIS WORK. THE CONTRACTOR SHALL ACCOUNT FOR ALL ADDITIONAL COSTS WHICH MAY BE INCURRED BY HIM DUE TO THE DIFFICULTY OF WORKING OVER AND AROUND EMPLOYEES, DESKS, EQUIPMENT, ETC., AND DUE TO THE HOURS OF THE DAY IN WHICH AN AREA MAY BE AVAILABLE WHEN SUBMITTING HIS BID.

2. MAINTAIN A MARK-UP SET OF DRAWINGS WHICH INDICATE VARIATIONS IN THE ACTUAL INSTALLATION FROM THE ORIGINAL DESIGN. SURRENDER DRAWINGS TO OWNER UPON COMPLETION.

3. ALL CAPACITIES ARE SCHEDULED AT JOBSITE ALTITUDE OF 6700 FT. ABOVE SEA LEVEL.

4. COORDINATE ALL PENETRATIONS OF THE FLOOR SLAB AND CONCRETE WALL PRIOR TO COMMENCING WORK. UTILIZE X-RAY AND VISUAL INVESTIGATION OF EXISTING CONDITIONS AS REQUIRED PRIOR TO DRILLING OR CUTTING. COORDINATE ALL NEW PENETRATIONS WITH OTHER DIVISIONS OF THE WORK. ALL CONTRACTORS ARE INDIVIDUALLY RESPONSIBLE FOR ALL PENETRATIONS REQUIRED BY THEIR DIVISIONS.

ELECTRICAL COORDINATION:

1. VERIFY THE ELECTRICAL SERVICE PROVIDED BY THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY MECHANICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.

2. PROVIDE PREMIUM EFFICIENCY MOTORS WITH 1.15 SERVICE FACTOR ON ALL EQUIPMENT. MOTORS SHALL BE CAPABLE OF OPERATING CONTINUOUSLY AT 105°F UNDER JOBSITE CONDITIONS AND ALTITUDE.

3. UNLESS NOTED OTHERWISE, ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH HOA SWITCH AND STARTER COMPATIBLE WITH EQUIPMENT AND BMS SYSTEM. STARTERS SHALL BE PROVIDED BY DIVISION 21,22 AND 23 UNLESS IN A MOTOR CONTROL CENTER. ALL DISCONNECTS SHALL BE FURNISHED BY DIVISION 26.

4. THE ELECTRICAL POWER FOR CERTAIN EQUIPMENT PROVIDED UNDER DIVISION 21,22 AND 23 HAS NOT BEEN SPECIFICALLY INDICATED ON THE ELECTRICAL DRAWINGS AND SHALL BE PROVIDED BY AND FIELD COORDINATED BY THE DIVISION 21,22 AND 23 TRADE REQUIRING SUCH POWER.

SUFFICIENT POWER FOR THIS PURPOSE SHALL BE FURNISHED AS "SPARE". DEDICATED CIRCUIT CAPACITY IN DIVISION 26'S PANELBOARDS, ALL WIRING, CONDUIT AND ELECTRICAL DEVICES DOWNSTREAM OF THE PANELBOARDS IS THE RESPONSIBILITY OF THE DIVISION 21,22 AND 23 TRADE REQUIRING THE POWER UNLESS OTHERWISE SHOWN ON THE ELECTRICAL DRAWINGS.

SUCH EQUIPMENT IS HEREBY DEFINED AS:

A. ELECTRICAL HEAT TRACE. REQUIRED HEAT TRACE LOCATIONS, CAPACITIES AND SPECIFICATION ARE SHOWN OR INDICATED ON THE DRAWINGS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

B. FIRE PROTECTION AIR COMPRESSORS, DRY-PIPE CONTROL PANELS AND VALVES. REQUIRED CONNECTIONS ARE INCLUDED IN THE DIVISION 21 WORK, AND WILL BE SHOWN BY THAT CONTRACTOR'S ENGINEERED SYSTEM DESIGN DRAWINGS.

(1) PRE-ACTION SYSTEM INITIATION SIGNALS (SUCH AS SMOKE DETECTORS, OR GENERAL ALARM CONDITIONS IN A PRE-ACTION ZONE) SHALL BE PROVIDED UNDER DIVISION 28 FIRE-ALARM WORK.

(2) DIVISION 21 SHALL PROVIDE PRE-ACTION CONTROL PANEL AND INTERCONNECTION BETWEEN NEAREST SUITABLE FIRE ALARM PANEL AND LOCATION OF PRE-ACTION VALVE(S).

(3) DIVISION 28 SHALL PROVIDE INTERCONNECTION BETWEEN FIRE COMMAND CENTER ALARM PANEL (PROVIDED UNDER DIVISION 28) AND REMOTE COMMUNICATION FIRE ALARM PANEL (PROVIDED UNDER DIVISION 28).

C. TEMPERATURE CONTROL PANELS, CONTROL AIR COMPRESSORS AND LINE VOLTAGE POWER FOR 24V CONTROL TRANSFORMERS. REQUIRED CONNECTION ARE INCLUDED IN DIVISION 230900 AND WILL BE SHOWN BY THAT CONTRACTOR'S CONTROL SUBMITTAL DRAWINGS.

D. IT IS NOT PERMISSIBLE TO UTILIZE "SPARE" POWER FROM ADJACENT POWER CIRCUITS TO SERVE ANY OF THE ABOVE LOADS. ALL POWER MUST COME FROM DEDICATED CIRCUITS.

5. SMOKE DETECTORS:

FOR AIR HANDLING UNITS AND AIR SYSTEMS WITH A CAPACITY EXCEEDING 2000 CFM, PROVIDE UL LISTED SMOKE DETECTORS IN RETURN AIR SYSTEMS IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE AND ELSEWHERE AS SHOWN ON THE DRAWINGS.

SMOKE DETECTORS WILL BE FURNISHED AND SET IN PLACE UNDER THIS DIVISION. DETECTORS WILL BE WIRED UNDER DIVISION 28. SMOKE DETECTORS MUST BE OF THE SAME MANUFACTURER, AND COMPATIBLE WITH THE FIRE ALARM SYSTEM PROVIDED UNDER DIVISION 28 (IF APPLICABLE).

CONNECT RELAY(S) TO FAN CONTROL CIRCUIT TO STOP FAN WHEN SMOKE IS DETECTED.

INSTALLATION:

1. SUSPEND EACH TRADE'S WORK SEPARATELY FROM THE STRUCTURE. DUCTWORK SHALL BE HELD TIGHT TO STRUCTURE EXCEPT WHERE OTHERWISE SHOWN.

2. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

3. PROVIDE MANUFACTURER'S RECOMMENDED SERVICE CLEARANCE AROUND ALL EQUIPMENT REQUIRING SAME.

4. PROVIDE FOR SAFE CONDUCT OF THE WORK, CAREFUL REMOVAL, AND DISPOSITION OF MATERIALS AND PROTECTION OF PROPERTY WHICH IS TO REMAIN UNDISTURBED.

5. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT, VALVES, CLEANOUTS, ACTUATORS AND CONTROLS WHICH REQUIRE ACCESS FOR ADJUSTMENT OR SERVICING, AND WHICH ARE LOCATED IN OTHERWISE INACCESSIBLE LOCATIONS.

A. FOR EQUIPMENT LOCATED IN "ACCESSIBLE LOCATIONS" SUCH AS LAY-IN CEILINGS: LOCATE EQUIPMENT TO PROVIDE ADEQUATE SERVICE CLEARANCE FOR NORMAL MAINTENANCE WITHOUT REMOVING ARCHITECTURAL, ELECTRICAL OR STRUCTURAL ELEMENTS SUCH AS THE CEILING SUPPORT SYSTEM, ELECTRICAL FIXTURES, ETC. "NORMAL MAINTENANCE" INCLUDES, BUT IS NOT LIMITED TO: FILTER CHANGING; GREASING OF BEARINGS; USING PT PORTS FOR PRESSURE OR TEMPERATURE MEASUREMENTS; SERVICING CONTROL VALVES AND SERVICING CONTROL PANELS.

6. ISOLATE ALL PRESSURIZED PIPE (WATER, ETC.) AT EACH RISER, BRANCH, PIECE OF EQUIPMENT, AND AREA SERVED.

7. PROVIDE TRAP GUARDS OR PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS SHOWN ON DRAWINGS. PRIMERS MAY BE CONNECTED TO FLUSH FIXTURES OR BE STAND ALONE. SEE SPECIFICATIONS.

8. NO DOMESTIC WATER, CHILLED WATER, OR HEATING WATER LINES SHALL BE LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

9. NO GAS LINES SHALL BE LOCATED BELOW BUILDING SLAB.

10. ALL CURBS, ROOF JACKS, ROOF THIMBLES, SANITARY VENTS, ROOF DRAINS, ETC. SHALL BE COMPATIBLE WITH ROOFING SYSTEM TO BE PROVIDED. REFERENCE ARCHITECTURAL DIVISION FOR REQUIRED FLASHING DETAILS.

11. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONCRETE EQUIPMENT PAD DIMENSIONS, BASED ON THE FINAL EQUIPMENT SELECTION, TO THE STRUCTURAL AND GENERAL CONTRACTOR FOR INCLUSION IN THOSE CONTRACTOR'S WORK AS DESCRIBED BY THE GENERAL CONTRACTOR.

12. WARRANTY: AT A MINIMUM, THE ENTIRE MECHANICAL SYSTEM SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE SYSTEM BY THE OWNER. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR SPECIFIC WARRANTY REQUIREMENTS.

DUCTWORK INSTALLATION:

1. SEAL ALL SEAMS (LONGITUDINAL AND TRANSVERSE) AIR TIGHT WITH SEALANT PER SPECIFICATIONS.

2. DUCT DIMENSIONS ARE INSIDE CLEAR.

3. DIFFUSER NECK SIZE IS SAME AS FLEXIBLE DUCT SIZE.

4. UNLESS OTHERWISE NOTED, ALL CHANGES IN DIRECTION SHALL BE MADE WITH RADIUS ELBOWS WITH RADIUS TO CENTERLINE EQUAL TO 1.5 DUCT WIDTH.

5. WHERE REQUIRED FOR SPACE CONSTRAINTS, PROVIDE MITERED ELBOWS WITH TURNING VANES AS FOLLOWS:

A. FOR DUCT WIDTHS OF 36" OR LESS, PROVIDE MANUFACTURED SINGLE WIDTH TURNING VANES, WITH NO TRAILING EDGES AND SPACING IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR "STANDARD SPACING".

B. USE DOUBLE THICKNESS (AIRFOIL) BLADES WITHOUT TRAILING EDGES FOR DUCT WIDTHS GREATER THAN 36".

6. ALL FLEXIBLE DUCTS SHALL NOT BE LESS THAN 4" OR MORE THAN 10' IN LENGTH. INSTALL FLEXIBLE DUCTWORK SUCH THAT:

A. MINIMUM OVERALL LENGTH OF 3D, STRAIGHT INTO NECK OF DIFFUSER.

B. MAXIMUM OF 135° OF TOTAL TURNING IN ENTIRE LENGTH OF FLEXIBLE DUCT.

C. MINIMUM TURNING RADIUS OF R = 1.5D.

D. WHERE:

\* D = FLEXIBLE DUCT DIAMETER

\* R = RADIUS OF TURN AS MEASURED TO CENTERLINE OF DUCT.

7. BRANCH LINES:

A. MAKE ALL TAPS TO ROUND DUCTWORK WITH CONICAL TEES.

B. MAKE ALL TAPS TO RECTANGLE DUCTWORK WITH 45° ENTRY OR CONICAL SPIN IN TO ROUND.

C. INCLUDE DAMPERS AT ALL BRANCH LINES.

9. DUCT SIZES NOT CALLED OUT SHALL BE DETERMINED BASED ON 0.08" S.P. LOSS OR LESS PER 100 FT. OF LENGTH.

10. ASSUME ROUND OR OVAL DUCTS IN EXPOSED AREAS.

11. INCLUDE DAMPERS AT ALL BRANCH LINES, WHERE SHOWN ON THE DRAWINGS, AND WHERE OTHERWISE REQUIRED FOR BALANCING.

PIPE INSTALLATION:

1. ALL PIPING SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING STRUCTURE TO PREVENT SAGGING, POCKETING, SWAYING OR DISPLACEMENT BY MEANS OF HANGERS AND SUPPORTS. PIPING IS NOT TO BE SUPPORTED BY EQUIPMENT.

2. PROVIDE DIELECTRIC UNIONS BETWEEN DISSIMILAR MATERIALS.

3. PROVIDE MANUAL AIR VENTS AND CAPPED HOSE-END DRAINS WITH ISOLATION VALVES AT PIPING HIGH AND LOW POINTS.

4. WELD PIPE IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS. WELDERS SHALL BE CERTIFIED FOR TYPE OF WORK BEING PERFORMED.

5. FLUSH OUT PIPING AND REMOVE CONTROL DEVICES BEFORE PERFORMING PRESSURE TEST. DO NOT USE PIPING SYSTEM VALVES TO ISOLATE SECTIONS WHERE TEST PRESSURE EXCEEDS VALVE PRESSURE RATING. PRESSURIZE PIPING AT 100 PSIG. IF LEAKAGE IS OBSERVED OR IF TEMPERATURE COMPENSATED PRESSURE DROP EXCEEDS 1% OF TEST PRESSURE, REPAIR LEAKS AND RETEST. DO NOT USE AIR PRESSURE TO TEST PLASTIC PIPE.

6. PROVIDE SUPPORT UNDER ELBOWS ON PUMP SUCTION AND DISCHARGE LINES.

7. ALL STRAINERS SHALL BE FURNISHED WITH A "ROUGHING" SCREEN AND TWO (2) SCREENS FOR NORMAL OPERATION. INSTALL STRAINER WITH ROUGHING SCREEN AND OPERATE SYSTEM FOR 24 HOURS MINIMUM (RUN DOMESTIC WATER SYSTEMS AT MAX FLOW FOR A MINIMUM OF ONE HALF (1/2) HOUR. REMOVE ROUGHING SCREEN AND INSTALL NORMAL SCREEN, AFTER TWO WEEKS OF NORMAL OPERATION INSTALL NEW NORMAL SCREEN.

8. PIPING SIZES SHALL BE BASED ON 2" OR LESS HEAD LOSS PER 100 FEET OF LENGTH. VELOCITIES SHALL NOT EXCEED 10 FEET PER SECOND.

9. INSTALL ALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHIN THE PIPING SYSTEM. ENSURE ALL REQUIRED PIPE EXPANSION WILL OCCUR IN THE PROPER DIRECTION AND SEGMENT OF PIPE. PROPERLY ANCHOR (RE: SPECIFICATIONS) ALL PIPING REQUIRING EXPANSION/CONTRACTION ISOLATION. COORDINATE PIPE EXPANSION/CONTRACTION TO PREVENT DAMAGE TO ANY AND ALL BUILDING COMPONENTS.

10. PROVIDE ISOLATION VALVES AT EVERY HYDRONIC BRANCH LINE.

CONDENSATE DRAINAGE:

1. PROVIDE CONDENSATE DRAINAGE FOR ALL COOLING COILS AND OVERFLOW PANS.

2. ROUTE CONDENSATE PIPING, FULL SIZE OF DRIP PAN CONNECTION, TO NEAREST CODE APPROVED RECEPTACLE. INSULATE WHERE LOCATED ABOVE FINISHED CEILINGS.

CUTTING, PATCHING AND DEMOLITION:

1. KEEP DEMOLITION OR CUTTING TO MINIMUM REQUIRED FOR PROPER EXECUTION OF WORK.

2. BE RESPONSIBLE FOR ALL CUTTING AND PATCHING NECESSARY FOR THE COMPLETION OF THE WORK.

3. NO CUTTING (NOT SHOWN ON THE CONTRACT DOCUMENTS) SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT AS TO LOCATIONS, METHOD AND EXTENT OF THE CUTTING.

4. REPAIR ALL ACCIDENTAL OR INTENTIONAL DAMAGE TO MATCH EXISTING CONSTRUCTION WITH NO NOTICEABLE DIFFERENCE IN CONTINUITY, APPEARANCE OR FUNCTION.

5. ALL "CAPPED" SANITARY AND VENT LINES SHALL BE RECONNECTED OR RE-ROUTED AS NECESSARY TO PREVENT "DEAD-ENDS" IN THE PIPING. ALL PIPING SHALL DRAIN TO ACTIVE SANITARY WASTE LINES AND ALL BRANCHES WITH TRAPS SHALL BE ADEQUATELY VENTED.

GENERAL PLUMBING CONTRACT REQUIREMENTS:

1. THE GENERAL MECHANICAL REQUIREMENTS PERTAIN TO THE WORK OF THIS DIVISION.

2. PREPARE SHOP DRAWINGS OF ALL NEW WORK (INCLUDING SLEEVE LOCATIONS) TO VERIFY LOCATIONS AND COORDINATION OF WORK BETWEEN TRADES PRIOR TO INSTALLATION.

3. ALL DRAIN GRATES, CLEANOUT COVERS, AND OTHER FINISHED, EXPOSED COMPONENTS SHALL BE PROTECTED FROM DAMAGE. DAMAGED COMPONENTS SHALL BE REPLACED BY CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

4. COORDINATE ROUTING OF ALL PLUMBING PIPING BELOW SLAB WITH STRUCTURAL GRADE BEAMS, TIE BEAMS, ETC. ALLOW FOR REROUTING OF PIPING AS REQUIRED.

5. ALL REQUIRED OPENINGS IN CONCRETE BEAMS AND STRUCTURAL WALLS ARE TO BE ACCOMPLISHED USING SLEEVES PROPERLY SIZED FOR THE PIPE THEY SERVE. CORE DRILLING IN BEAMS IS NOT ALLOWED. CORE DRILLING IN PANS IS ALLOWED UPON PRIOR APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER.

6. HORIZONTAL STORM AND SANITARY PIPING SHALL RUN AT A SLOPE OF 1/4" PER FOOT MINIMUM FOR 3" AND SMALLER PIPING. 4" AND LARGER PIPING SHALL RUN AT 1/8" PER FOOT MINIMUM.

7. NO DOMESTIC WATER LINES SHALL BE LOCATED EXPOSED IN FINISHED SPACES OR BELOW THE BUILDING SLAB UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

8. WHERE SHOWN, MINIMIZE THE NUMBER OF JOINTS ON ANY PRESSURIZED PIPING BELOW CONCRETE SLABS. ALL BELOW GRADE PIPING TO BE PRESSURE TESTED AND WITNESSED BY ARCHITECT BEFORE BACKFILLING.

9. ALL CLEANOUTS FOR HORIZONTAL STORM DRAINAGE SYSTEM SHALL BE PIPE SIZE OR MAXIMUM 6" FOR LARGER PIPE.

10. IN ADDITION TO THE CLEANOUT LOCATIONS SHOWN ON DRAWINGS, PROVIDE ADDITIONAL CLEANOUTS AT:

A. ALL UPPER TERMINALS.

B. EACH RUN OF PIPING WHICH IS MORE THAN 100 FEET IN LENGTH OR FRACTION THEREOF.

C. HORIZONTAL LINES 5 FEET OR MORE.

D. HORIZONTAL LINES FOR EACH AGGREGATE CHANGE OF DIRECTION EXCEEDING 135 DEGREES.

E. AT THE BASE OF ALL WASTE AND VENT RISERS. ALL VERTICAL CLEANOUTS SHALL BE SIZED TO ACCOMMODATE THE LARGEST PIPE ON THAT BRANCH LINE, BUT NEVER LARGER THAN 4".

11. NO GAS LINES SHALL BE LOCATED BELOW BUILDING SLAB. ALL GAS PIPING IN AIR FLENUMS TO BE WELDED.

12. PROVIDE ISOLATION VALVES ON ALL PIPING SERVING HOSE BIBBS.

13. ANY ELECTRICAL SPACE NOT CONSTRUCTED WITH A SUB-ROOF WHICH MAY HAVE PLUMBING PIPING AT THE CEILING OF THESE SPACES SHALL HAVE A DRIP PAN INSTALLED BELOW THE PIPING. DRIP PANS SHALL BE 1.5 TIMES THE WIDTH OF THE PIPING SERVED WITH A MINIMUM OF 2" HIGH SIDES. DRIP PANS SHALL BE SUSPENDED FROM THE PIPING SERVED AND SHALL SLOPE AT A MINIMUM 1/8"/FT. DRIP PANS SHALL DISCHARGE WITH MIN. 1-1/2" DR TO FLOOR DRAINS.

A. DO NOT LOCATE PIPING DIRECTLY ABOVE ANY ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS.

14. MAINTAIN DESIGNATED PLUMBING FIXTURE HEADER SIZE FOR FULL BANK OF FIXTURES.

15. PROVIDE GAS VENTS EXTENDING CONTINUOUSLY FROM ALL INTERIOR GAS REGULATORS TO THE EXTERIOR OF THE BUILDING. TERMINATE AT AN APPROVED LOCATION. SIZE VENTS SUCH THAT MINIMUM VENT SIZE (FOR VENT WHICH IS 10 FEET OR LESS IN LENGTH) EQUALS RELIEF OUTLET PIPE SIZE. INCREASE VENT PIPE SIZE ONE PIPE SIZE FOR EVERY ADDITIONAL TEN FEET OF VENT PIPE LENGTH.

A. PROVIDE AN ISOLATION VALVE DOWNSTREAM OF EVERY INTERIOR GAS REGULATOR.

STRUCTURE:

1. DO NOT PENETRATE STRUCTURAL MEMBERS. ALL EQUIPMENT SUPPORTS SHALL BE ATTACHED TO THE LOAD BEARING MEMBERS OF STRUCTURAL ELEMENTS. DO NOT OVER-STRESS ANY STRUCTURAL MEMBERS. CONTACT STRUCTURAL ENGINEER FOR ALLOWABLE LOADS FOR SPECIFIC MEMBERS.

2. DO NOT UTILIZE POWER DRIVEN ANCHORS FOR ANY LOCATIONS WHICH REQUIRE THE LOAD TO BE HELD IN TENSION. SEE STRUCTURAL DIVISION FOR ADDITIONAL RESTRICTIONS.

3. SEE ALSO STRUCTURAL DIVISION FOR ACCEPTABLE ANCHORING AND SUPPORT MEANS, METHODS, AND LOCATIONS.

4. PROVIDE FLEXIBLE CONNECTORS, EXPANSION LOOPS, EXPANSION JOINTS, ADDITIONAL FITTINGS OR EQUIVALENT TO ACCOMMODATE THE THERMAL EXPANSION OF THE BUILDING THROUGH STRUCTURAL EXPANSION JOINTS. PROVIDE SUCH FITTING AT EVERY PIPE, DUCT, CONDUIT, ETC. CROSSING OF A STRUCTURAL EXPANSION JOINT.

CONSTRUCTION VENTILATION:

1. WHERE EXISTING OR NEW MECHANICAL SYSTEMS ARE USED FOR TEMPORARY VENTILATION OR CLIMATE CONTROL, MECHANICAL EQUIPMENT INSTALLER SHALL PROVIDE CONSTRUCTION FILTERS, MAINTAIN EQUIPMENT, AND CLEAN, ADJUST AND PUT IN NEW CONDITION BEFORE BUILDING OCCUPANCY. PARTS AND LABOR WARRANTY SHALL NOT BE CONSIDERED TO START UNTIL ACCEPTANCE OF SYSTEM BY OWNER.

2. PROVIDE CONSTRUCTION FILTERS INSTALLED AT ALL AIR MOVING DEVICES THROUGHOUT THE CONSTRUCTION. REMOVE FILTERS ONLY FOR BALANCING AND FINAL TURNOVER. INSPECT ALL NON-CONSTRUCTION FILTERS AND REPLACE ALL THOSE DEEMED NECESSARY BY THE ENGINEER PRIOR TO ACCEPTANCE OF THE SYSTEM BY THE OWNER.

GAS FIRED VENTING REQUIREMENTS:

1. REFER TO SPECIFICATIONS FOR BOILER VENTING REQUIREMENTS.

FIRE PROTECTION NOTES:

1. FIRE PROTECTION NOTES

A. SUBMIT SHOP DRAWINGS SHOWING PROPOSED LAYOUT OF FIRE PROTECTION SYSTEM. DRAWINGS SHALL SHOW ACTUAL EQUIPMENT TO BE USED, DIMENSIONS AND HYDRAULIC CALCULATIONS. SHOP DRAWINGS SHALL BE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION PRIOR TO SUBMITTAL TO ENGINEER OR ARCHITECT.

B. SHOW THE CONNECTING MAIN AND BRANCH PIPE SIZES FOR ALL RELOCATED EXISTING SPRINKLER HEADS.

C. CONFORM TO HAZARD OCCUPANCY REQUIREMENTS OF NFPA 13.

2. THE ENTIRE BUILDING SHALL BE SERVED BY EXISTING GONDOLA SQUARE GLYCOL FIRE SPRINKLER SYSTEM. COORDINATE ELECTRICAL, FIRE PROTECTION AND MECHANICAL SPACE REQUIREMENTS CAREFULLY BEFORE PROCEEDING WITH INSTALLATION.

3. EXTEND THE EXISTING SPRINKLER SYSTEM, RELOCATE EXISTING AND ADD NEW SPRINKLER HEADS IN ACCORDANCE WITH NFPA 13, ALL APPLICABLE CODES AND ORDINANCES AND PROJECT REQUIREMENTS TO COMPLETELY PROTECT THE NEW WORK.

4. SYSTEM SHALL BE INSTALLED COMPLETE AND OPERATIONAL, INCLUDING WATER FLOW INDICATOR, CONNECTIONS TO EXISTING ALARM, DRAIN PIPING, IDENTIFICATION SIGNS, ETC.

5. WORK SHALL BE PERFORMED BY A QUALIFIED FIRE SPRINKLER INSTALLER WITH A MINIMUM OF (5) FIVE YEARS EXPERIENCE IN SIMILAR INSTALLATIONS.

6. COORDINATE ALL WORK WITH ALL OTHER TRADES.

7. SUPPLY OWNER AN EXTRA STOCK OF SIX SPRINKLER HEADS (6), THREE (3) OF EACH TYPE, AND A SPRINKLER WRENCH.

FIRE STOPPING:

1. FIRE STOPPING REQUIREMENT: PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM E-814. ACCEPTANCE MATERIALS INCLUDE DOW CORNING RTV FIRE STOP FOAM FOR BARE PIPE, METAL CONDUIT, AND ELECTRICAL CABLE. 3M FIRE DAM 21,22 AND 230 CALK FOR BARE PIPE, METAL CONDUIT, AND BUILDING CONSTRUCTION. GAPS 3M FS-100 INTUMESCENT STRIPS FOR INSULATED PIPES, PLASTIC PIPE OR CONDUIT, AND ELECTRICAL CABLE.



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Date	Description
2021.05.19	BP3: GOLDWALK - ISSUE FOR BID AND PERMIT

Seal / Signature



05/18/2021

Project Name

SSRC | BASE AREA IMPROVEMENTS

Project Number

003.7835.000

Description

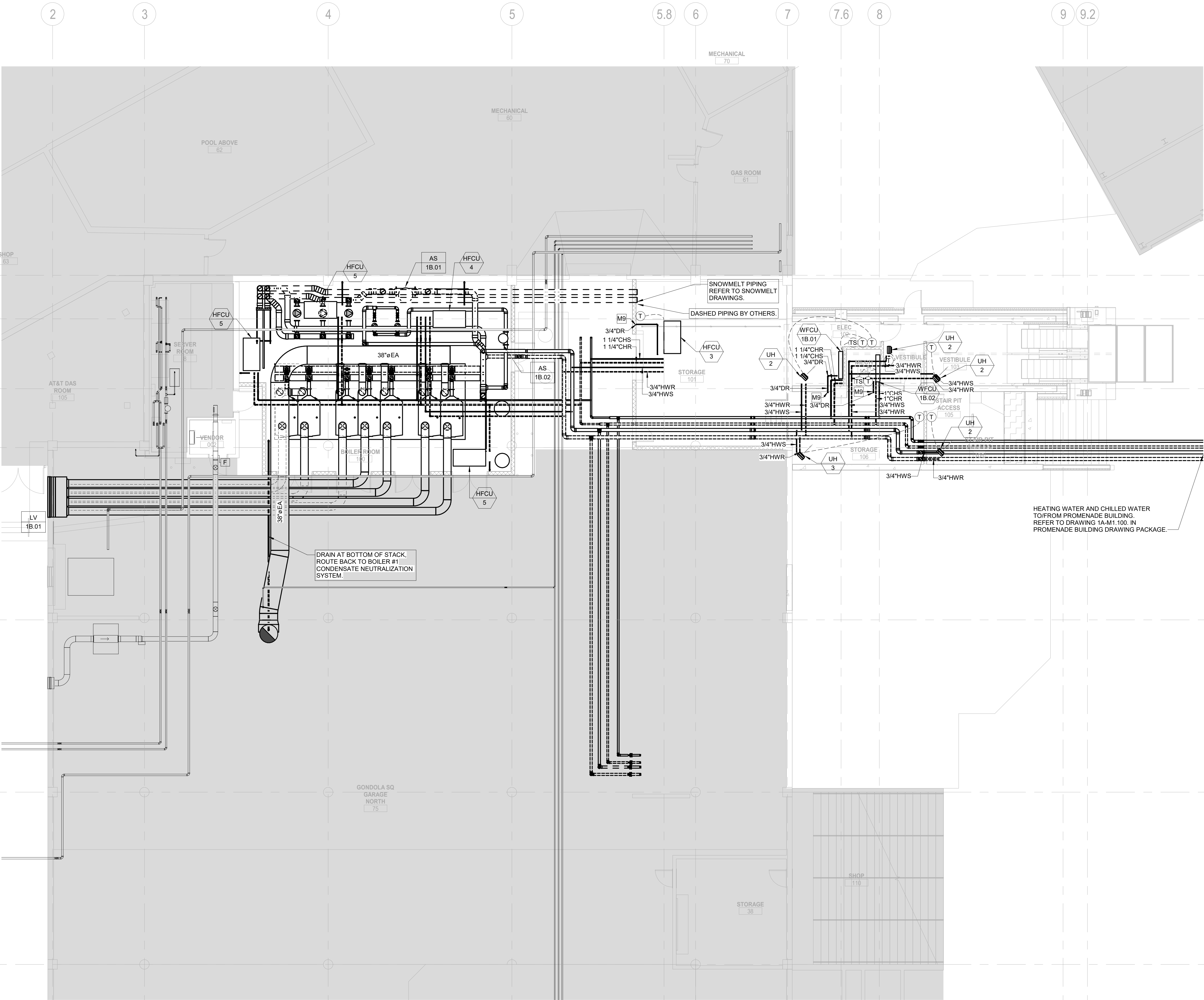
GOLD WALK - MECHANICAL GENERAL NOTES

Scale

1/8" = 1'-0"

1B-M0.001





GENERAL NOTES:

1. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR IS RESPONSIBLE FOR ALL OFFSETS, TRANSITIONS, ELBOWS, ETC. AS REQUIRED IN DUCTWORK, PIPING, SUPPORTS, ETC. TO COMPLETE THE WORK IN A CLEAN, FUNCTIONAL INSTALLATION THAT IS FULLY COORDINATED WITH ALL OTHER TRADES. ANY PRICING EFFORT SHALL TAKE THESE FACTORS INTO ACCOUNT.
2. MAINTAIN CODE REQUIRED AREA OF SEPARATION FROM OUTSIDE AIR INTAKES TO TERMINATIONS OF EXHAUST, COMBUSTION AIR, PLUMBING VENTS, ETC.
3. COORDINATE EQUIPMENT, HOUSEKEEPING PAD DIMENSIONS AND LAYOUT WITH THE GENERAL CONTRACTOR BASED ON FINAL EQUIPMENT SIZES.
4. PROVIDE MANUAL BALANCE DAMPERS IN ALL SUPPLY DUCT BRANCH TAPS DOWNSTREAM OF VAV BOXES.
5. PROVIDE MANUAL BALANCE DAMPERS IN ALL EXHAUST DUCT BRANCH TAPS.
6. PROVIDE TRANSFER "Z" BOOT DUCTS IN FULL HEIGHT WALLS WHERE A PLENUM RETURN SYSTEM IS UTILIZED. BOOTS SHALL BE SIZED TO MAINTAIN A MAXIMUM OF 400 FPM. PROVIDE A GRILLE FOR ALL TRANSFERS IN EXPOSED AREAS. RE: ARCH.
7. COORDINATE SPACE TEMPERATURE SENSORS AND THERMOSTAT LOCATIONS TO ALIGN VERTICALLY WITH LIGHT SWITCHES.
8. TEMPERATURE CONTROLS CONTRACTOR SHALL SUBMIT PLANS INDICATING ALL SPACE TEMPERATURE SENSORS, T-STATS, HUMIDITY SENSORS, ETC. AS PART OF SUBMITTAL PROCESS FOR A/E REVIEW PRIOR TO ROUGH-IN.
9. PROVIDE THROUGH FACE BALANCING FOR ALL DIFFUSERS, REGISTERS, AND GRILLES ABOVE INACCESSIBLE AREAS.
10. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
11. INSTALL EXPOSED DUCTWORK AS HIGH AS POSSIBLE.
13. ALL DUCT/PIPE PENETRATIONS THROUGH FIRE RATED/SMOKE RATED PARTITIONS SHALL BE CAULKED AND SEALED TO MEET THE RATING REQUIRED. REFER TO LIFE SAFETY DRAWINGS FOR FIRE/SMOKE RATING REQUIREMENTS.
14. PROVIDE ISOLATION VALVES AT EACH BRANCH LINE OFF OF RISER.
15. PROVIDE 3/4" BRANCH PIPING TO ALL TERMINAL UNITS, UNLESS NOTED OTHERWISE.
16. PROVIDE CONDENSATE DRAIN FROM ALL CHILLED WATER COILS AND DX EVAPORATOR COILS TO NEAREST MOP SINK OR MECHANICAL ROOM FLOOR DRAIN. PROVIDE CONDENSATE PUMP FOR WALL MOUNTED UNITS AND CONCEALED UNITS THAT CANNOT BE GRAVITY DRAINED TO TERMINATION LOCATION.

KEYNOTES

M9 ROUTE CONDENSATE DRAIN DOWN WALL AND STUB OUT TO FLOOR DRAIN.



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MOUNTAIN COMPANY

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GOLD WALK - MECHANICAL PLAN - LEVEL 01

Scale

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1B-M1.201

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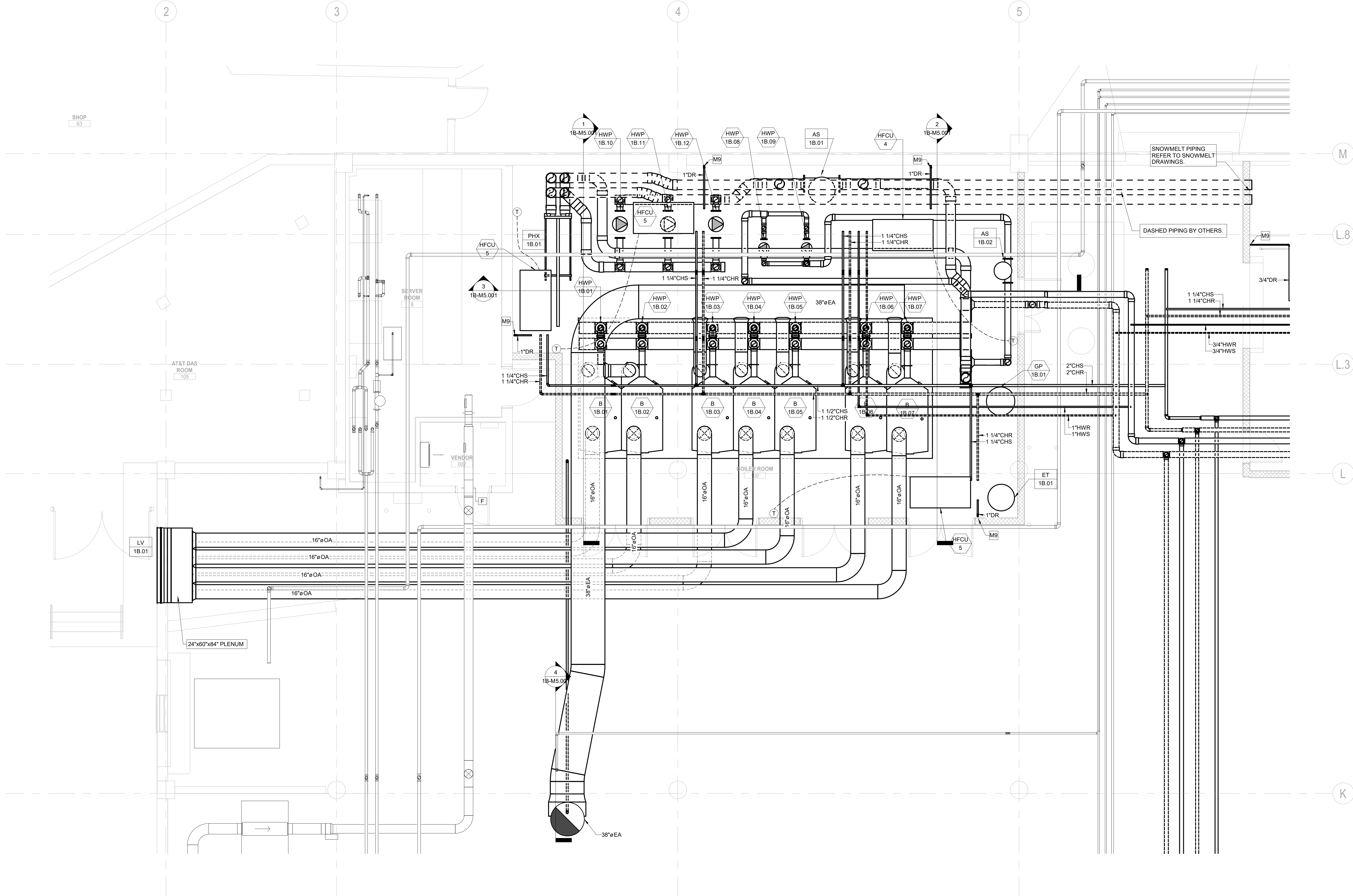
GOLD WALK - MECHANICAL PLAN - LEVEL 03

Scale

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1B-M1.203





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Seal / Signature



Project Name  
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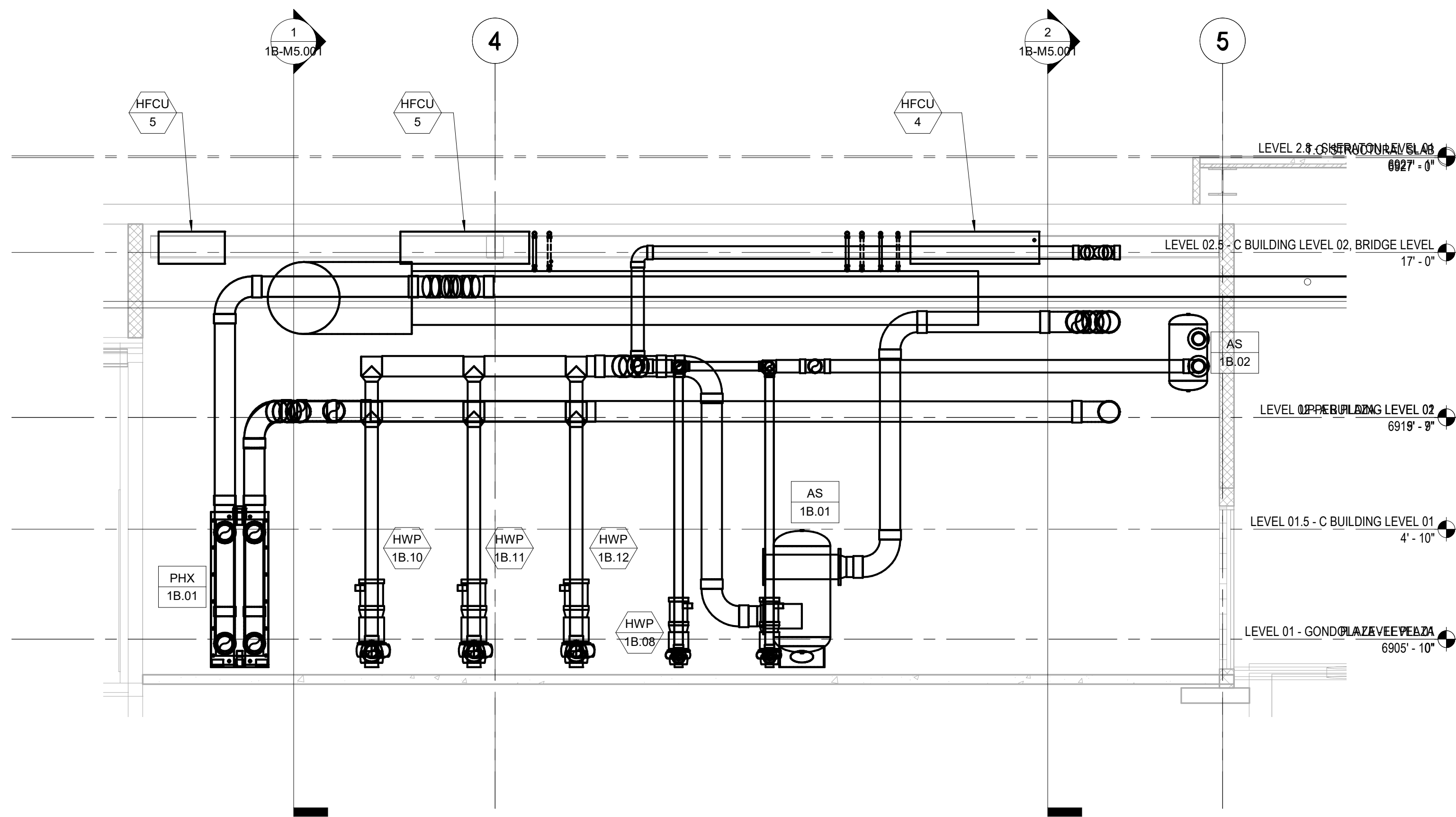
Project Number  
**003.7835.000**

Description  
**GOLD WALK - MECHANICAL ENLARGED PLANS**

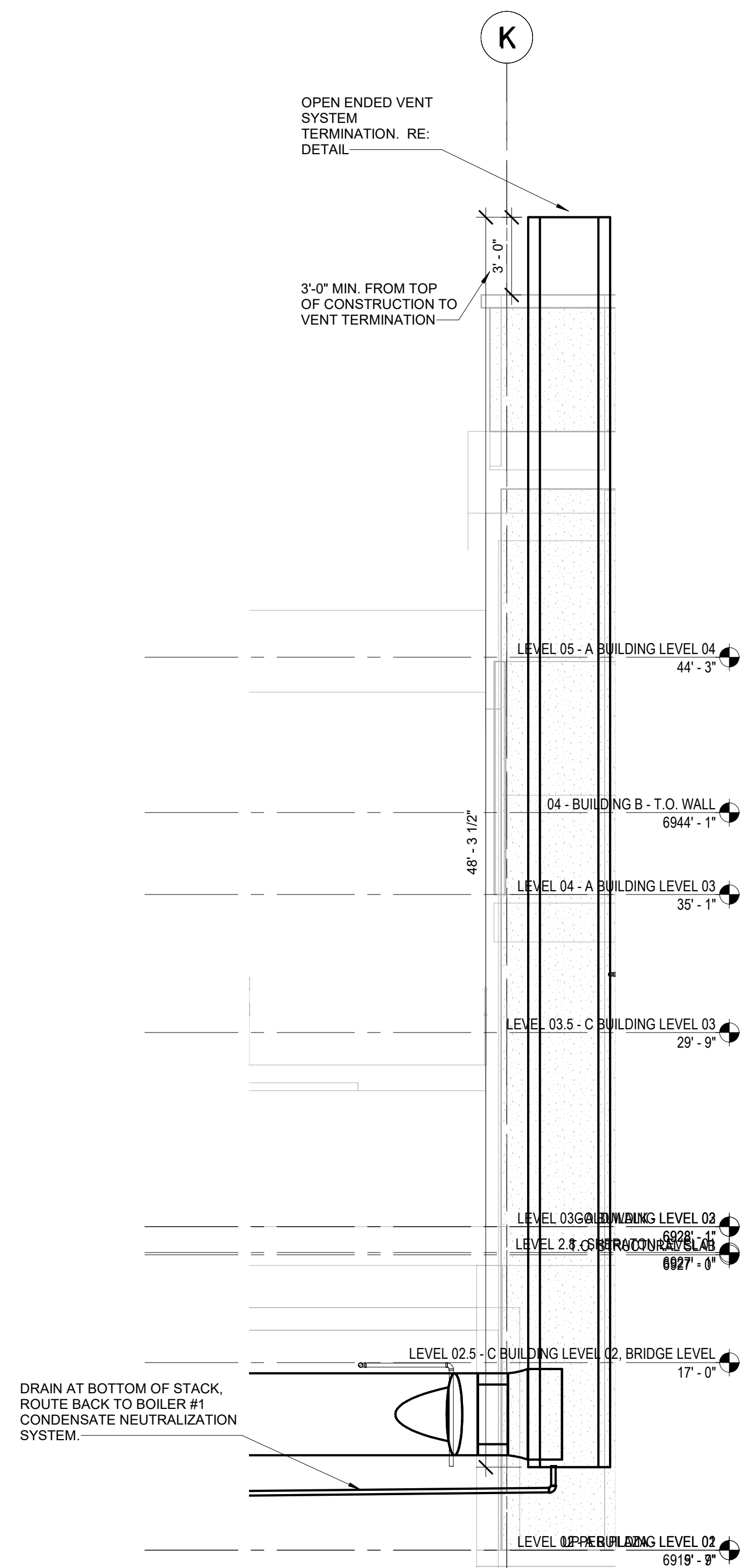
Scale  
**1/4" = 1'-0"**

**1B-M4.000**

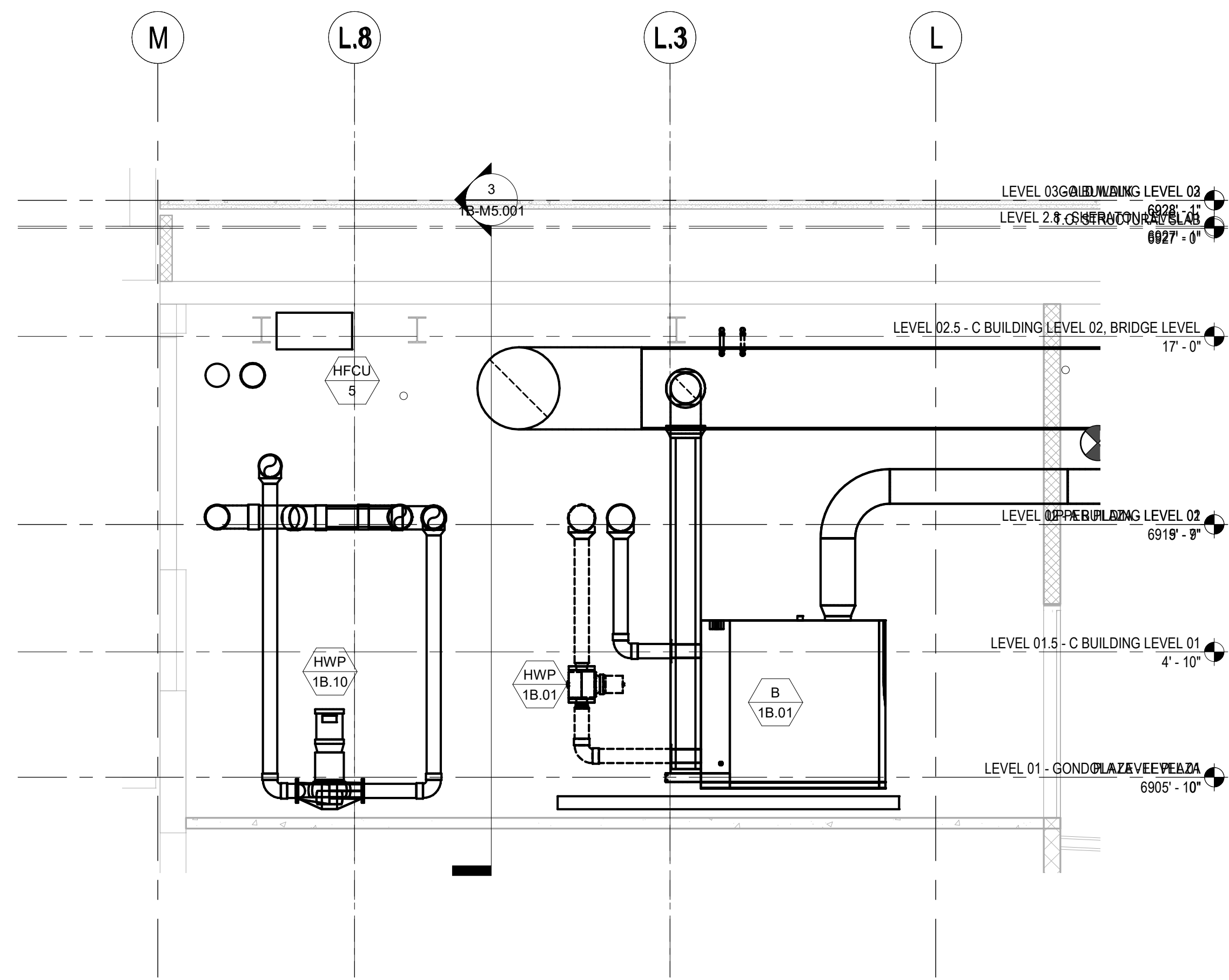




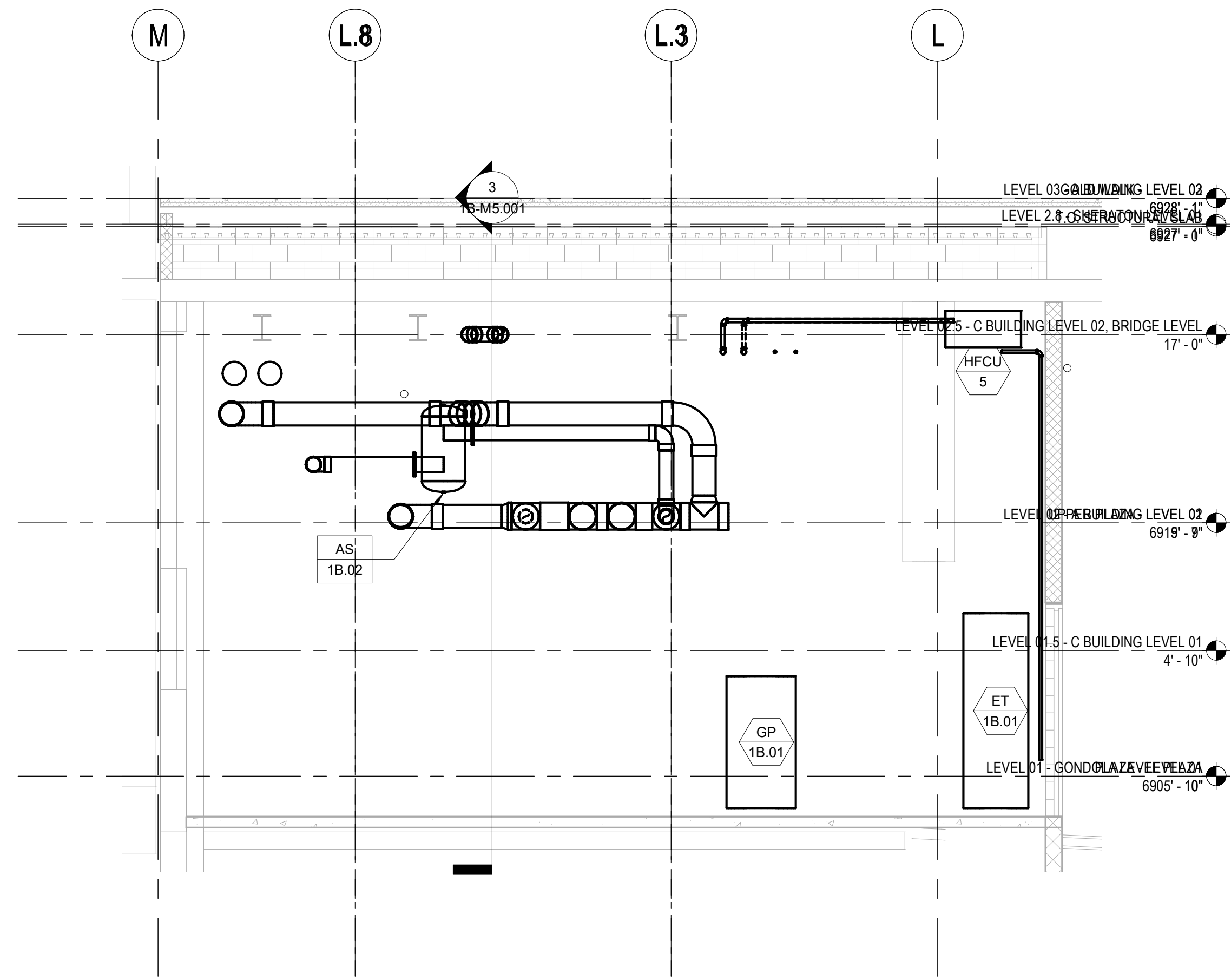
**3 BOILER ROOM SECTION 3**  
SCALE: 1/4" = 1'-0"



**4 BOILER VENT STACK SECTION**  
SCALE: 1/4" = 1'-0"

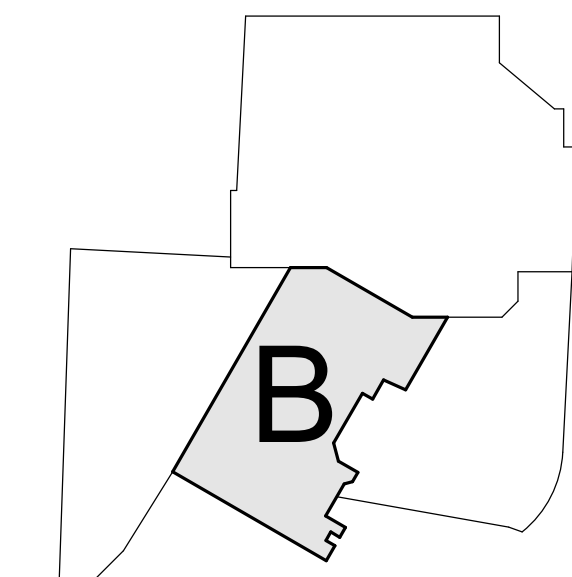


**1 BOILER ROOM SECTION 1**  
SCALE: 1/4" = 1'-0"



**2 BOILER ROOM SECTION 2**  
SCALE: 1/4" = 1'-0"

**KEY PLAN**



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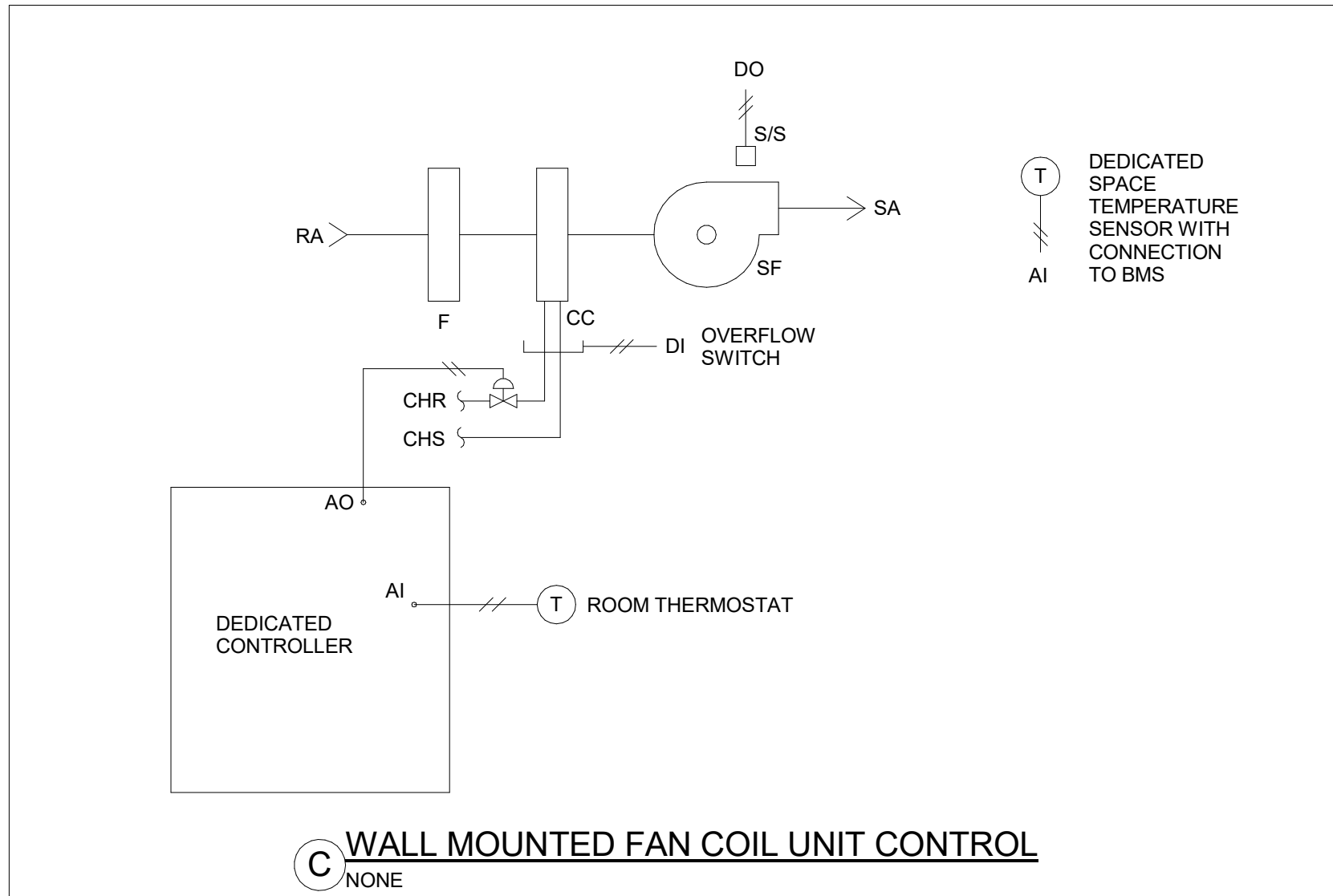
**GOLD WALK - MECHANICAL SECTIONS**

Scale

**1/4" = 1'-0"**

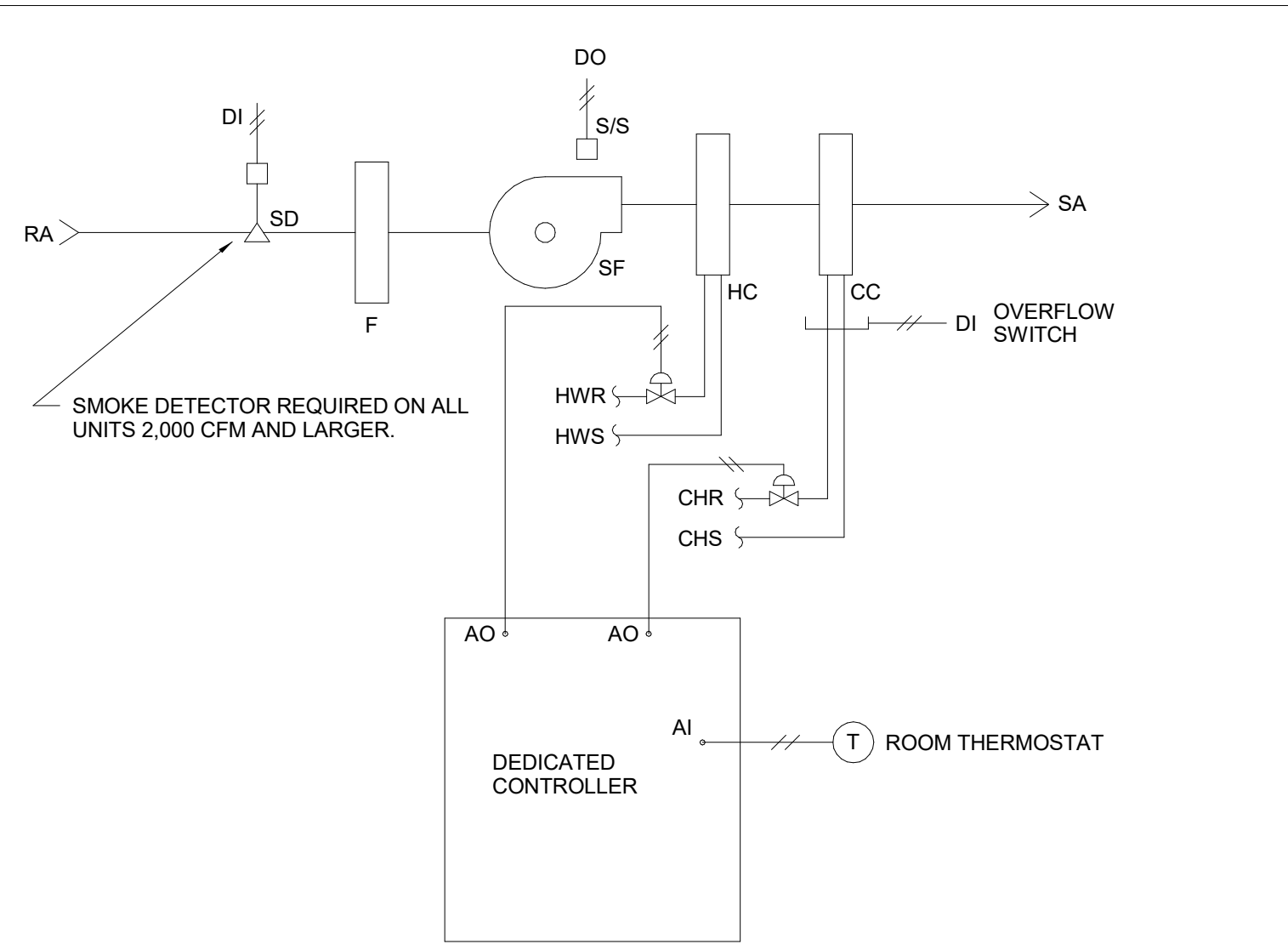
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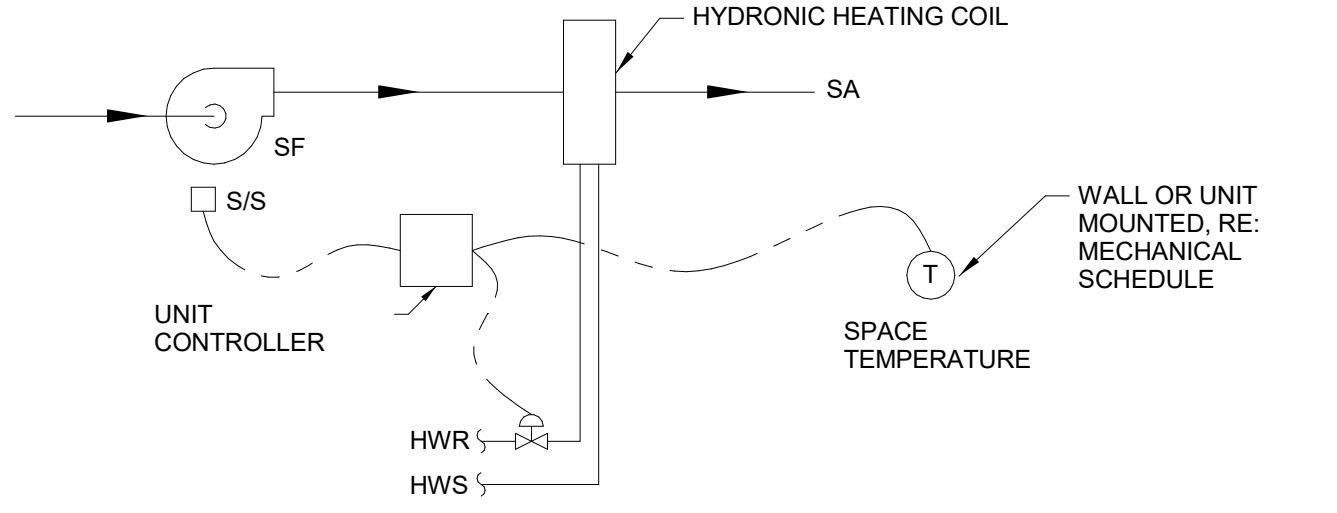
SEQUENCE OF OPERATION:

- A. GENERAL:  
1. THE FOLLOWING SEQUENCE OF OPERATION INCLUDES REQUIRED FUNCTIONALITY OF THE WALL MOUNTED FAN COIL UNIT. POINTS REQUIRED TO EXECUTE THIS SEQUENCE SHALL BE COORDINATED BETWEEN THE EQUIPMENT PROVIDER AND TEMPERATURE CONTROLS CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. SUBMIT LIST OF ITEMS TO BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR IN ORDER TO EXECUTE THIS SEQUENCE.
- B. OCCUPIED MODE:  
1. WHEN THE UNIT IS IN THE OCCUPIED MODE, THE SUPPLY FAN SHALL OPERATE INTERMITTENTLY. THE SUPPLY FAN SHALL DELIVER CONSTANT AIRFLOW. COOLING VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT.
- C. UNOCCUPIED MODE:  
1. WHEN THE FCU ENTERS UNOCCUPIED MODE THE SUPPLY FAN SHALL BE OFF AND THE COOLING CONTROL VALVE SHALL CLOSE.
- D. COOLING CONTROL:  
1. THE COOLING CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE COOLING SETPOINT. COOLING CONTROL VALVE SHALL CLOSE IF THE FANS ARE OFF.



SEQUENCE OF OPERATION:

- A. GENERAL:  
1. THE FOLLOWING SEQUENCE OF OPERATION INCLUDES REQUIRED FUNCTIONALITY OF THE FAN COIL UNIT. POINTS REQUIRED TO EXECUTE THIS SEQUENCE SHALL BE COORDINATED BETWEEN THE EQUIPMENT PROVIDER AND TEMPERATURE CONTROLS CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. SUBMIT LIST OF ITEMS TO BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR IN ORDER TO EXECUTE THIS SEQUENCE.
- B. OCCUPIED MODE:  
1. WHEN THE UNIT IS IN THE OCCUPIED MODE, THE SUPPLY FAN SHALL OPERATE INTERMITTENTLY. THE SUPPLY FAN SHALL DELIVER CONSTANT AIRFLOW. COOLING VALVE AND HEATING VALVE (WHERE APPLICABLE) SHALL MODULATE IN SEQUENCE TO MAINTAIN SPACE TEMPERATURE SETPOINT.  
2. UNITS ARE INTENDED TO REMAIN IN OCCUPIED MODE 24 HOURS PER DAY, 7 DAYS PER WEEK, YEAR-ROUND.
- C. UNOCCUPIED MODE:  
1. WHEN THE UNIT ENTERS UNOCCUPIED MODE THE SUPPLY FAN SHALL BE OFF. COOLING CONTROL VALVE SHALL CLOSE, AND HEATING CONTROL VALVE SHALL CLOSE.
- D. FAN SAFETY CONTROLS:  
1. DE-ENERGIZE THE SUPPLY FAN WHENEVER THE OVERFLOW SENSOR HAS TRIPPED. MANUAL RESET REQUIRED.
- E. SMOKE DETECTION SHUTDOWN:  
1. UNITS 2,000 CFM AND LARGER: WHEN SMOKE IS DETECTED AT THE RETURN AIR INLET, THE SUPPLY FAN SHALL BE DE-ENERGIZED, THE COOLING SHALL BE DISABLED, AND HEATING SHALL BE DISABLED.
- F. HEATING CONTROL:  
1. THE HEATING CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE HEATING SETPOINT. HEATING CONTROL VALVE SHALL CLOSE IF THE FANS ARE OFF.
- G. COOLING CONTROL:  
1. THE COOLING CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE COOLING SETPOINT. COOLING CONTROL VALVE SHALL CLOSE IF THE FANS ARE OFF.



HYDRONIC CABINET UNIT HEATER/ HYDRONIC UNIT HEATER CONTROL

- A. THERMOSTAT SHALL CYCLE FAN & OPEN HEATING WATER VALVE TO MAINTAIN SPACE SETPOINT.  
B. WHERE REMOTE MOUNTED THERMOSTAT IS INDICATED, PROVIDE CONTROL TRANSFORMER AND LOW VOLTAGE THERMOSTAT BY TEMPERATURE CONTROLS CONTRACTOR.

CONTROL LEGEND

ABBR DESCRIPTION	ABBR DESCRIPTION	ABBR DESCRIPTION
AI ANALOG INPUT	FR FREEZESTAT	PHC PREHEAT COIL
AO ANALOG OUTPUT	FRN FURNACE	PZ PRESSURE TRANSMITTER
BDD BACKDRAFT DAMPER	FS FLOW SWITCH	RA RETURN AIR
BTU BTU METER	FSCP FIREIGHTER SMOKE	RF RETURN FAN
C CONTROLLER	FSPD FAN SPEED	S SPACE TEMPERATURE SENSOR
CC COOLING COIL	FT FLOW TRANSMITTER	S/S START/STOP
CD CONTROL DAMPER	H HUMIDITY OR HIGH	SA SUPPLY AIR
CFM AIRFLOW MEASURING SENSOR	HC HEATING COIL	SC SPEED CONTROL
CHR CHILLED WATER RETURN	HIL HIGH/LOW	SD SMOKE DETECTOR
CHS CHILLED WATER SUPPLY	HH HIGH LIMIT HUMIDITY SWITCH	SF SUPPLY FAN
CO2 CARBON DIOXIDE	HS HUMIDITY SENSOR	SPT STATIC PRESSURE TRANSMITTER
COND CONDENSATE OVERFLOW	HT HUMIDITY TRANSMITTER	SR SWITCHING RELAY
COV CHANGE OF VALUE	HWR HOT WATER RETURN	T THERMOSTAT
CSEN CURRENT SENSOR	HWS HOT WATER SUPPLY	TM THERMAL MASS METER
DI DIGITAL INPUT	IR INTERLOCK RELAY	TO TIMED OVERRIDE SWITCH
DO DIGITAL OUTPUT	L LEVEL OR LOW	TS TEMPERATURE SENSOR
DP DIFFERENTIAL PRESSURE	LAN LOCAL AREA NETWORK	TT TEMPERATURE TRANSMITTER
EA EXHAUST AIR	M MINIMUM	TTAB TEMPERATURE TRANSMITTER
ES END SWITCH	ND NITROGEN DIOXIDE	V VALVE
F FILTER ASSEMBLY OR FAIL	OA OUTSIDE AIR	VFD VARIABLE FREQUENCY DRIVE
FACP FIRE ALARM CONTROL PANEL	OS OCCUPANCY SENSOR	VP VIRTUAL POINT
FAS FIRE ALARM SYSTEM	P SPACE STATIC PRESSURE	VS VELOCITY SENSOR
FC FAIL CLOSED	P-E PNEUMATIC ELECTRIC SWITCH	WBT WET BULB TEMPERATURE TRANSMITTER
FCU FAN COIL UNIT		
FM FLOW METER		
FO FAIL OPEN		

CONTROL SYSTEM GENERAL NOTES:

- DESIGN INTENT:
- A. THE CONTROL DRAWINGS AND SEQUENCES ARE PROVIDED TO COMMUNICATE A DESIGN INTENT FOR CONTROL OF INDICATED SYSTEMS. ALTERNATIVE CONTROL METHODS MAY BE USED WHERE PRACTICAL OR WHERE NECESSARY TO MEET REQUIRED SYSTEM PERFORMANCE. WHERE ALTERNATIVE CONTROL METHODS ARE USED TO MEET THE DESIGN INTENT, THESE METHODS SHALL BE INDICATED IN SUBMITTAL TO ENGINEER FOR EVALUATION. ENGINEER SHALL DETERMINE IF A SUBMITTED ALTERNATIVE CONTROL METHOD MEETS THE DESIGN INTENT.
- B. ALTHOUGH THE MECHANICAL DRAWINGS MAY INDICATE A PRODUCT AS BASIS OF DESIGN, THE CONTROL DRAWINGS AND SEQUENCES ARE PROVIDED TO INDICATE A DESIGN INTENT FOR THE COMPLETE SYSTEM THAT IS APPLICABLE TO MULTIPLE POTENTIAL PRODUCTS OR MANUFACTURERS. CONTROL METHODS SHALL BE DEVELOPED BY THE TEMPERATURE CONTROLS CONTRACTOR AND/OR EQUIPMENT PROVIDER IN ORDER TO ACHIEVE THE REQUIRED SYSTEM PERFORMANCE.

REQUIRED COORDINATION:

- A. THE DIVISION 23 CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN EQUIPMENT PROVIDERS AND TEMPERATURE CONTROLS CONTRACTOR IN ORDER TO FULLY SATISFY THE DESIGN INTENT. INTERFACE BETWEEN CONTROL SYSTEMS, INCLUDING ITEMS PROVIDED BY EACH ENTITY, COMMUNICATION PROTOCOL, SIGNAL TYPE, ETC., SHALL BE COORDINATED PRIOR TO RELEASE OF EQUIPMENT FOR PRODUCTION.
- B. THE TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE SUBMITTAL DRAWINGS AND PRODUCT DATA FOR THE ENTIRE CONTROL SYSTEM TO ENGINEER FOR REVIEW. THE TEMPERATURE CONTROLS SUBMITTAL SHALL DISTINGUISH WHERE SPECIFIC SEQUENCE ELEMENTS ARE PROVIDED WITHIN THE BOILER PLANT CONTROL SYSTEM OR WITHIN PACKAGED EQUIPMENT CONTROLLERS. RE: SPECIFICATIONS FOR REQUIREMENTS.
- C. REFER TO SPECIFICATION SECTION 23 05 01 MECHANICAL AND ELECTRICAL COORDINATION.

SEQUENCE OF OPERATION GENERAL NOTES:

GENERAL:

- A. PROVIDE INDIVIDUAL INPUTS OR OUTPUTS FOR EACH POINT LISTED IN THE POINTS LIST OR CONTROL DIAGRAM. PROVIDE ANY ADDITIONAL POINTS NOT LISTED IN THE POINTS LIST OR CONTROL DIAGRAM, BUT REQUIRED TO MEET THE SEQUENCE OF OPERATION, AT NO ADDITIONAL COST TO THE OWNER. ALL ANALOG OUTPUTS SHALL BE 4-20MA, 0-10VDC OR 0-20VDC UNLESS OTHERWISE INDICATED.
- B. IN THE EVENT OF A POWER OUTAGE OR OTHER MALFUNCTION, THE CURRENTLY ENABLED CONTROLS SEQUENCES SHALL BE MAINTAINED. RE: SPECIFICATIONS.

INITIAL SPACE THERMOSTAT SETPOINTS

- A. INITIAL SPACE THERMOSTAT SETPOINTS SHALL BE AS FOLLOWS:
- MECHANICAL AND ELECTRICAL ROOMS:  
COOLING: 80F  
HEATING: 65F
  - MISCELLANEOUS HEATING-ONLY AREAS:  
HEATING: 65F

MISCELLANEOUS NON-DDC CONTROL:

- A. CHEMICAL TREATMENT: PROVIDE REQUIRED FIELD WIRING INTERLOCKS.
- B. MISCELLANEOUS PUMPS: PUMPS SHALL OPERATE PER SCHEDULE AND DRAWINGS.

MISCELLANEOUS DDC CONTROL:

- A. AUTOMATED INTERFACE: PROVIDE WEB-BASED INTERFACE FOR REMOTE ACCESS TO THE BOILER PLANT CONTROL SYSTEM. INTERFACE SHALL BE PASSWORD PROTECTED AND SHALL ALLOW FOR FULL CONTROL OF ALL BOILER PLANT CONTROL SYSTEM FUNCTIONALITY.
- B. PUMPS SHALL OPERATE PER OTHER APPLICABLE CONTROL SECTIONS. BOILER PLANT CONTROL SYSTEM SHALL MONITOR ALL PUMPS INCLUDING GLYCOL FEED PUMPS.

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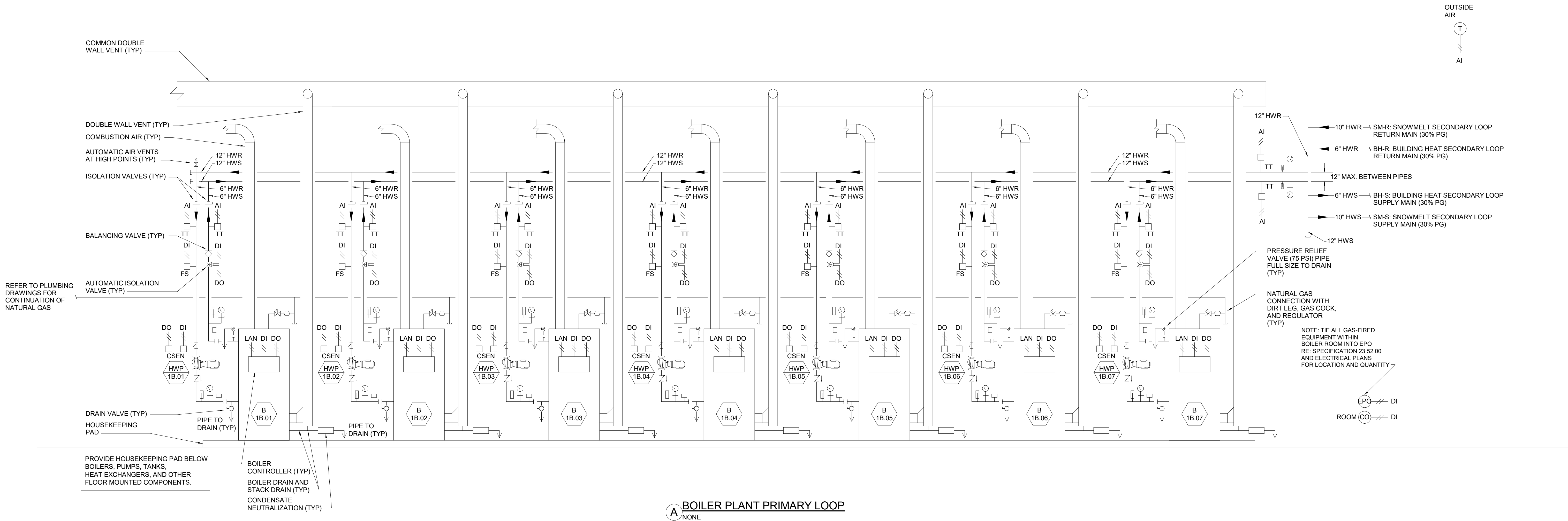
GOLD WALK - MECHANICAL CONTROLS

Scale

1/8" = 1'-0"

1B-M7.001





**BOILER PLANT PRIMARY LOOP**  
A NONE

**BOILER PLANT SEQUENCE:**

**A. GENERAL**

1. REFER TO DIVISION 23 52 00 FOR REQUIREMENTS.
2. THE PROMENADE BUILDING BMS SHALL BE EXTENDED TO THE GOLD WALK SCOPE OF WORK TO PROVIDE MONITORING AND CONTROL OF THE BOILER PLANT. "BMS" INDICATED IN THE SEQUENCE BELOW REFERS TO THE PROMENADE BUILDING BMS. REFER TO PROMENADE BUILDING DRAWINGS AND SPECIFICATIONS. THE BMS SHALL INDEPENDENTLY MONITOR POINTS INDICATED ON THE CONTROL DIAGRAM AND ALL POINTS REQUIRED TO PERFORM THE FOLLOWING SEQUENCES AND MONITORING FUNCTIONS.
3. THE BMS SHALL BE PROVIDED WITH A CUSTOM APPLICATION CONTROLLER LOCATED WITHIN THE BOILER ROOM.

**B. SEQUENCE OF OPERATION:**

1. INTENT: THE BMS SHALL CONTROL ALL COMPONENTS IN THE PRIMARY LOOP, SNOWMELT LOOP, AND BUILDING HEAT LOOP INCLUDING BOILERS, PRIMARY PUMPS, CONTROL VALVES, SECONDARY PUMPS, AND PLANT CONTROLS. THE BMS SHALL PERFORM ALL TEMPERATURE SETPOINT AND SCHEDULING FUNCTIONS. THE LEAD BOILER CONTROLLER SHALL CONTROL ALL BOILERS, PRIMARY PUMPS, AND BOILER ISOLATION VALVES AND SHALL PROVIDE ALL SAFETY INTERLOCKS. THE SYSTEM SHALL BE CONFIGURED TO ALLOW BOILERS TO SWITCH OPERATION FROM LEAD BOILER TO FOLLOW BOILER PERIODICALLY OR BY COMMAND AT EITHER THE BOILER CONTROLLERS OR THE BMS. EACH INDIVIDUAL BOILER CONTROLLER SHALL PERFORM ALL INTERNAL BOILER TEMPERATURE CONTROL FUNCTIONS AND BOILER SAFETY FUNCTIONS. EACH BOILER CONTROLLER SHALL COMMUNICATE WITH THE BMS VIA A SERIAL COMMUNICATION INTERFACE. THE BMS SHALL RECEIVE GENERAL BOILER ALARMS AND SHALL BE CAPABLE OF ALARM CALLOUT VIA EMAIL AND TEXT MESSAGE.
2. START SEQUENCE: THE HEATING PLANT SHALL START IN RESPONSE TO AN OUTSIDE AIR TEMPERATURE OF 65F (ADJ.) OR SIGNAL TO ENABLE AT THE BMS. UPON SIGNAL TO ENABLE, THE BMS AND PARENT BOILER CONTROLLER SHALL:
  - A. ENABLE THE BUILDING HEATING SECONDARY LOOP VARIABLE SPEED PUMPING SYSTEM.
  - B. ENABLE THE SNOWMELT SECONDARY LOOP VARIABLE SPEED PUMPING SYSTEM.
  - C. OPEN THE LEAD BOILER ISOLATION VALVE AND PROVE OPEN.
  - D. START THE LEAD HEATING HOT WATER PRIMARY PUMP AND PROVE VIA FLOW SWITCH.
  - E. OPEN THE LEAD BOILER FLUE VENT DAMPER AND ENERGIZE LEAD BOILER DRAFT FAN.
  - F. START THE LEAD BOILER AFTER WATER FLOW AND AIRFLOW HAVE BEEN PROVEN.
  - G. BUILDING HEATING SECONDARY PUMPING LOOP: START THE LEAD SECONDARY HEATING HOT WATER PUMP AND MODULATE PUMP VFD TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE SETPOINT. WHEN THE SIGNAL TO THE OPERATING PUMP(S) EXCEEDS 95% FOR 2 MINUTES (ADJ.) AND SYSTEM DIFFERENTIAL PRESSURE SETPOINT IS NOT SATISFIED, THE LAG SECONDARY PUMP SHALL BE STARTED AND SLOWLY RAMPED UP TO MATCH THE SPEED OF THE OPERATING PUMP. OPERATING SECONDARY PUMP VFD'S SHALL MODULATE IN PARALLEL AT EQUAL SPEED TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE SETPOINT. WHEN ALL OPERATING SECONDARY PUMP VFD'S HAVE BEEN AT OR BELOW 40% SPEED FOR 2 MINUTES (ADJ.), DE-ENERGIZE ONE PUMP AND MODULATE REMAINING OPERATING PUMP TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE SETPOINT. LEAD PUMP AND LAG PUMP SHALL ROTATE WEEKLY, EVERY MONDAY AT 11:00AM. PUMP ROTATION SHALL BE UTILIZED TO EQUALIZE RUN TIME BETWEEN ALL SECONDARY PUMPS. OPEN BYPASS VALVE, IF NECESSARY, TO OBTAIN SECONDARY LOOP MINIMUM FLOW OF 40% SPEED (ADJ.) OF ONE SECONDARY PUMP.

- F. SNOWMELT SECONDARY PUMPING LOOP: UPON A CALL FOR HEATING IN THE SNOWMELT LOOP (VIA SNOWICE SENSOR, OUTSIDE AIR TEMPERATURE, MANUAL COMMAND, OR HOUR-BY-HOUR SCHEDULE), START THE LEAD SNOWMELT SECONDARY PUMP AND MODULATE PUMP VFD TO MAINTAIN THE OUTLET TEMPERATURE SETPOINT ON THE 50% PROPYLENE GLYCOL SIDE OF THE PLATE HEAT EXCHANGER. WHEN THE SIGNAL TO THE OPERATING PUMP(S) EXCEEDS 95% FOR 2 MINUTES (ADJ.) AND OUTLET TEMPERATURE SETPOINT IS NOT SATISFIED, THE NEXT SNOWMELT SECONDARY PUMP SHALL BE STARTED AND SLOWLY RAMPED UP TO MATCH THE SPEED OF THE OPERATING PUMP. OPERATING SNOWMELT SECONDARY PUMP VFD'S SHALL MODULATE IN PARALLEL AT EQUAL SPEED TO MAINTAIN PLATE HEAT EXCHANGER OUTLET TEMPERATURE SETPOINT. WHEN ALL OPERATING SECONDARY PUMP VFD'S HAVE BEEN AT OR BELOW 40% SPEED FOR 2 MINUTES (ADJ.), DE-ENERGIZE ONE PUMP AND MODULATE REMAINING OPERATING PUMP(S) TO MAINTAIN OUTLET TEMPERATURE SETPOINT. WHEN ONLY ONE PUMP IS OPERATING AT MINIMUM SPEED AND OUTLET TEMPERATURE IS ABOVE SETPOINT, THE LEAD PUMP SHALL CYCLE OFF AND ON AT MINIMUM SPEED TO MAINTAIN OUTLET TEMPERATURE. WHEN CALL FOR HEATING IN THE SNOWMELT SYSTEM HAS BEEN REMOVED (VIA SNOWICE SENSOR, OUTSIDE AIR TEMPERATURE, MANUAL COMMAND, OR HOUR-BY-HOUR SCHEDULE) ALL SNOWMELT SECONDARY PUMPS SHALL BE DE-ENERGIZED. LEAD PUMP AND LAG PUMPS SHALL ROTATE WEEKLY, EVERY MONDAY AT 11:00AM. PUMP ROTATION SHALL BE UTILIZED TO EQUALIZE RUN TIME BETWEEN ALL PUMPS.

**G. ADDITIONAL BOILERS TO BE SEQUENCED ON VIA OPERATOR SELECTABLE METHODS:**

- G.A. DEFICIT FLOW: ADDITIONAL BOILERS SHALL BE SEQUENCED ON WHENEVER THERE IS A DEFICIT FLOW (PRIMARY FLOW LESS THAN SECONDARY FLOW) IN THE PRIMARY/SECONDARY BYPASS PIPE. DEFICIT FLOW SHALL BE DETERMINED BY COMPARISON OF THE SUM OF DIRECT FLOW MEASUREMENT AT THE BUILDING HEAT SECONDARY LOOP AND SNOWMELT SECONDARY LOOP BTU METERS AND QUANTITY OF CONSTANT VOLUME PRIMARY PUMPS IN OPERATION. WHEN DEFICIT FLOW EXISTS CONTINUOUSLY FOR 10 MINUTES (ADJ.), THE START SEQUENCE OF AN ADDITIONAL BOILER SHALL BE INITIATED. WHEN FEWER PRIMARY PUMPS ARE REQUIRED TO MEET SECONDARY LOOP FLOW, AS DETERMINED VIA COMPARISON OF MEASURED FLOWS AND QUANTITY OF PRIMARY PUMPS IN OPERATION, INITIATE BOILER STOP SEQUENCE IN REVERSE ORDER.
- G.B. TEMPERATURE: ADDITIONAL BOILERS SHALL BE SEQUENCED ON WHENEVER THE COMMON SUPPLY WATER TEMPERATURE IN THE PRIMARY LOOP IS BELOW SETPOINT. WHEN THE BOILER CONTROL SYSTEM DETERMINES THAT FEWER BOILERS MAY BE USED TO MEET THE LOAD, AS DETERMINED VIA BOILER FIRING RATES, INITIATE BOILER STOP SEQUENCE IN REVERSE ORDER.

**3. STOP SEQUENCE: THE HEATING PLANT SHALL STOP IN RESPONSE TO AN OUTSIDE AIR TEMPERATURE 5 DEGREES F ABOVE START TEMPERATURE(ADJ.) OR UPON SIGNAL TO DISABLE AT THE BMS. UPON SIGNAL TO DISABLE, THE BMS AND LEAD BOILER CONTROLLER SHALL:**

- A. DISABLE ALL BOILERS VIA SIGNAL TO THE LEAD BOILER CONTROLLER.
  - B. CONFIRM ALL BOILERS HAVE STOPPED VIA COMMUNICATION INTERFACE WITH THE LEAD BOILER CONTROLLER.
  - C. DISABLE ALL PRIMARY HEATING HOT WATER PUMPS AND CLOSE ISOLATION VALVES AFTER A 60 SECOND (ADJ.) DELAY.
  - D. DISABLE ALL SECONDARY LOOP PUMPS.
  - E. HEATING HOT WATER PLANT SHALL NOT BE RESTARTED FOR A FIVE MINUTE DELAY (ADJ.).
4. TEMPERATURE CONTROL: UPON SUCCESSFUL STARTUP, THE LEAD BOILER CONTROLLER SHALL MAINTAIN LEAVING WATER TEMPERATURE FROM EACH OPERATING BOILER AT 150 DEGREES F (ADJ.) MAXIMUM. DO NOT INCREASE LEAVING WATER TEMPERATURE SETPOINT ABOVE 150 DEGREES F IN ORDER TO AVOID RISK OF DAMAGE TO THE SNOWMELT SYSTEM. ALARM THE BMS WITH EMAIL AND TEXT MESSAGE TO FACILITIES STAFF IF PRIMARY LOOP SUPPLY WATER TEMPERATURE SETPOINT IS RAISED ABOVE 150 DEGREES F OR IF MEASURED PRIMARY LOOP SUPPLY WATER TEMPERATURE RISES ABOVE 155F FOR 5 MINUTES (ADJ.).

5. SECONDARY PUMP FAILURE: UPON FAILURE OF ONE OF THE SECONDARY PUMPS, RESET SEQUENCE TO START LAG PUMP (IF NOT ALREADY RUNNING) AND GENERATE AN APPROPRIATE ALARM AT THE BMS.
6. BOILER FAILURE: UPON SENSING A BOILER FAILURE, THE BMS OR PARENT BOILER CONTROLLER SHALL INITIATE THE STOP SEQUENCE FOR THE FAILED BOILER ONLY AND LOCKOUT THAT BOILER. THE BMS OR PARENT BOILER CONTROLLER SHALL IMMEDIATELY INITIATE THE START SEQUENCE OF AN ADDITIONAL BOILER (IF NOT ALREADY OPERATING).
7. PRIMARY PUMP FAILURE: UPON SENSING A PUMP FAILURE, THE BMS OR PARENT BOILER CONTROLLER SHALL LOCKOUT AND ALARM THE FAILED PUMP. IMMEDIATELY, THE BMS OR PARENT BOILER CONTROLLER SHALL INITIATE THE STOP SEQUENCE FOR THE ASSOCIATED BOILER AND INITIATE THE START SEQUENCE OF AN ADDITIONAL BOILER (IF NOT ALREADY OPERATING).
8. BOILER ROTATION: AUTOMATIC ROTATION OF BOILER OPERATION SHALL EQUALIZE BOILER RUNTIME. ROTATION SHALL BE INITIATED BY THE FOLLOWING OPERATOR SELECTABLE METHODS:
  - A. REAL TIME: BASED ON DAY INTERVALS.
  - B. RUN TIME: ACTUAL BOILER RUN TIMES.
  - C. MANUAL OR FORCED.
9. COMMUNICATION FAILURE: UPON A LOSS OF SIGNAL FROM THE PARENT BOILER CONTROLLER, THE BMS SHALL MAINTAIN CURRENT VALVE POSITIONS, TEMPERATURE SETPOINTS, PRIMARY PUMP OPERATION, AND SECONDARY PUMP OPERATION AND SHALL GENERATE AN APPROPRIATE ALARM AT THE BMS. ALL ISOLATION VALVES, PRIMARY PUMPS, AND SECONDARY PUMPS SHALL BE INDEPENDENTLY CONTROLLABLE AT THE BMS OPERATOR STATION.
10. BOILER PLANT STATUS DISPLAY - THE BMS SHALL PROVIDE A PLANT STATUS REPORT. THE DISPLAY SHALL INCLUDE THE FOLLOWING:
  - A. ON/OFF STATUS OF EACH BOILER.
  - B. ON/OFF STATUS AND SPEED OF EACH PRIMARY AND SECONDARY PUMP.
  - C. BUILDING HEATING SECONDARY LOOP DIFFERENTIAL PRESSURE AND SETPOINT.
  - D. BUILDING HEATING SECONDARY LOOP BYPASS VALVE POSITION.
  - E. BUILDING HEATING SECONDARY EWT AND LWT DOWNSTREAM OF SECONDARY LOOP BYPASS VALVE (PLANT ENTERING/LEAVING CONDITIONS TO THE SYSTEM).
  - F. SNOWMELT HEAT EXCHANGER EWT AND LWT ON BOTH THE 30% PG AND 50% PG SIDES OF THE HEAT EXCHANGER.
  - G. PRIMARY LOOP SUPPLY AND RETURN WATER TEMPERATURES.
  - H. TOTAL BUILDING HEAT MBH CONSUMPTION.
  - I. TOTAL SNOWMELT SYSTEM MBH CONSUMPTION.

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Date	Description
2021.05.19	BP3: GOLDWALK - ISSUE FOR BID AND PERMIT

Seal / Signature



Project Name

**SSRC | BASE AREA  
IMPROVEMENTS**

Project Number

**003.7835.000**

Description

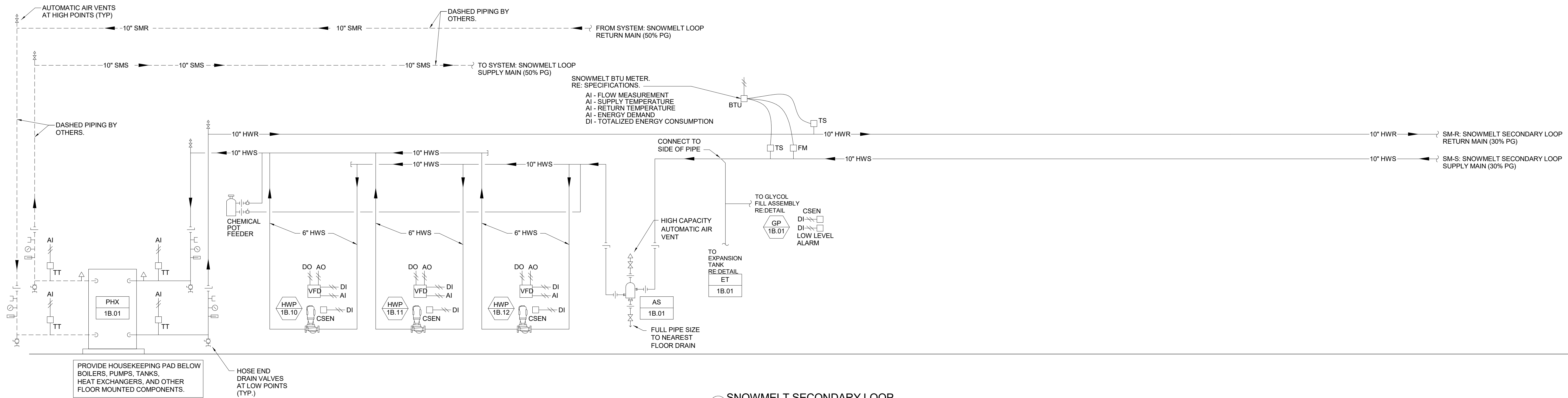
**GOLD WALK - MECHANICAL  
CONTROLS**

Scale

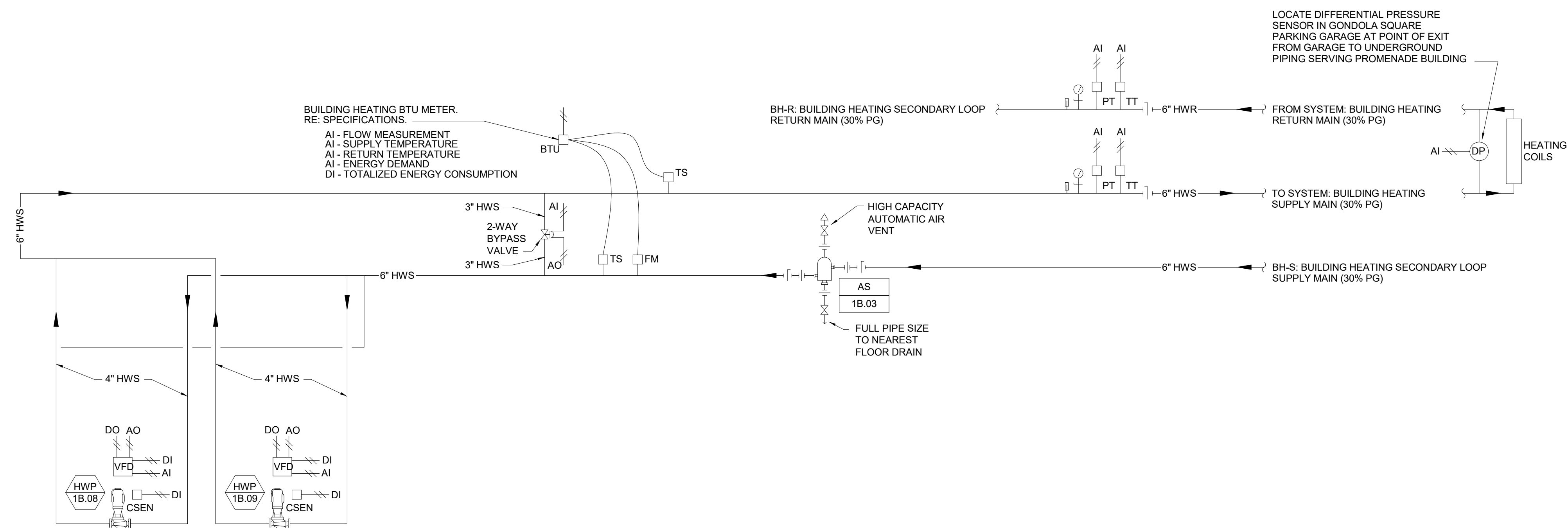
**1/8" = 1'-0"**

**1B-M7.002**





**A SNOWMELT SECONDARY LOOP**  
NONE



**A BUILDING HEAT SECONDARY LOOP**  
NONE

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05/18/2021

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003.7835.000

Description

GOLD WALK - MECHANICAL  
CONTROLS

Scale

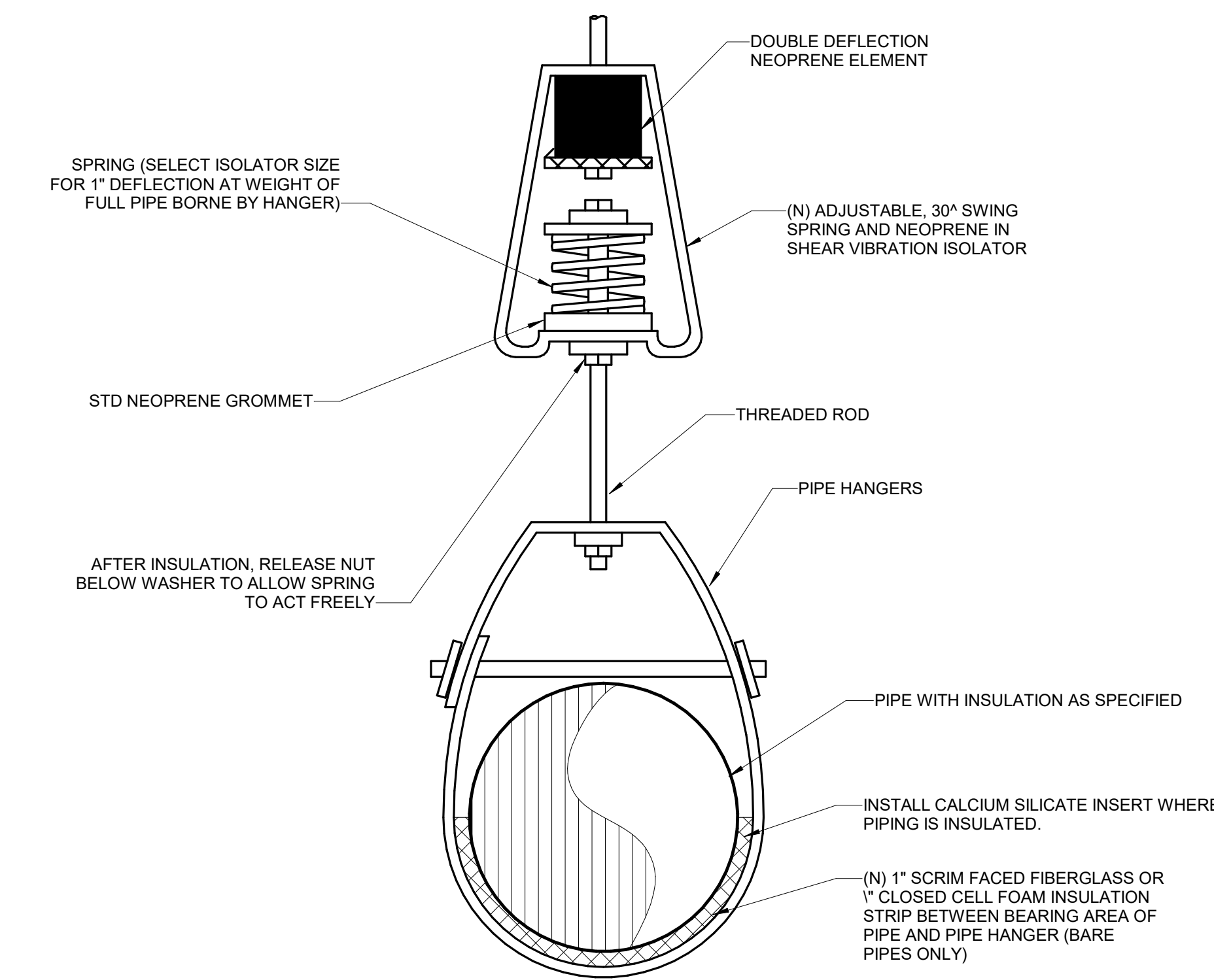
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**1B-M7.003**

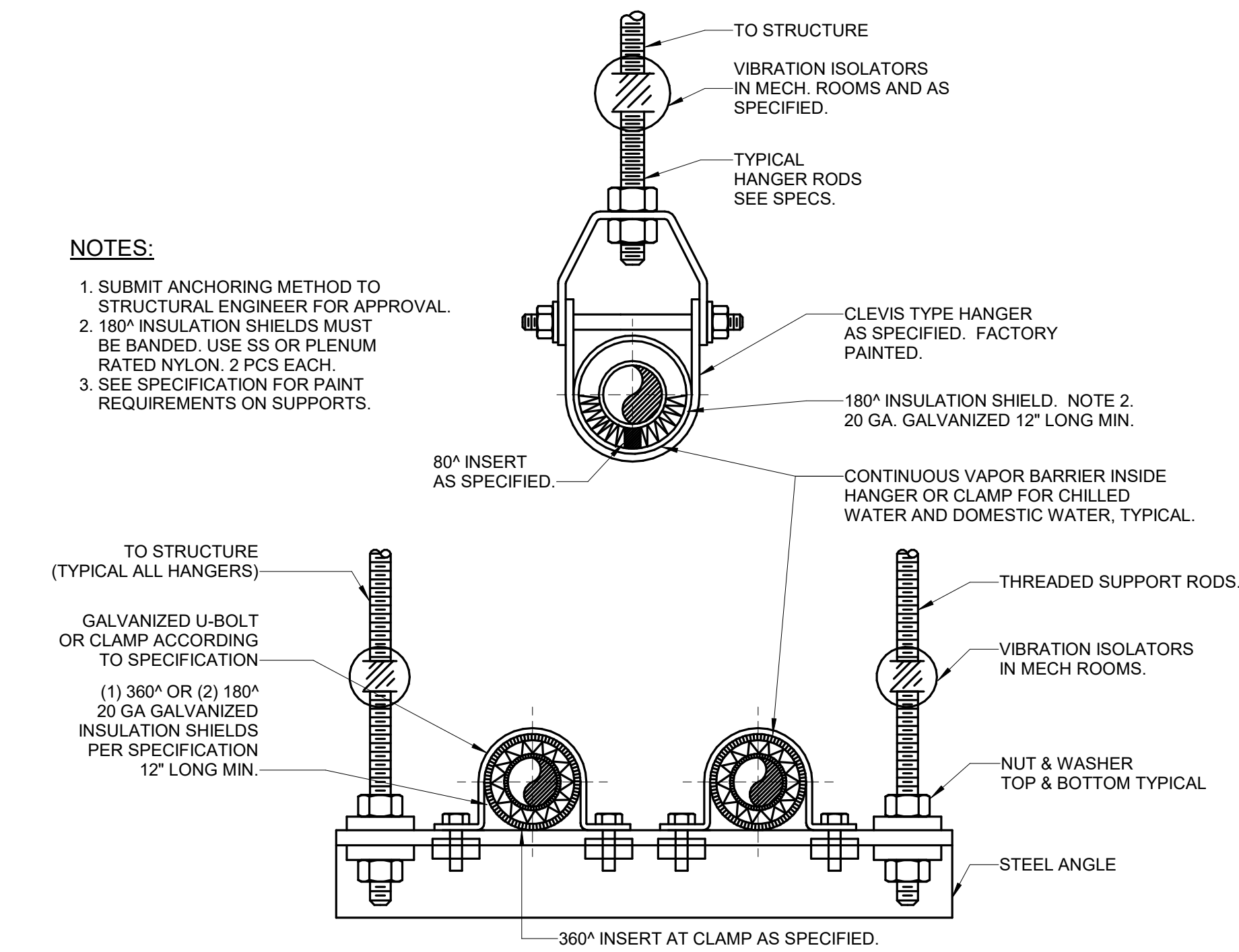


ENERGY METER SCHEDULE/POINTS LIST													
SYSTEM: ENERGY METERING SYSTEM													
POINT DESCRIPTION	TYPE	LOAD CATEGORY	ENERGY DEMAND				ENERGY CONSUMPTION				REMARKS		
			UNIT	HOURLY PEAK	DAILY PEAK	MONTHLY PEAK	ANNUAL PEAK	UNIT	HOURLY TOTAL	DAILY TOTAL		MONTHLY TOTAL	ANNUAL TOTAL
PANEL BRH - MECHANICAL LOADS	E	MECH	KW	X	X	X	X	KWh	X	X	X	X	OBTAIN PANEL LOAD BY DEDUCTING PANEL BRL METERED USAGE FROM PANEL BRH METERED USAGE.
PANEL BRL - MECHANICAL LOADS	E	MECH	KW	X	X	X	X	KWh	X	X	X	X	PANEL BRH AND GWH DATA DERIVED VIA SINGLE CONNECTION TO E-GAUGE METER. RE: ONE-LINE.
BRL BRANCH CIRCUIT METERING	E	PLUG	KW	X	X	X	X	KWh	X	X	X	X	OBTAIN PANEL LOAD BY DEDUCTING PANEL BRL METERED BRANCH CIRCUIT USAGE FROM PANEL BRL
PANEL GWH - PLUG LOADS	E	PLUG	KW	X	X	X	X	KWh	X	X	X	X	OBTAIN PANEL LOAD BY DEDUCTING PANEL GWL METERED USAGE FROM PANEL GWH METERED USAGE.
													PANEL BRH AND GWH DATA DERIVED VIA SINGLE CONNECTION TO E-GAUGE METER. RE: ONE-LINE.
PANEL GWL - PLUG LOADS	E	PLUG	KW	X	X	X	X	KWh	X	X	X	X	OBTAIN PANEL LOAD BY DEDUCTING PANEL GWL METERED BRANCH CIRCUIT USAGE FROM PANEL GWL
GWL BRANCH CIRCUIT METERING	E	PLUG	KW	X	X	X	X	KWh	X	X	X	X	
BUILDING HVAC/PLUMBING	VIR		KW	X	X	X	X	KWh	X	X	X	X	OBTAIN BY ADDING ALL BUILDING MECH METERS. DO NOT DOUBLE COUNT SUB-METERS.
BUILDING PLUG LOAD	VIR		KW	X	X	X	X	KWh	X	X	X	X	OBTAIN BY ADDING ALL BUILDING PLUG LOAD METERS. DO NOT DOUBLE COUNT SUB-METERS.
BOILER PLANT BTU METER	BTU	MECH	TONS	X	X	X	X	TON-HRS	X	X	X	X	
BOILER PLANT EFFICIENCY	VIR		KW/TON										SEE NOTE 10 BELOW.
NATURAL GAS SERVICE TO BOILER ROOM	NG	MECH	TH/H	X	X	X	X	THERMS	X	X	X	X	
GENERAL NOTES:													
1. TYPE CODES:													
E: ELECTRICITY													
NG: NATURAL GAS													
DW: DOMESTIC WATER													
BTU: BTU METER													
VIR: VIRTUAL METER OBTAINED VIA ADDITION OR SUBTRACTION													
2. LOAD CATEGORIES:													
MAIN: MAIN BUILDING METER													
MECH: MECHANICAL													
LTG: LIGHTING													
PLB: PLUMBING													
PLUG: PLUG LOAD													
PROC: PROCESS													
3. ALL METERS SHALL RECORD AT INTERVALS OF ONE HOUR OR LESS.													
4. ALL METERS SHALL REPORT BOTH DEMAND (KW OR BTU/h) AND CONSUMPTION (KWh OR THERMS) UNLESS OTHERWISE NOTED.													
5. MAIN ELECTRICAL SERVICE ENTRANCE METERS SHALL RECORD POWER FACTOR AND REPORT HOURLY. RECORD HOURLY VALUES FOR A MINIMUM OF THREE YEARS.													
6. ALL METERS INDICATED SHALL HAVE DIRECT CONNECTION TO THE PROMENADE BUILDING BMS VIA SERIAL COMMUNICATION UNLESS OTHERWISE NOTED. RE: PROMENADE BUILDING DRAWINGS AND SPECIFICATIONS.													
7. RECORDED DATA FOR EACH METER SHALL INCLUDE HOURLY, DAILY, MONTHLY, AND ANNUAL PEAK DEMAND AND TOTAL CONSUMPTION. INFORMATION FOR EACH METER POINT INDICATED SHALL BE REPORTED AT THE BMS OPERATOR STATION IN CALENDAR FORMAT. DATA SHALL BE STORED FOR A MINIMUM OF THREE YEARS.													
8. METERED DATA SHALL BE REMOTELY ACCESSIBLE THROUGH THE BMS.													
9. METERING SYSTEM SHALL BE EXPANDABLE TO INCLUDE ADDITIONAL METERS FOR SHELL AREAS INDICATED ON ARCHITECTURAL DRAWINGS.													
10. REPORT HOURLY BOILER PLANT HEATING EFFICIENCY PERCENTAGE USING 1 HOUR MEASUREMENT OF TOTAL HEATING ENERGY PRODUCED (THERMS) DIVIDED BY SAME 1 HOUR MEASUREMENT OF TOTAL ENERGY CONSUMED (THERMS). REPORT MONTHLY MAXIMUM AND MINIMUM BOILER PLANT EFFICIENCY. DATA SHALL BE STORED FOR A MINIMUM OF THREE YEARS.													
11. WHERE METERED CATEGORY VIRTUAL POINTS ARE INDICATED, DO NOT DOUBLE COUNT SUB-METERS. FOR METERS IN SERIES, COUNT ONLY THE UPSTREAM METER IN THE CATEGORY TOTAL.													

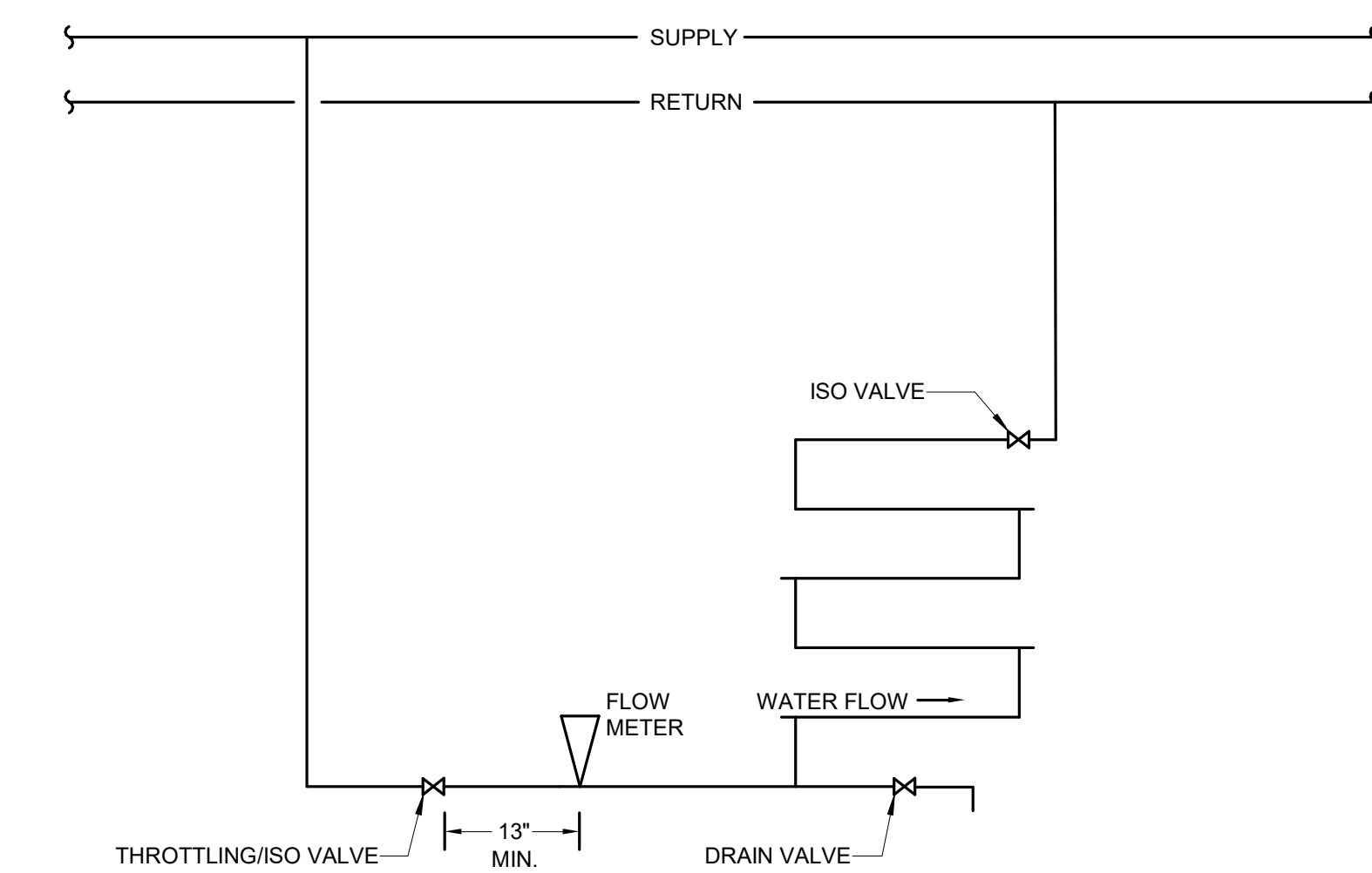




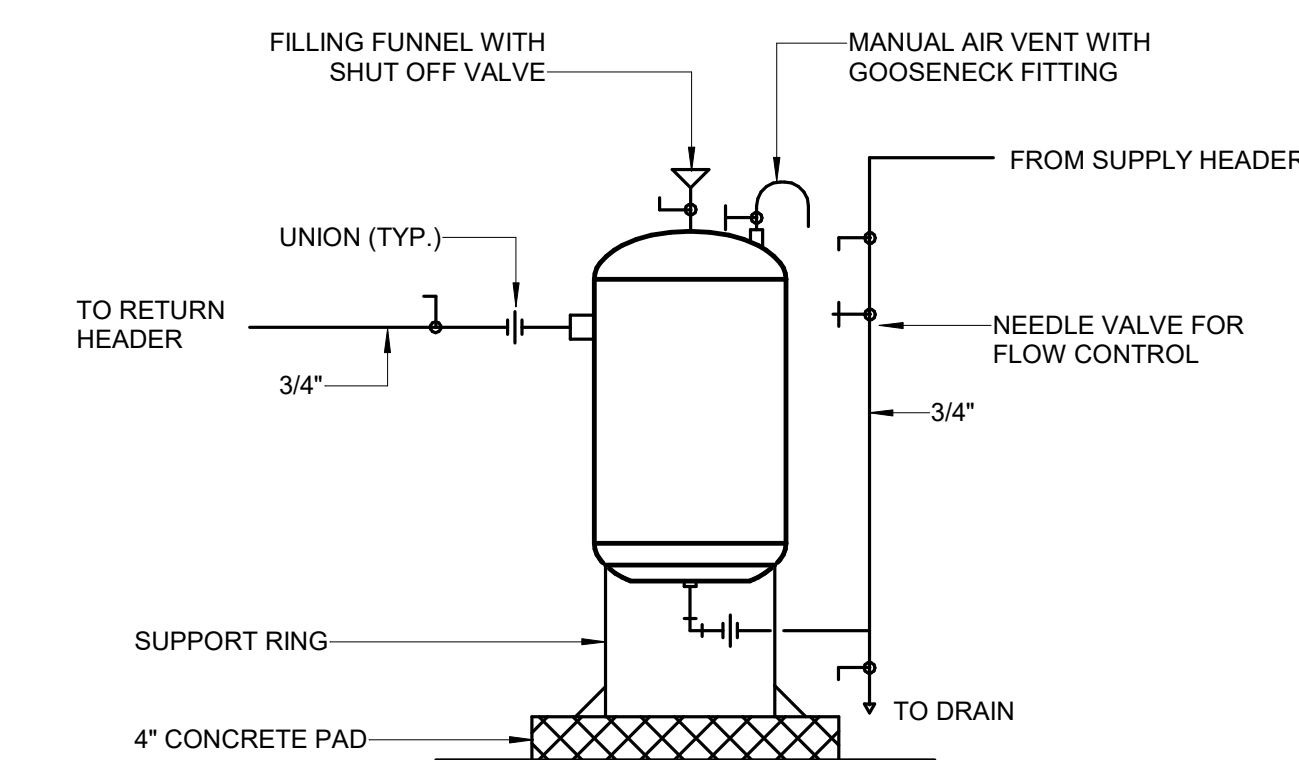
9 VIBRATION ISOLATION HANGER DETAIL1  
NO SCALE



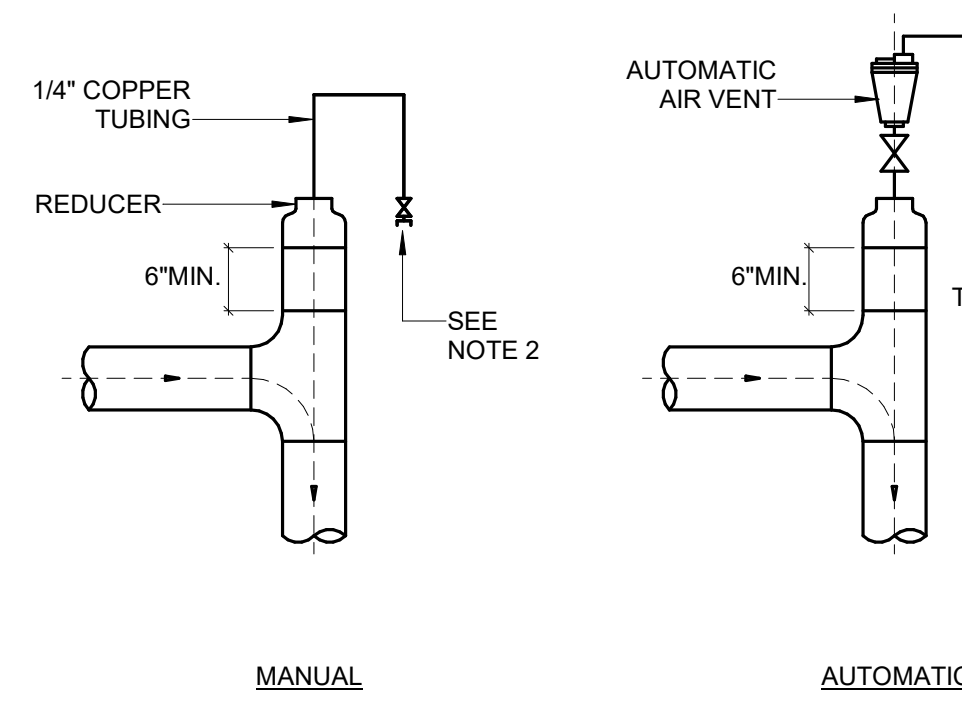
10 TYPICAL PIPE HANGER DETAIL  
NO SCALE



11 CORROSION COUPON RACK  
NO SCALE



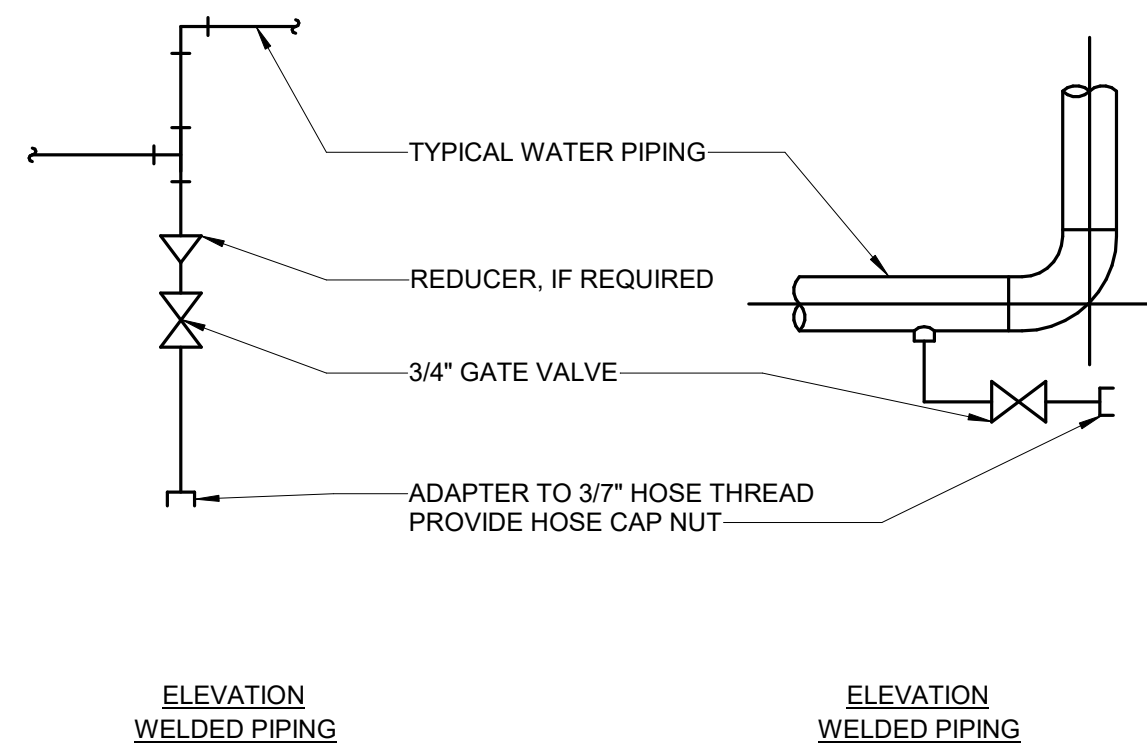
12 CHEMICAL POT FEEDER  
NO SCALE



NOTE:

1. INSTALL MANUAL AIR VENT AT HIGH POINTS WHERE FLOW CHANGES DIRECTION. INSTALL AUTOMATIC AIR VENT TO PIPING WHICH IS INSTALLED IN EXPOSED AREA INCLUDING FAN ROOM AND MECHANICAL ROOM.
2. INSTALL HOSE VALVE ABOVE CEILING IN AN ACCESSIBLE LOCATION.
3. WELDED PIPE FITTING SHOWN. SCREWED FITTING SIMILAR.

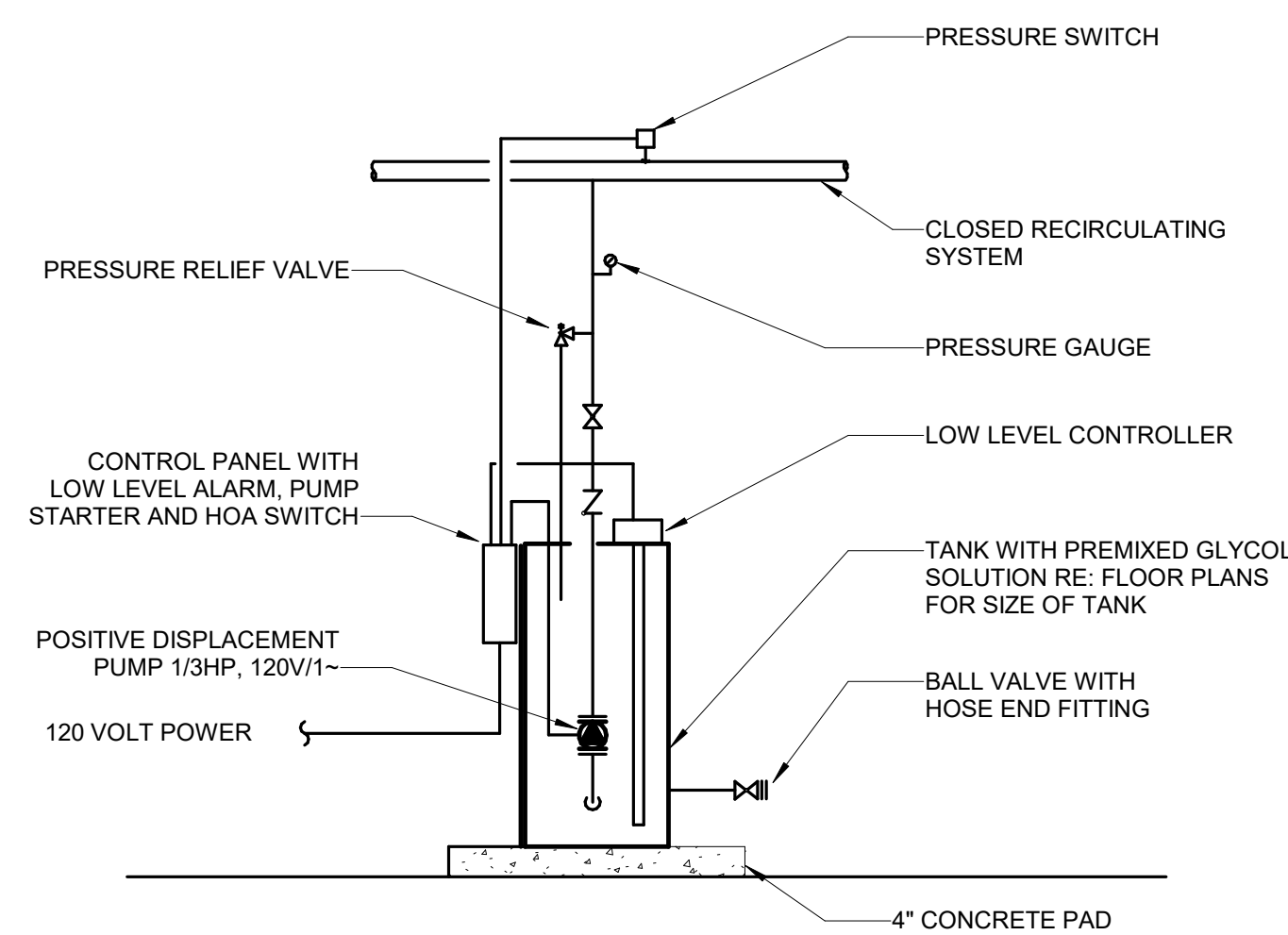
5 AIR VENT DETAIL  
NO SCALE



NOTES:

1. PROVIDE DRAIN VALVES AT LOW POINTS OF WATER SYSTEM.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

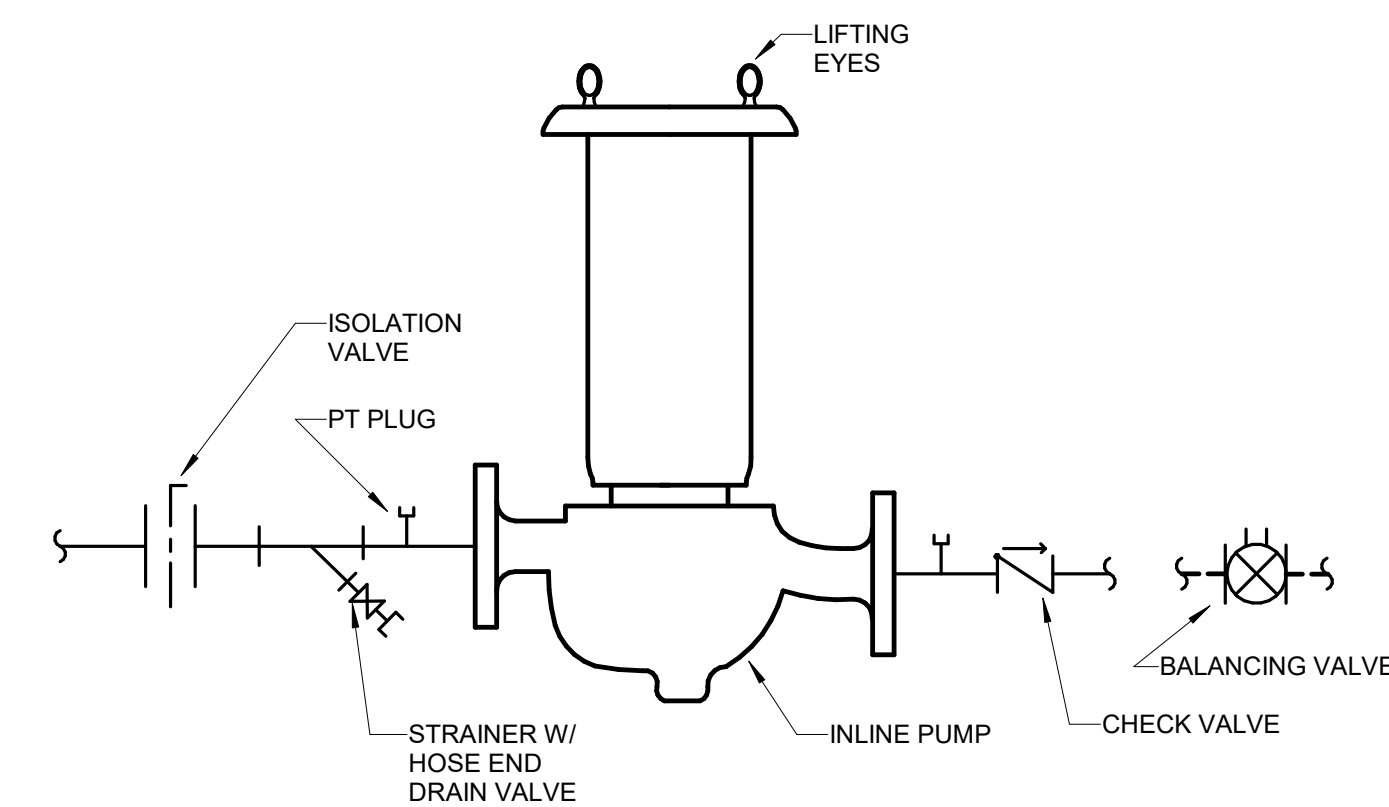
6 DRAIN VALVE CONNECTION DETAIL  
NO SCALE



NOTE:

1. GLYCOL FEEDER SHALL BE A PACKAGED SYSTEM PROVIDED BY THE WATER TREATMENT SUPPLIER.

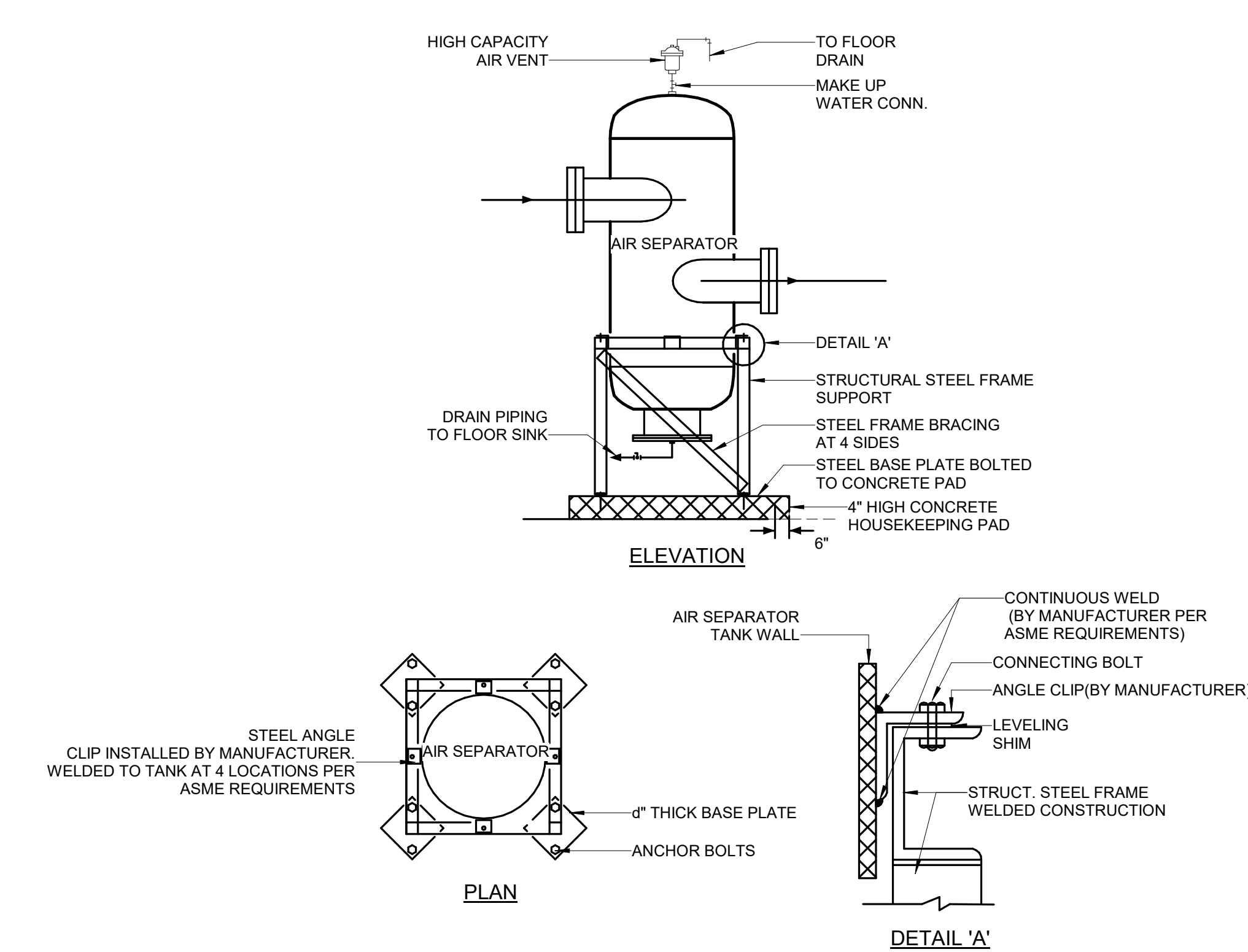
7 GLYCOL FEED ASSEMBLY DETAIL  
NO SCALE



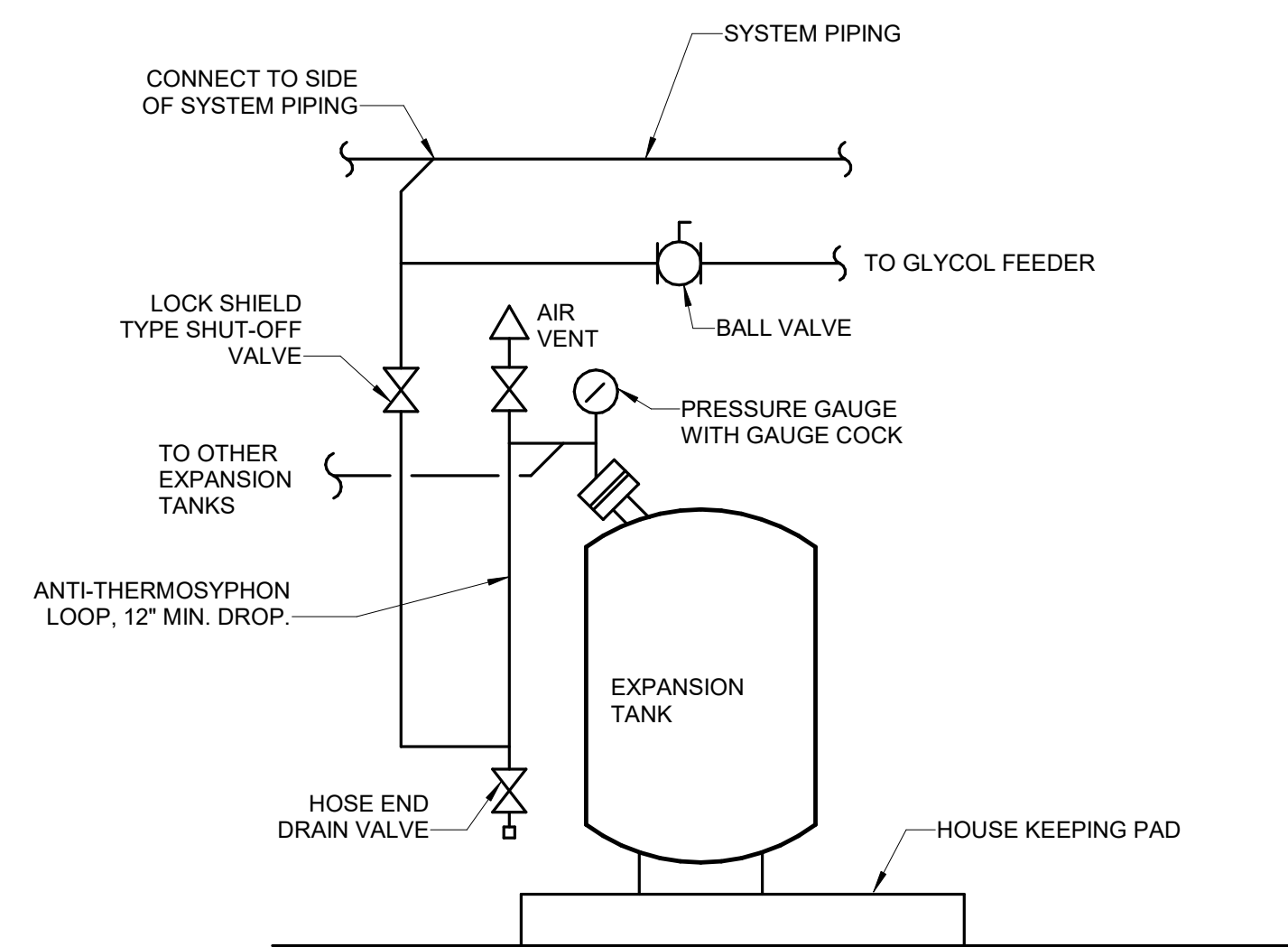
NOTE:

1. PROVIDE ANGLE IRON OR UNISTRUCT SUPPORTS FROM FLOOR FOR ALL INLINE PUMPS 7 HP & LARGER. SMALLER PUMPS MAY BE SUPPORTED FROM STRUCTURE ABOVE. PUMPS MUST BE SUPPORTED WITH VIBRATION ISOLATORS.
2. BALANCING VALVE LOCATED ON OPPOSITE SIDE OF BOILER FROM PRIMARY PUMPS. INSTALL BALANCING VALVE PER CONFIGURATION INDICATED ON BOILER DIAGRAM.

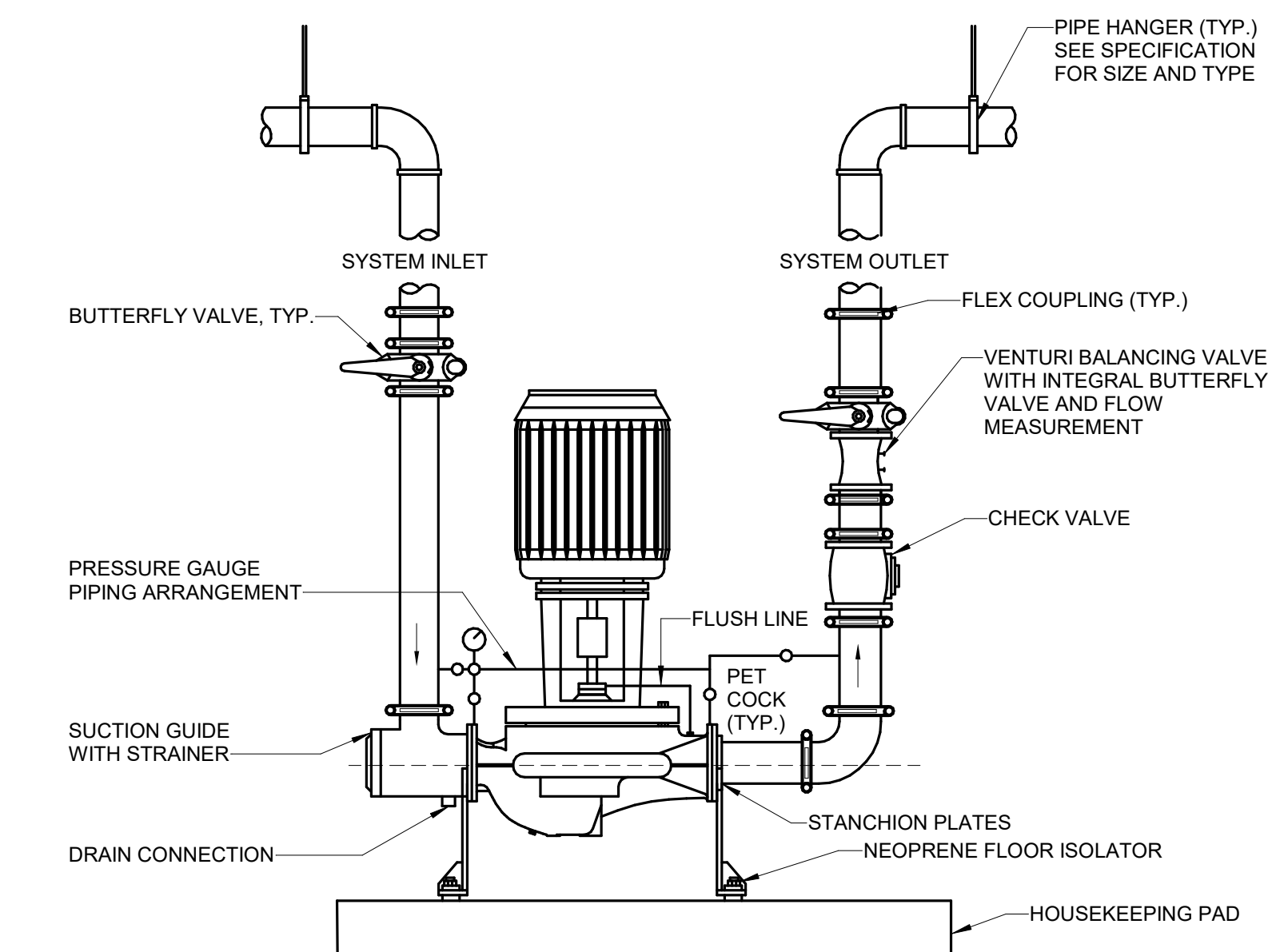
8 INLINE PRIMARY PUMP CONNECTION DETAIL  
1/8" = 1'-0"



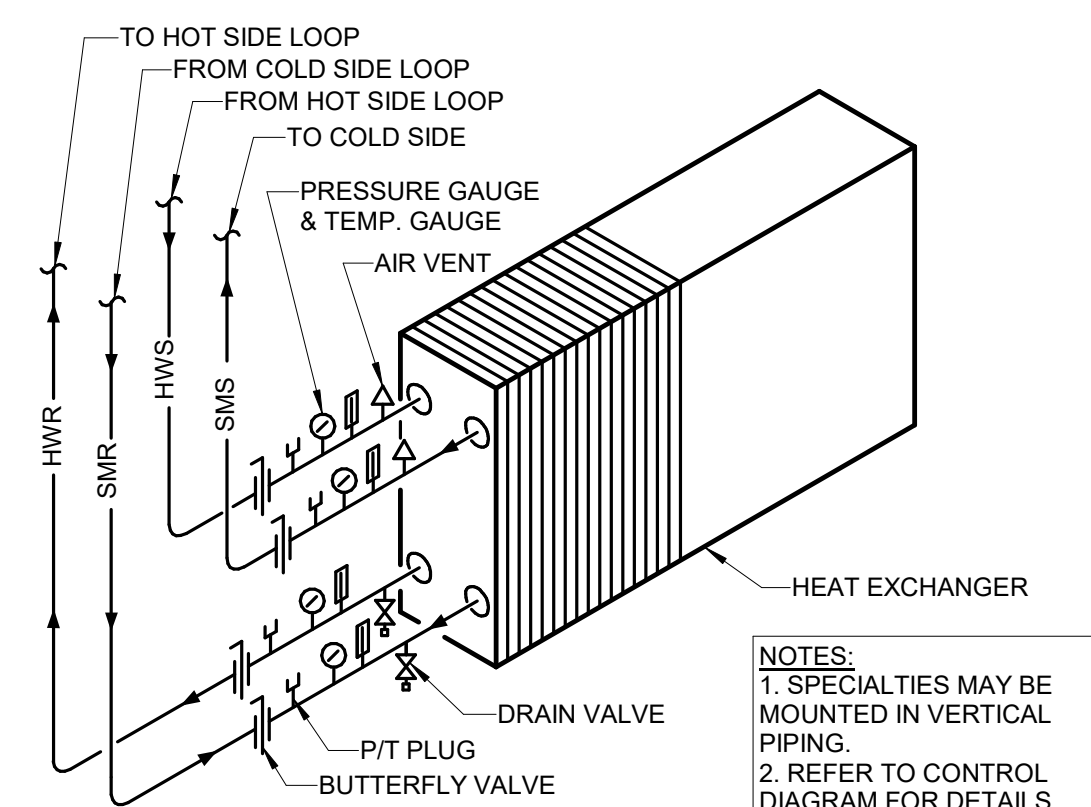
1 AIR SEPARATOR MOUNTING 1  
NO SCALE



2 EXPANSION TANK DETAIL  
NO SCALE



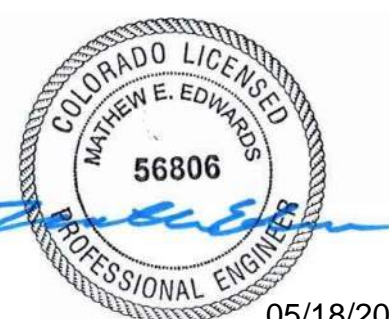
3 INLINE PUMP DETAIL - 5HP AND LARGER  
NO SCALE



4 PLATE TYPE HEAT EXCHANGER DETAIL1  
NO SCALE

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2021.05.19	BP3: GOLDWALK - ISSUE FOR BID AND PERMIT

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**SSRC | BASE AREA IMPROVEMENTS**

Project Number

**003.7835.000**

Description

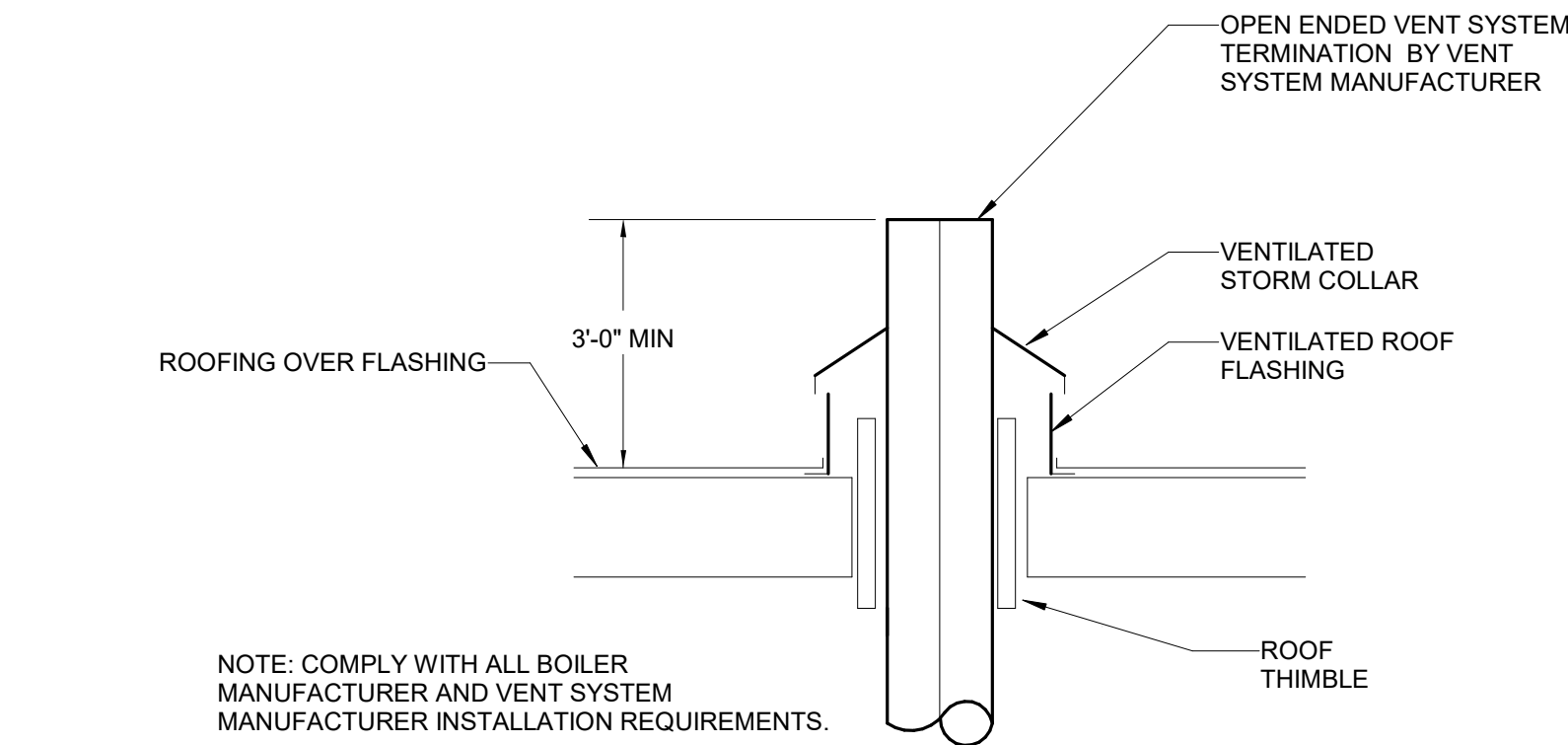
**GOLD WALK - MECHANICAL DETAILS**

Scale

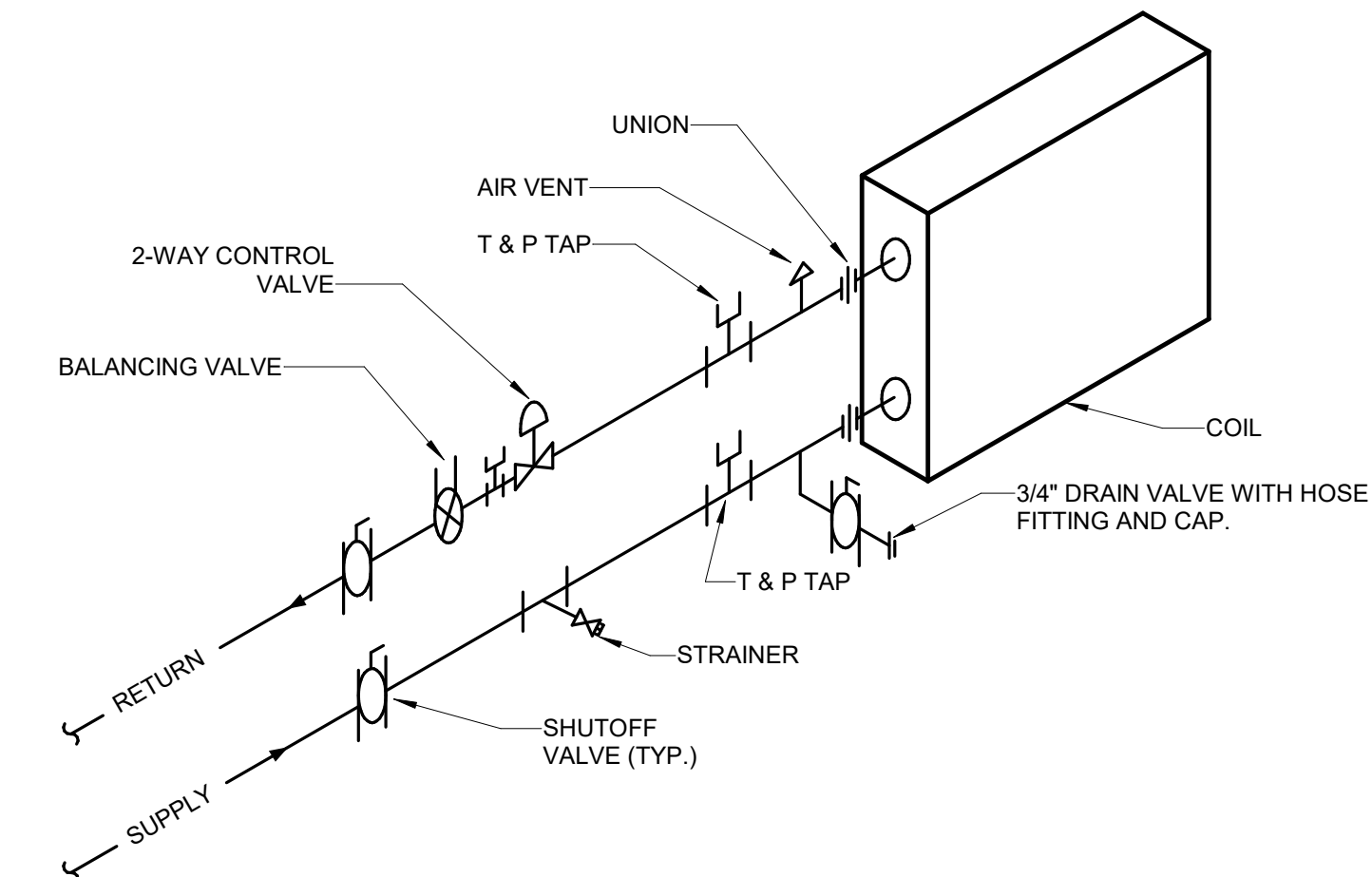
**1/8" = 1'-0"**

**1B-M8.000**

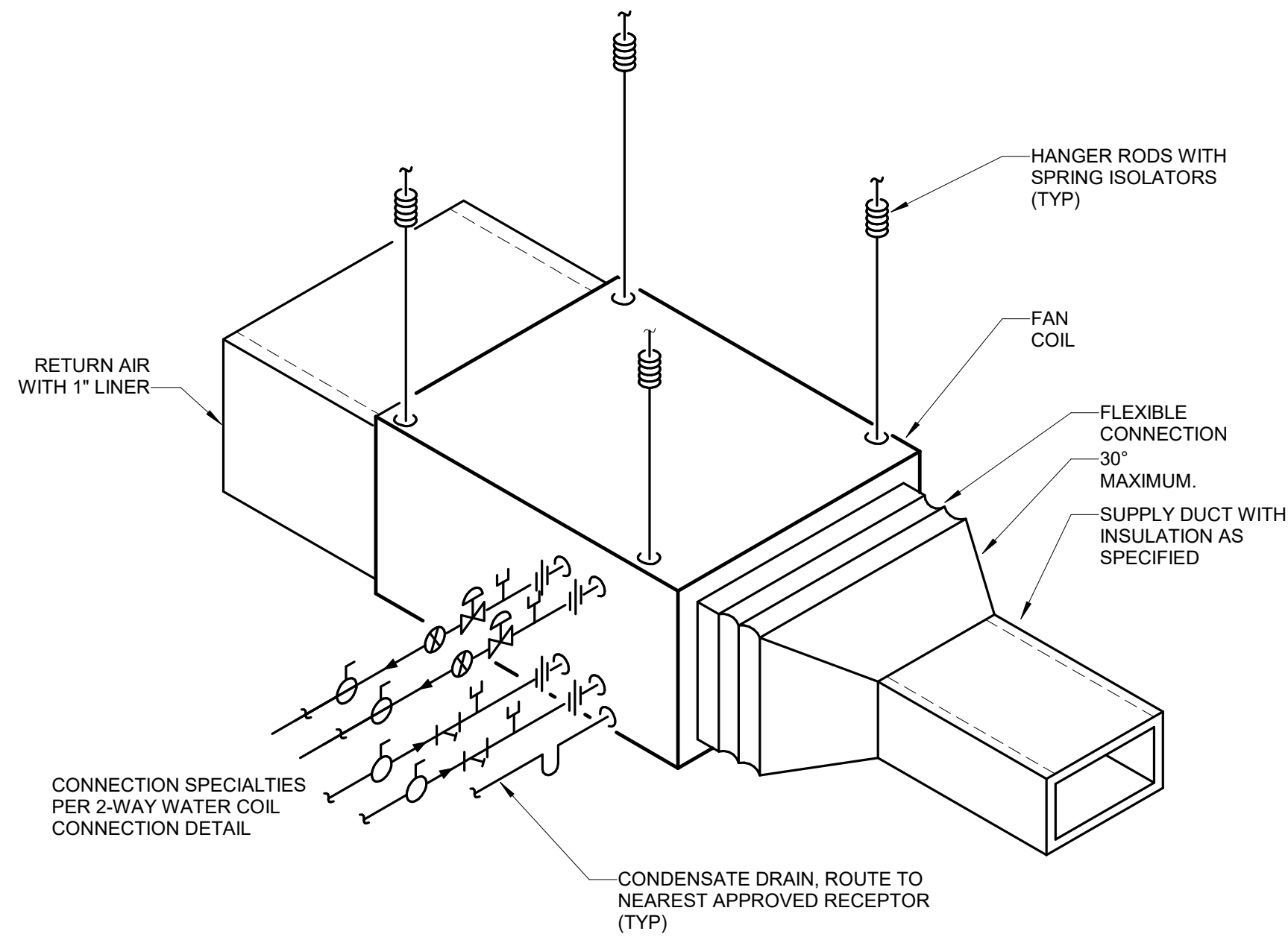




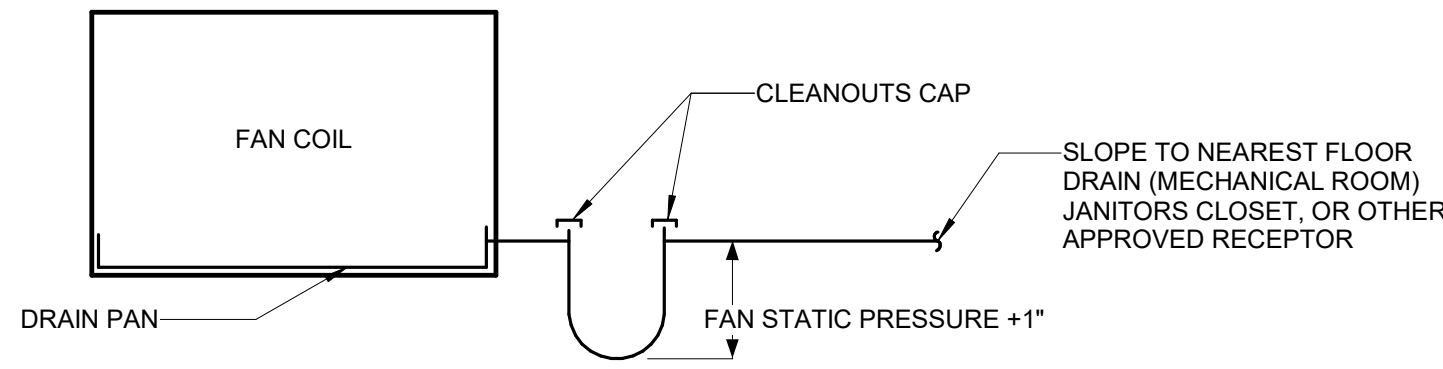
6 BOILER STACK DETAIL  
NO SCALE



1 TYPICAL WATER COIL CONNECTION DETAIL (2 WAY CONTROL)  
NO SCALE

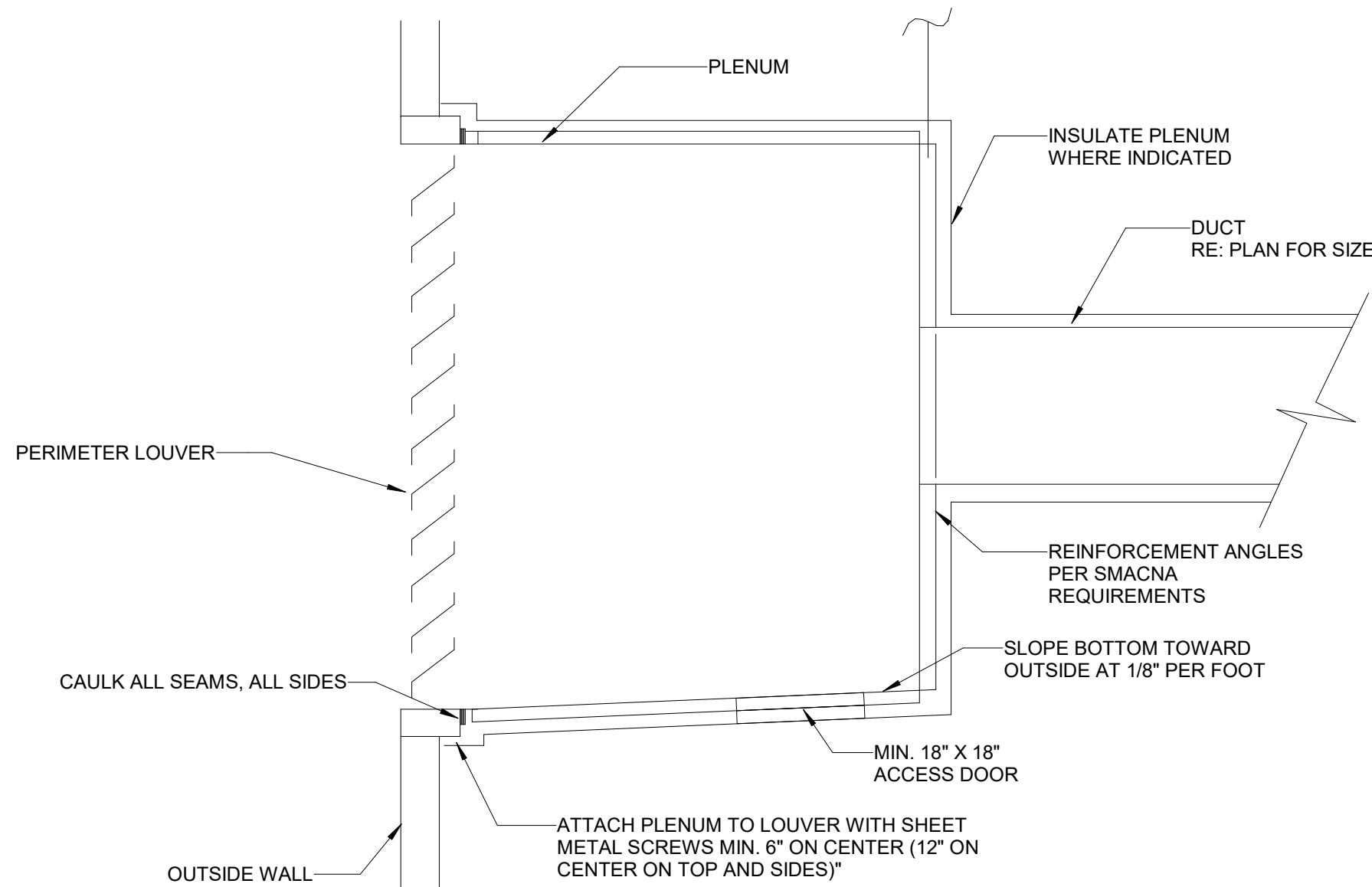


2 FAN COIL DETAIL  
NO SCALE



NOTE:  
1. INSULATE CONDENSATE DRAIN WHEN ABOVE CEILINGS.

3 FAN COIL UNIT CONDENSATE DRAIN DETAIL  
NO SCALE



4 EXTERIOR LOUVER PLENUM BOX DETAIL  
NO SCALE

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GOLD WALK - MECHANICAL DETAILS

Scale

NO SCALE

1B-M8.001





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CODE (B)	MANUFACTURER/ MODEL NO.	INPUT (MBH) (S.L.)	OUTPUT (MBH) (ALT.)	GPM	WPD (FT)	ELECTRICAL						WEIGHT (LBS)	REMARKS
						VOLT	PH	FLA	FUSE	DISCON.	FEEDER		
1B.01	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.02	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.03	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.04	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.05	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.06	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	
1B.07	LOCHINVAR/CREST FB-5001	5,000	4,314	455	14	480	3	5	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"	6,000	

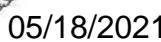
GENERAL NOTES:

1. EVWT = 130°F, LWt = 150°F.
2. 30% PROPYLENE GLYCOL HEATING FLUID.
3. JOB SITE ELEVATION = 6,700 FT.
4. FUEL TYPE = NATURAL GAS.
5. COMMON VENT CONFIGURATION WITH DOUBLE WALL FIBER INSULATED STAINLESS STEEL VENTING SYSTEM AND AUTOMATED VENT DAMPERS BY VENT DUCT MANUFACTURER.
6. PROVIDE CONDENSATE NEUTRALIZATION SYSTEM WITH EACH BOILER.
7. FORCE DRAFT, LOW NOX BURNER. ADJUST TO MINIMIZE LOSS DUE TO OPERATING ELEVATION.
8. BOILER PLANT SIZED FOR N+1 REDUNDANCY WITH FULLY REDUNDANT BOILER AND ASSOCIATED PRIMARY PUMP.

PUMP SCHEDULE																
CODE	MANUFACTURER/ MODEL NO.	SERVICE	PUMP TYPE	GPM	HEAD (FT)	NPSHR (FT)	IMPELLER DIA (IN)	BHP	ELECTRICAL						FEEDER	REMARKS
									HP	VOLT	PH	FLA	FUSE	DISCON.		
HWP-1B-01	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-02	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-03	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-04	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-05	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-06	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-07	TACO/KV 5007D	PRIMARY HEATING LOOP	INLINE	455	25	7.2	6	3.48	5	460	3	8	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	C
HWP-1B-08	TACO/SKV 3009D	BUILDING SECONDARY LOOP	INLINE	250	75	6	9	6	7.5	460	3	11	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	A,B,C
HWP-1B-09	TACO/SKV 3009D	BUILDING SECONDARY LOOP	INLINE	250	75	6	9	6	7.5	460	3	11	15A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	A,B,C
HWP-1B-10	TACO/SKV 6007D	SNOWMELT SECONDARY LOOP	INLINE	635	40	9	7.25	7.31	10	460	3	14	20A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	A,C,F
HWP-1B-11	TACO/SKV 6007D	SNOWMELT SECONDARY LOOP	INLINE	635	40	9	7.25	7.31	10	460	3	14	20A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	A,C,F
HWP-1B-12	TACO/SKV 6007D	SNOWMELT SECONDARY LOOP	INLINE	635	40	9	7.25	7.31	10	460	3	14	20A LPS-RK	30A/3P	(3#12, #12G) 3/4"C	A,C,F
GP-1B-01	NEPTUNE/G-50	GLYCOL FEEDER	POS. DISP.	--	--	--	--	--	0.5	120	1	10	-	CORD & PLUG	(2#12, #12G) 3/4"C	C,D

Date	Description
2021.05.19	BP3: GOLDWALK - ISSUE FOR BID AND PERMIT

Seal / Signature



**Project Name**

Project Number

003.7835.000

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## GOLD WALK - MECHANICAL SCHEDULES

Scale

**1B-MEP0.000**



2305 Mount Werner Circle  
Steamboat Springs, CO 80487

Gensler

1225 17th Street  
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14143 Denver West Pkwy  
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Golden, CO  
United States  
Tel 303.421.6655

HORIZONTAL FAN COIL SCHEDULE (HYDRONIC)																												
CODE (HFCU)	MANUFACTURER/ MODEL NO.	AREA SERVED	FAN		COOLING COIL										HEATING COIL						ELECTRICAL							REMARKS
			SUPPLY CFM	ESP (IN.)	EAT (°F) DB	WB	TOTAL MBH	SENS MBH	MAX LAT(°F)	GPM	ROW	WPD (FT)	EAT (°F) MBH	MIN LAT(°F)	GPM	ROW	WPD (FT)	HP	VOLT	PH	FLA	DISCON.	FEEDER	FUSE				
3	ENGINEERED COMFORT/D35FHZW-24	3 TON	1800	0.3	75	62	38.7	31.1	55	8.1	5	3.6	65	31.1	85	3.5	1	6.5	1/2	120	1	11.8	\$ T.O.	(2#12, #12G) 3/4"C	-			
4	ENGINEERED COMFORT/D35FHZW-30	4 TON	2300	0.3	75	62	49.5	39.8	55	10.4	5	2.3	65	40.5	85	4.6	1	3.2	1/2	120	1	12.6	\$ T.O.	(2#12, #12G) 3/4"C	-	A		
5	ENGINEERED COMFORT/D35FHZW-30	4 TON	2300	0.3	75	62	49.5	39.8	55	10.4	5	2.3	-	-	-	-	-	-	1/2	120	1	12.6	\$ T.O.	(2#12, #12G) 3/4"C	-	A		
GENERAL NOTES: 1. CHILLED WATER: EWT = 44°F, LWT = 54°F, 30% PROPYLENE GLYCOL. 2. HEATING WATER: EWT = 150°F, LWT = 130°F, 30% PROPYLENE GLYCOL. 3. PROVIDE 2" MERV 8 THROW AWAY FILTERS. 4. SCHEDULED FAN VALUES (CFM, SP AND HP) ARE ACTUAL AT ALTITUDE. MOTOR HP HAS BEEN ADJUSTED FROM SEA LEVEL CONDITIONS FOR OPERATION AT JOBSITE ELEVATION. JOB SITE ELEVATION = 6700 FT. 5. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER MENA STANDARD MG1-2003, TABLES 12-12 AND 12-13. 6. PROVIDE CONDENSATE PUMP POWERED FROM EQUIPMENT. PUMP SHALL BE PROVIDED WITH VOLTAGE MATCHING FAN COIL UNIT. IF TRANSFORMER IS PROVIDED FOR CONDENSATE PUMP OPERATION, PROVIDE LINE ITEM COST. GRAVITY DRAINAGE ACCEPTABLE WHERE POSSIBLE. 7. DESIGN OUTSIDE AIR CONDITIONS: COOLING: 88F db/56.2F wb HEATING: -10F db  REMARK NOTES: A. PROVIDE DUCT SMOKE DETECTORS PER CODE FOR ALL UNITS 2000 CFM OR GREATER.																												

HIGH WALL FAN COIL SCHEDULE (HYDRONIC)																										
CODE (WFCU)	MANUFACTURER/ MODEL NO.	AREA SERVED	FAN		COOLING COIL										ELECTRICAL											
			SUPPLY CFM	ESP (IN.)	EAT (°F) DB	WB	TOTAL MBH	SENS MBH	MAX LAT(°F)	GPM	ROW	WPD (FT)	HP	VOLT	PH	FLA	DISCON.	FEEDER	FUSE	REMARKS						
1B.01	MULTIAQUA/MHWW-36-H-3	ELECTRICAL	850	0	80	67	36.0	22.0	55	9.5	1	24.5	1/12	120	1	0.9	\$ T.O.	(2#12, #12G) 3/4"C	-	A						
1B.02	MULTIAQUA/MHWW-12-H-3	ESCALATOR MECH	330	0	80	67	12.0	8.7	55	4	1	12.6	1/60	120	1	0.33	\$ T.O.	(2#12, #12G) 3/4"C	-	A						
GENERAL NOTES: 1. CHILLED WATER: EWT = 44° F, LWT = 54° F, 30% PROPYLENE GLYCOL. 2. SCHEDULED FAN VALUES (CFM, SP AND HP) ARE ACTUAL AT ALTITUDE. MOTOR HP HAS BEEN ADJUSTED FROM SEA LEVEL CONDITIONS FOR OPERATION AT JOBSITE ELEVATION. JOB SITE ELEVATION = 6700 FT. 3. PROVIDE PREMIUM EFFICIENCY MOTORS FOR MOTORS 1 HP AND OVER PER MENA STANDARD MG1-2003, TABLES 12-12 AND 12-13. 4. PROVIDE CONDENSATE PUMP POWERED FROM EQUIPMENT. PUMP SHALL BE PROVIDED WITH VOLTAGE MATCHING FAN COIL UNIT. IF TRANSFORMER IS PROVIDED FOR CONDENSATE PUMP OPERATION, PROVIDE LINE ITEM COST. GRAVITY DRAINAGE ACCEPTABLE WHERE POSSIBLE. 5. DESIGN OUTSIDE AIR CONDITIONS: COOLING: 88F db/56.2F wb HEATING: -10F db  REMARK NOTES: A. PROVIDE REMOTE THERMOSTAT.																										

UNIT HEATER SCHEDULE (HYDRONIC)																	
CODE (UH)	MANUFACTURER/ MODEL NO.	SERVICE	CAPACITY (MBH)	WATER SIDE		AIR SIDE		ELECTRICAL								REMARKS	
				GPM	WPD (FT)	EAT (F)	LAT (F)	CFM	WATTS	VOLT	PH	FLA	DISC	FUSE	FEEDER		
2	TRANE / UHSB18	SEE PLANS	18	1.9	2.2	60	95	500	16	120	1	1	\$ T.O.	-	(2#12, #12G) 3/4"C	A,B	
3	TRANE / UHSB25	SEE PLANS	24	2.5	2.2	60	95	580	25	120	1	1	\$ T.O.	-	(2#12, #12G) 3/4"C	A,B	
GENERAL NOTES																	
1. EWT =150F, LWT = 130F.																	
2. WATER CONTAINS 30% PROPYLENE GLYCOL.																	
3. JOB SITE ELEVATION = 6700 FT.																	
REMARK NOTES																	
A. PROVIDE WALL MOUNTED THERMOSTAT.																	
B. HORIZONTAL DISCHARGE W/ LOUVER.																	

LOUVER SCHEDULE						
CODE (LV)	MANUFACTURER/ MODEL NO.	SERVICE	AIRFLOW (CFM)	MINIMUM FREE AREA...	FACE... (IN X IN)	REMARKS
1B.01	RUSKIN/ELF6375DX	BOILER COMBUSTION AIR	10,000	20	84X60	
<div>GENERAL NOTES: 1. LOUVERS ARE PROVIDED BY DIVISION 23. 2. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL DETAILS.</div>						

Seal / Signature



05/18/2021

Project Name

SSRC | BASE AREA IMPROVEMENTS

Project Number

003.7835.000

Description

GOLD WALK - MECHANICAL SCHEDULES

Scale