



REVISIONS

PROJECT NUMBER  
11054

DATE  
23 APR 12

DRAWN  
CBW

CHECKED  
RCH

SHEET TITLE  
MECHANICAL PLANS

SHEET NUMBER  
M1

OF

**MECHANICAL LEGEND**

- 1-HOUR RATED FIRE BARRIER
- 2-HOUR RATED FIRE BARRIER
- EXISTING
- NEW WORK
- NEW TO EXISTING
- MANUAL BALANCING DAMPER
- FIRE DAMPER
- FIRE SMOKE DAMPER
- REFRIGERANT LIQUID & REFRIGERANT HOT GAS
- IW INDIRECT WASTE
- I.W.V. INDIRECT WASTE VENT

**MECHANICAL NOTES**

PROVIDE, I.E. FURNISH & INSTALL, ALL MATERIAL, PERMITS, FEES, AND LABOR NEEDED FOR A COMPLETE AND OPERABLE DATA CENTER AIR CONDITIONING SYSTEM. COMPLY WITH APPLICABLE CODES, MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND LOCAL AUTHORITY REQUIREMENTS. A ONE YEAR PARTS AND LABOR WARRANTY IS REQUIRED FROM DATE OF SUBSTANTIAL COMPLETION. COMPLY WITH GENERAL NOTES: APC IN-ROW AIR COOLED COOLERS AND ROOF MOUNTED CONDENSERS ARE OWNER FURNISHED AND CONTRACTOR INSTALLED.

1. LABEL NEW PIPING WITH ADHESIVE BACKED VINYL LABELS, 20FT O.C., AT CHANGES IN DIRECTION, AND ON BOTH SIDES OF WALL PENETRATIONS. LABEL ALL NEW PIPING:

PIPE MARK	PIPE LETTER COLOR	PIPE BACKGROUND COLOR	PIPE CONTENT
IW	WHITE / GREEN	WHITE / GREEN	DRAIN
NPWC	WHITE / GREEN	WHITE / GREEN	NON-POTABLE COLD WATER
RS, RL, RHG	BLACK / YELLOW	BLACK / YELLOW	REFRIGERATION

PROVIDE FLOW INDICATING ARROWS ON HYDRONIC PIPING, YELLOW COLOR BAND ON REFRIGERATION PIPING, AT BOTH ENDS OF AND PARTIALLY OVERLAPPING FLUID LABEL COMPLETELY WRAPPING PIPE/INSULATION. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, EQUAL TO SETON SETON-CODE OR OPTI-CODE LABELS. PROVIDE MULTIPLE LABELS WHEN LOCATION IS DIFFICULT TO READ.

2. NON POTABLE COLD WATER: TYPE "L" COPPER, 95-5 SOLDER JOINTS OR RIGID PRO-PRESS, 1" WALL ASJ FIBERGLASS INSULATION.  
INDIRECT WASTE, VENT: DWV COPPER, SOLDER JOINTS, 1" WALL ASJ FIBERGLASS INSULATION.

GALVANIZED THREADED ROD SUPPORTS FROM BUILDING STRUCTURE, DOUBLE NUT TO HANGERS. SUPPORT PIPING WITH COPPER CLAD CLEVIS/SPLIT RING HANGERS. SUPPORTS AS FOLLOWS:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1-1/4" & less	6'-0"	3/8"
1-1/2"-4"	18'-0"	3/8"

\* HANGER REQD WITHIN 12" OF ALL ELBOWS

INSTALL PIPING HIGH AS POSSIBLE. PROVIDE SCH80 PIPE NIPPLES BETWEEN PIPE MAIN AND FIRST ISOLATION VALVE ON THREADED CONNECTIONS TO EXISTING PIPE. PROVIDE DIELECTRIC FLANGE / UNION BETWEEN DISSIMILAR METALS. MAINTAIN NEW / EXISTING EQUIPMENT SERVICE SPACE. RELOCATE, AT NO EXPENSE TO THE OWNER, ANY PIPE WHICH BLOCKS OR RESTRICTS EQUIPMENT SERVICE / AISLE ACCESS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION.

3. PROVIDE 3 PIECE BALL VALVES FOR ALL SERVICES.

4. REFRIGERATION PIPING: PIPE SIZE AND TRAPPING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. FIELD VERIFY PIPE ROUTING AND PROVIDE NECESSARY INFORMATION TO EQUIPMENT VENDOR FOR EXACT SIZING / PIPE CONFIGURATION. ADJUST SIZE AND ROUTING TO SUIT FIELD CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. PIPING SHALL BE ADR RIGID COPPER, CLEANED AND CAPPED TURNING, WROT FITTINGS, SILPHOS BRAZED JOINTS. INSTALL SUCTION ACCUMULATORS, MUFFLERS, DRYERS, REFRIGERANT VALVES, LIQUID LINE SOLENOIDS, HARD SHUT OFF TVV AND ANY OTHER ACCESSORIES SHIPPED LOOSE WITH EQUIPMENT. COORDINATE THIS REQUIREMENT WITH EQUIPMENT VENDORS. PROVIDE SERVICE ISOLATION VALVES AT IN-ROW COOLERS AND O/S. TEST PIPING SYSTEM WITH NITROGEN TO 250 PSIG FOR 48 HOURS WITH NO LEAKS. ALLOW OWNER TO WITNESS THIS TEST. BUBBLE CHECK EVERY JOINT AND CONNECTION.

SUPPORT REFRIGERATION PIPING FROM WALL AND CEILING STRUCTURES WITH GALVANIZED STRUT TRAPEZES, 8FT O.C., WITH CUSTOMER PIPE CLAMPS, B-LINE BVT VIBRA-CLAMP UNINSULATED PIPING, B-LINE ARMAFIX CLAMP INSULATED PIPE, OR EQUIVALENT. CONTRACTOR MAY PROVIDE TIERED TRAPEZE AND OR A BACK TO BACK STRUT COMBINATION WITH STACKED PIPING TO MINIMIZE TRAPEZE WIDTH. CAREFULLY PLAN AND INSTALL PIPING FOR A NEAT AND PROFESSIONAL INSTALLATION. DO NOT BLOCK OR INTERFERE WITH ADJACENT EQUIPMENT SERVICE SPACE, ACCESS DOORS, OR PLUMBING CLEAN OUTS.

5. PIPE INSULATION:

ARMAFLEX AP FLEXIBLE ELASTOMERIC FOAM OR EQUIVALENT. PAINT ANY WEATHER EXPOSED INSULATION WITH TWO COATS OF HIGHLY FLEXIBLE WATER BASED LATEX ENAMEL COATING EQUIVALENT TO ARMSTRONG "WB ARMAFLEX FINISH", COLOR WHITE, TO PREVENT UV DETERIORATION.

PIPE TYPE	PIPE SIZE	THICKNESS
REFRIGERANT SUCTION OR ANY OTHER REFRIGERANT PIPING OR COMPONENT SUBJECT TO SWEATING.	ALL	0.75
REFRIGERANT HOT GAS OR ANY OTHER PIPE OR COMPONENT WITH SURFACE TEMP > 120 DEG AND LESS THAN 78" AFF.	ALL	0.75
NON-POTABLE COLD WATER	ALL	0.75

PROVIDE 30 MIL WHITE PVC JACKETS, FACTORY CUT, FORMED, OR CURLED, ON ALL INSULATED PIPE INSTALLED LESS THAN 12" AFF. CONICAL SEAMS ON BOTTOM OR BACK SIDE OF PIPE AGAINST WALL. SEAL ALL JACKET SEAMS WITH FACTORY RECOMMENDED SEALANT FOR WATER TIGHT JACKET.

DO NOT COMPRESS INSULATION AT CLEVIS/TRAPEZE STYLE PIPING SUPPORT POINTS. PROVIDE METAL SUPPORT SHIELDS BETWEEN PIPING SUPPORTS AND INSULATION JACKETS. ADDITIONALLY PROVIDE A 180 DEGREE CELLULAR GLASS INSERT OF SAME THICKNESS AND CONTOUR AS ADJOINING INSULATION ON PIPES GREATER THAN 1-1/4".

GENERAL: ADDITIONALLY COMPLY WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS. E84, 25/50 FLAME SPREAD/SMOKE DEVELOPED, COMPLIANCE ON ALL INSULATION, INSULATION ADHESIVES, AND MASTICS REQUIRED.

6. CHARGE REFRIGERATION SYSTEMS WITH OIL AND REFRIGERANT AS REQUIRED TO ACHIEVE CORRECT OPERATING PRESSURES.

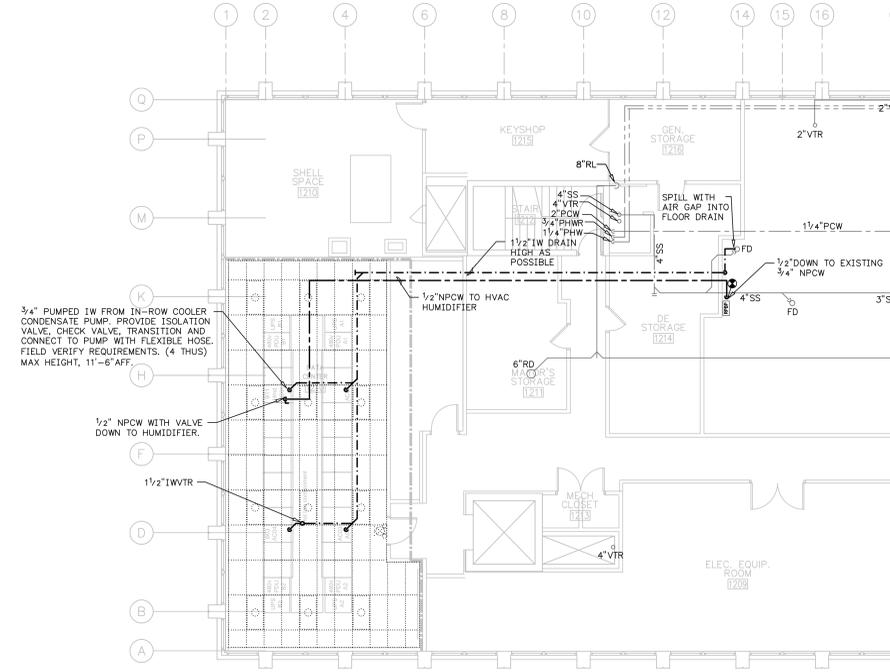
7. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE OF DUCT. CONSTRUCT ALL DUCT USING GALVANIZED STEEL, FABRICATED IN ACCORDANCE WITH SWAGA STANDARDS, 2" RETURN PRESSURE FOR SUPPLY AND 2" NEGATIVE FOR RETURN/EXHAUST.  
CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE. PROVIDE TURNING VANES IN ALL RECTANGULAR ELBOWS EXCEEDING 45 DEGREES, SINGLE WALL, RADIUS R=4.5", SPACING, S=2.25", NO TRAILING EDGE, EMBOSSED OR WELDED VANE RUNNERS, 20 GAUGE MINIMUM VANES FOR WIDTH TO 36", WHERE WIDTH OF VANE EXCEEDS 36" PROVIDE WELDED 1/4" ROSS ON BOTH SIDES OF VANES TO LIMIT FREE LENGTH TO 36" OR LESS.

INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 1" IN 7' DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM OF EQUIPMENT SHALL NOT EXCEED 1" IN 4'; CONVERGENCE DOWNSTREAM FROM EQUIPMENT SHALL NOT EXCEED 1" IN 1'.

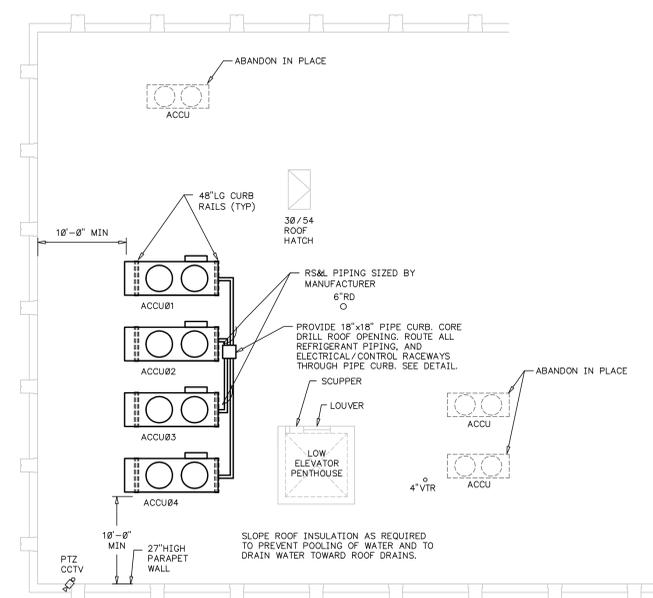
MASTIC SEAL ALL DUCT JOINTS, E.G. LATERAL AND LONGITUDINAL JOINTS/SEAMS, AND TAPS.

8. DUCT INSULATION: 1" THICK FLEXIBLE GLASS FIBER DUCT LINER, K=0.26 AT 75degF, 2.0 PPF, COATED AIR SIDE FOR 6.000 PPM, EQUAL TO OWENS CORNING AEROFLEX PLUS, 100% ADHESIVE BOND WITH WELDINGS 12" O.C. IN ROWS 18" O.C. MASTIC SEAL EXPOSED FRAGILE EDGES. INSTALL IN FULL ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

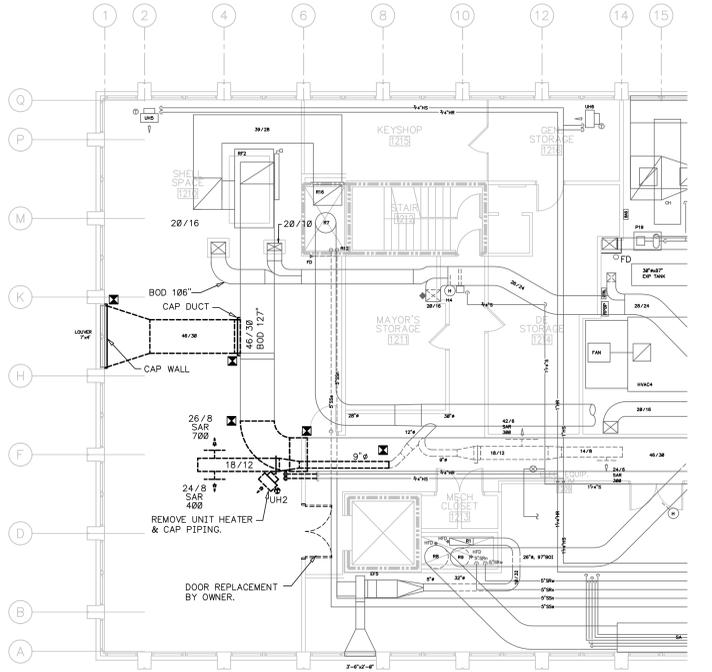
9. WALL SUPPLY AIR REGISTER: PRICE #620 OR SIMILAR WITH OBD.



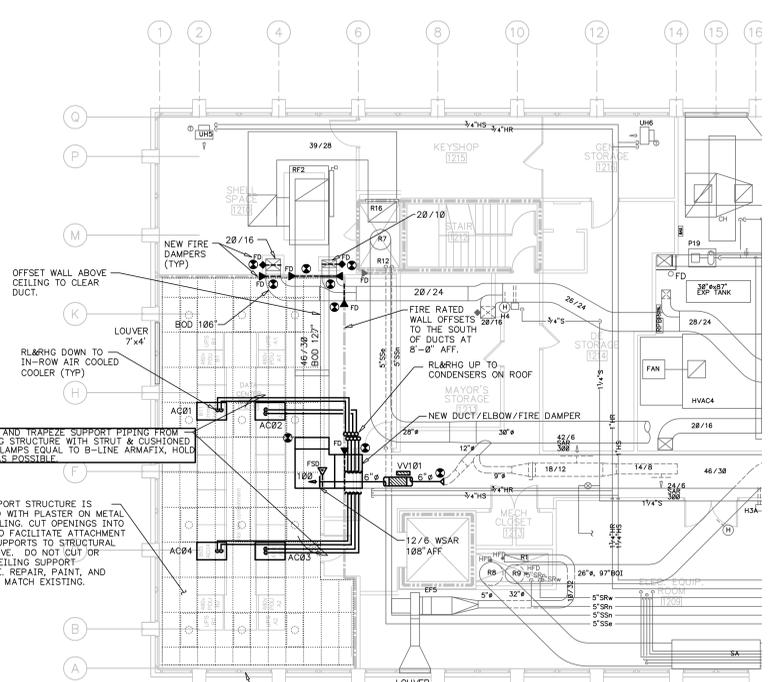
**PLUMBING PLAN**  
1/8" = 1'-0"



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



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



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