

MECHANICAL ABBREVIATIONS			
AFF	ABOVE FINISHED FLOOR	EFF	EFFICIENCY
AF	AIRFOOL	ERAD-X	ELECTRIC BASEBOARD RADIATOR
AC-X	AIR COMPRESSOR	EFT-X	ELECTRIC FIN TUBE
AC	AIR CONDITIONING	ERH-X	ELECTRIC RADIAN HEATER
ACD-U	AIR COOLED CONDENSING UNIT	ERH-X	ELECTRIC UNIT HEATER
AH-X	AIR HANDLING UNIT	EL	ELEVATION
AIR PD	AIR PRESSURE DROP	ERV-X	ENERGY RECOVERY VENTILATOR
AS-X	AIR SEPARATOR	EAT	ENTERING AIR TEMPERATURE
ATU	AIR TERMINAL UNIT	EWT	ENTERING WATER TEMPERATURE
AMB	AMBIENT	EQIP	EQUIPMENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	EQC-X	EVAPORATIVE CONDENSING UNIT
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS	EVAP	EVAPORATOR
AMP	AMPERE	EX	EXHAUST
ANG	ANGLE	EA	EXHAUST AIR
A	AREA	EF-X	EXHAUST FAN
AD-X	AIR DOOR	EH-X	EXHAUST HOOD
APPROX	APPROXIMATE	EXIST	EXISTING
AUX	AUXILIARY	ET-X	EXPANSION TANK
ATM	ATMOSPHERE	ESP	EXTERNAL STATIC PRESSURE
AVG	AVERAGE	F	FAHRENHEIT
		FM	FACTORY MUTUAL GLOBAL
		FOU-X	FAN COIL UNIT
		FPS-X	FAN POWERED BOX
BI	BACKWARD INCLINED	FT	FEET
BIBC	BACKWARD INCLINED BACKWARD CURVED	FS	FEET PER SECOND
BCM	BILL OF MATERIAL	FPS	FEET PER SECOND
B-X	BOILER	FT-X	FIN TUBE
BHP	BREAK HORSE POWER	FF-X	FAN MAKE-UP AIR
BTU	BRITISH THERMAL UNIT	FLT-X	FLASH TANK
BLDG	BUILDING	FL	FLOOR
		FC	FLUID COOLER
CLH-X	CABINET UNIT HEATER	FC	FORWARD CURVED
CLG	CEILING	FA	FREE AREA / FIRE ALARM
C TO C	CENTER TO CENTER	FOT-X	FUEL OIL TANK
CL	CENTER LINE	FLA	FULL LOAD AMPS
CENT	CENTRIFUGAL	F-X	FURNACE
CFX	CHEMICAL FEED SYSTEM	G	GAS
CWR	CHILLED WATER RETURN	GAL	GALLONS
CWS	CHILLED WATER SUPPLY	GPM	GALLONS PER MINUTE
CH-X	CHILLER	GVX	GALVANIZED
CPVC	CHLORINATED POLYVINYL CHLORIDE	G	GAS
CLR	CLEAR	GRP-X	GAS PRESSURE REGULATOR
CD	CLEAN OUT	GA	GAUGE
CMR	COMPRESSOR	GC	GENERAL CONTRACTOR
CRAC-X	COMPUTER ROOM AIR CONDITIONER	GEN	GENERATOR
COND	CONDENSATE	GPM	GALLONS PER GALLON
CP-X	CONDENSATE PUMP	GSH	GRAVITY HOOD
CDU	CONDENSATE UNIT	GX	GRILLE
CU-X	CONDENSING UNIT	H-Z	FREQUENCY
CHP-X	CONSTANT VOLUME HEAT PUMP	HD	HEAD
CV	CONSTANT VOLUME / CONTROL VALVE	HE-X	HEAT EXCHANGER
CC-X	COOLING COIL	HP-X	HEAT PUMP
CC-X	COOLING TOWER	HPWR	HEAT PUMP WATER RETURN
CU FT	CUBIC FEET	HPWS	HEAT PUMP WATER SUPPLY
CFM	CUBIC FOOT PER MINUTE	HTR	HEATER
CU IN	CUBIC INCH	HGT	HEATING
		HWC	HEATING COIL
DG	DEGREE	HVAC	HEATING, VENTILATING AND AIR CONDITIONING
DP	DEPTH / DEEP	DIAM	DIAMETER
D-X	DIFFUSER	HWS	HEATING WATER SUPPLY
DX	DIRECT EXPANSION	HGT	HEIGHT
DISC	DISCONNECT	HDP	HIGH DENSITY POLYETHYLENE PIPE
DD	DOUBLE DUCT	HPC	HIGH PRESSURE CONDENSATE
DN	DOWN	HPS	HIGH PRESSURE STEAM
DWG	DRAWING	HP	HORSE POWER
DB	DRY BULB (TEMPERATURE)	HR	HOUR
DVAU	DUAL DUCT VARIABLE AIR VOLUME	H	HAMMER
DCX	DOUBLE COLLECTOR	H-X	HYDRONIC FILTER
DWDI	DOUBLE WHEEL DOUBLE INLET		

MECHANICAL SYMBOLS			
HEATING - VENTILATING - AIR-CONDITIONING			
	EXISTING STEAM		THERMOSTAT
	EXISTING STEAM CONDENSATE		DUCT MOUNTED THERMOSTAT
	EXISTING HOT WATER SUPPLY		HUMIDISTAT
	EXISTING CHILLED WATER SUPPLY		TEMPERATURE SENSOR
	EXISTING CHILLED WATER RETURN		STEAM TRAP
	EXISTING HEAT PUMP WATER LINE		FLOW SWITCH
	EXISTING RADIANT FLOOR HEAT LINE		AUTOMATIC CONTROL VALVE, 2-WAY
	EXISTING CONDENSER WATER FROM TOWER		AUTOMATIC CONTROL VALVE, 3-WAY
	EXISTING CONDENSER WATER TO TOWER		PRESSURE REGULATING VALVE (PRV)
	EXISTING COMPRESSED AIR LINE		ISOLATION VALVE (BALL OR BUTTERFLY)
	EXISTING ENERGY RECOVERY LINE		GLOBE VALVE
	STEAM (LOW PRESSURE)		GATE VALVE
	STEAM (MEDIUM PRESSURE)		CHECK VALVE (ARROW INDICATES FLOW)
	STEAM (HIGH PRESSURE)		PRESSURE RELIEF VALVE
	CONDENSATE RETURN (LOW PRESSURE)		DUCT SIZE (FIRST FIGURE IS SIDE SHOWN)
	CONDENSATE RETURN (MEDIUM PRESSURE)		DUCT SECTION, POSITIVE PRESSURE, FIRST FIGURE IS TOP
	CONDENSATE RETURN (HIGH PRESSURE)		DUCT SECTION, NEGATIVE PRESSURE, FIRST FIGURE IS TOP
	HOT WATER SUPPLY		CHANGE OF ELEVATION RISE (R) DROP (D)
	HOT WATER RETURN		DUCT TRANSITION
	CHILLED WATER SUPPLY		
	CHILLED WATER RETURN		
	HEAT PUMP WATER SUPPLY LINE		
	HEAT PUMP WATER RETURN LINE		
	REFRIGERANT LIQUID LINE		
	REFRIGERANT SUCTION LINE		
	RADIANT FLOOR HEAT LINE		
	CONDENSER WATER SUPPLY FROM TOWER		
	CONDENSER WATER RETURN TO TOWER		
	COMPRESSED AIR LINE		
	ENERGY RECOVERY LINE		
	OUTDOOR AIR		
	RETURN AIR		
	EXHAUST AIR		
	MIXED AIR		
	RELIEF AIR		
	STATIC PRESSURE		
PIPING			
	TEE		TEE, OUTLET UP
	TEE, ELBOW (90°)		TEE, OUTLET DOWN
	TEE, ELBOW (45°)		ARROW INDICATES FLOW DIRECTION
	UNION		CROSS
	END CAP		ELBOW UP
	ELBOW UP		TEE, SINGLE SWEEP
	ELBOW DOWN		

### MECHANICAL GENERAL NOTES:

- COORDINATE LOCATION OF DUCTWORK AND PIPING WITH ELECTRICAL CABLE TRAY. PROVIDE A MINIMUM OF 6" OF CLEAR ACCESS ABOVE CABLE TRAY FOR INSTALLATION OF CABLES.
- PIPING, DUCTWORK, AND EQUIPMENT SHOWN HALF-TONE IS EXISTING TO REMAIN. PIPING, DUCTWORK, AND EQUIPMENT SHOWN FULL-TONE IS NEW.
- CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING NEEDED FOR MECHANICAL INSTALLATION. PATCHING MUST MATCH EXISTING.
- ACCESS PANELS IN HARD SURFACE CEILING ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PIPING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50'-0" OF BOILERS AND PRESSURE REDUCING VALVES.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, PLUMBING, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- MAINTAIN A MINIMUM OF 6'-0" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 318 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C84. CONCRETE WORK SHALL CONFORM TO ACI 318, PART ENTITLED "CONSTRUCTION REQUIREMENTS." COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3000 PSI. TOTAL AIR CONTENT OF EXPOSED CONCRETE SHALL BE BETWEEN 4 AND 7 PERCENT OF VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 INCHES. CONCRETE SHALL BE CURED FOR 7 DAYS AFTER PLACEMENT.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 16 OF THE SPECIFICATION.
- CONCRETE HOUSEKEEPING PADS TO SUIT MECHANICAL EQUIPMENT SHALL BE SIZED AND LOCATED BY THE MC. MINIMUM CONCRETE PAD THICKNESS SHALL BE 6" PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6" ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GC. IT SHALL BE THE RESPONSIBILITY OF THE GC TO COORDINATE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS WITH THE GC.
- ALL MECHANICAL ROOM DOORS SHALL BE A MINIMUM OF 4'-0" WIDE.
- WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
- WHEN MECHANICAL WORK (HVAC, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MC'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MC, WHOSE DECISION SHALL BE FINAL.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MC.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALL AND CEILING, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GC FOR INSTALLATION.
- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
- ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GC. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MEET STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF CLAMPS SHALL NOT BE PERMITTED.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
- ALL ROOF MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MC SHALL BE FURNISHED BY THE MC AND INSTALLED BY THE GC.
- LOCATIONS AND SIZES OF ALL FLOOR, ROOF, AND WALL OPENINGS SHALL COORDINATE WITH ALL OTHER TRADES INVOLVED.
- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUIV.
- REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.

### MECHANICAL DEMOLITION GENERAL NOTES:

- THE OWNER RESERVES THE RIGHT TO SALVAGE ALL MECHANICAL, ELECTRICAL AND PLUMBING ITEMS BEING REMOVED OR DEMOLISHED PRIOR TO THE SCHEDULED TIME OF REMOVAL. ALL OTHER MATERIAL THAT IS SCHEDULED TO BE REMOVED OR DEMOLISHED, AND NOT SALVAGED BY THE OWNER SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF PROPERLY BY THE CONTRACTOR. VERIFY OWNER'S INTENT PRIOR TO REMOVAL OR DEMOLITION.
- REMOVE ALL PLUMBING FIXTURES AND PIPING SHOWN HATCHED.
- REMOVE ALL DUCTWORK, PIPING, AND EQUIPMENT SHOWN HATCHED.
- INFORMATION PERTAINING TO THE EXISTING BUILDING HAS BEEN OBTAINED THROUGH THE BUILDING'S ORIGINAL DRAWINGS WHERE AVAILABLE. REPORT DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO ANY DEMOLITION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- COORDINATE SHUT-DOWN OF ALL UTILITIES FOR DEMOLITION WORK WITH THE OWNER.
- DISCONNECT, DEMOLISH, AND REMOVE MECHANICAL SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED AS HATCHED TO BE REMOVED.
- PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING PIPING WITH THE SAME OR COMPATIBLE PIPING MATERIAL.
- DUCTS TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP OR PLUG PIPING WITH THE SAME OR COMPATIBLE PIPING MATERIAL.
- DUCTS TO BE REMOVED: REMOVE PORTIONS OF DUCT AND PLUG REMAINING DUCTS WITH THE SAME OR COMPATIBLE DUCTWORK MATERIAL.
- DUCTS TO BE ABANDONED IN PLACE: CAP OR PLUG DUCTS WITH THE SAME OR COMPATIBLE DUCTWORK MATERIAL.
- EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
- EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT. WHEN APPROPRIATE, REINSTALL, RECONNECT, AND NAME EQUIPMENT FULLY OPERATIONAL.
- EQUIPMENT TO BE REMOVED AND SALVAGED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT AND DELIVER TO OWNER.
- IF PIPE INSULATION OR EQUIPMENT TO REMAIN IS DAMAGED OR APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.
- REMOVE ALL ITEMS SHOWN HATCHED. ALL ITEMS SHOWN HALF TONED ARE EXISTING TO REMAIN.
- CONTRACTOR IS REQUIRED TO VISIT SITE AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING PROCEED.
- COORDINATE DEMOLITION WITH THE WORK OF OTHER TRADES. PROVIDE TEMPORARY UTILITIES AS REQUIRED TO ALLOW THE WORK OF OTHER TRADES TO PROCEED.

### HVAC GENERAL NOTES:

- SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT DIFFUSER, REGISTER, GRILLE, AND CEILING-MOUNTED DEVICE LOCATIONS.
- DO NOT RUN DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES.
- CONTRACTOR SHALL COORDINATE LOCATION OF DUCTWORK IN CEILING SPACE WITH ALL TRADES PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK.
- FOR GENERAL DUCTWORK CONSTRUCTION, SEE DETAIL XMXXXX.
- DUCTWORK AND EQUIPMENT SHOWN HALF-TONE IS EXISTING TO REMAIN. PIPING AND EQUIPMENT SHOWN FULL-TONE IS NEW.
- PROVIDE VOLUME DAMPER IN ALL BRANCH TAKEOFFS CONNECTING TO DIFFUSERS OR REGISTERS.
- PROVIDE CLEARANCES TO ALL EQUIPMENT AS REQUIRED BY MANUFACTURERS' INSTALLATION AND OPERATION REQUIREMENTS AND/OR BY CODE.
- INSTALL ALL DUCT AND PIPING IN MECHANICAL ROOMS AS HIGH AS POSSIBLE. PROVIDE 1" MINIMUM HIGH ACCESS PATHWAYS TO ALL EQUIPMENT.
- COORDINATE LOCATIONS OF ALL EQUIPMENT HOUSEKEEPING PADS WITH GENERAL CONTRACTOR.
- LOCATE ALL WALL-MOUNTED HVAC EQUIPMENT AT A MINIMUM 7'-0" ABOVE FINISHED FLOOR OR AS REQUIRED FOR SERVICE PER MANUFACTURERS' RECOMMENDATIONS.
- DUCTWORK SHALL NOT BE FABRICATED UNTIL ALL COORDINATION CONFLICTS HAVE BEEN RESOLVED.
- CAP ENDS OF ALL INSTALLED DUCTWORK DURING CONSTRUCTION TO MINIMIZE DIRT, DEBRIS, AND FOREIGN OBJECTS FROM ENTERING THE DUCT SYSTEM.
- PROVIDE ACCESS SPACES AROUND TERMINAL UNITS AND HEAT PUMPS AS REQUIRED PER MANUFACTURERS' RECOMMENDATIONS.
- COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS, FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUTDOWN.
- COORDINATE LOCATION OF DUCTWORK WITH ELECTRICAL CABLE TRAYS.
- ALL WORK SHALL COMPLY WITH LOCAL CODES (UNIFORM/INTERNATIONAL) BUILDING CODE, (UNIFORM/INTERNATIONAL) MECHANICAL CODE, AND NFPA. PROVIDE ACCESS SPACES AROUND TERMINAL UNITS AND HEAT PUMPS AS REQUIRED PER MANUFACTURERS' RECOMMENDATIONS.
- COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS, FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUTDOWN.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 318 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C84. CONCRETE WORK SHALL CONFORM TO ACI 318, PART ENTITLED "CONSTRUCTION REQUIREMENTS." COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3000 PSI. TOTAL AIR CONTENT OF EXPOSED CONCRETE SHALL BE BETWEEN 4 AND 7 PERCENT OF VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 INCHES. CONCRETE SHALL BE CURED FOR 7 DAYS AFTER PLACEMENT.
- UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS AND HUMIDISTATS 4'-0" (CENTERLINE) AFF. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
- ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.
- ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
- PROVIDE ALL 90° SQUARE ELBOWS WITH DOUBLE TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUST SHALL BE UNWAVED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1/12 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
- COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
- FIELD ERECTED AND FACTORY ASSEMBLED AIR HANDLING UNIT COILS SHALL BE ARRANGED FOR REMOVAL AND BE PENETRATED WITH DUCTWORK OR PIPING. SUPPORTS: PROVIDE GALVANIZED STRUCTURAL STEEL SUPPORTS FOR ALL COILS (EXCEPT LOWEST COIL) IN BANKS OVER TWO COILS HIGH TO PERMIT INDEPENDENT REMOVAL OF ANY COIL.
- ALL AIR HANDLING UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.
- LOCATE ALL MECHANICAL EQUIPMENT (SINGLE DUCT, DUAL DUCT, VARIABLE VOLUME, CONSTANT VOLUME AND FAN POWERED BOXES, FAN COIL UNITS, CABINET HEATERS, UNIT HEATERS, UNIT VENTILATORS, COLLS, STEAM HUMIDIFIERS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS AND VALVING.
- FINNED TUBE RADIATION ENCLOSURES SHALL BE WALL TO WALL UNLESS NOTED OTHERWISE.
- PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
- UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.
- RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5'-0" (EIT MAXIMUM LENGTH).
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COLLS AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH REQUIRE SERVICE AND/OR INSPECTION.
- PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.
- ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
- SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE EC. THE MC SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH MANUFACTURERS' PRINTED INSTRUCTIONS.
- TERMINATE GAS VENTS FOR UNIT HEATERS, WATER HEATERS, HIGH PRESSURE PARTS WASHER, HIGH PRESSURE CLEANER, AND OTHER GAS APPLIANCES A MINIMUM OF 3'-0" ABOVE ROOF WITH RAIN CAP (EIT) APPLIANCES AND HEIGHT ABOVE ROOF TO MEET CODE REQUIREMENTS.
- SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
- EXTERIOR LOUVERS ARE INDICATED FOR INFORMATION ONLY. DETAILED DESCRIPTIONS ARE PROVIDED IN THE ARCHITECTURAL SPECIFICATIONS.
- EXTERIOR LOUVERS ARE INDICATED FOR INFORMATION ONLY. LOUVER SIZES, LOCATIONS, AND DETAILS SHALL BE COORDINATED WITH OTHER TRADES INVOLVED.
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### SITE UTILITY PLAN GENERAL NOTES:

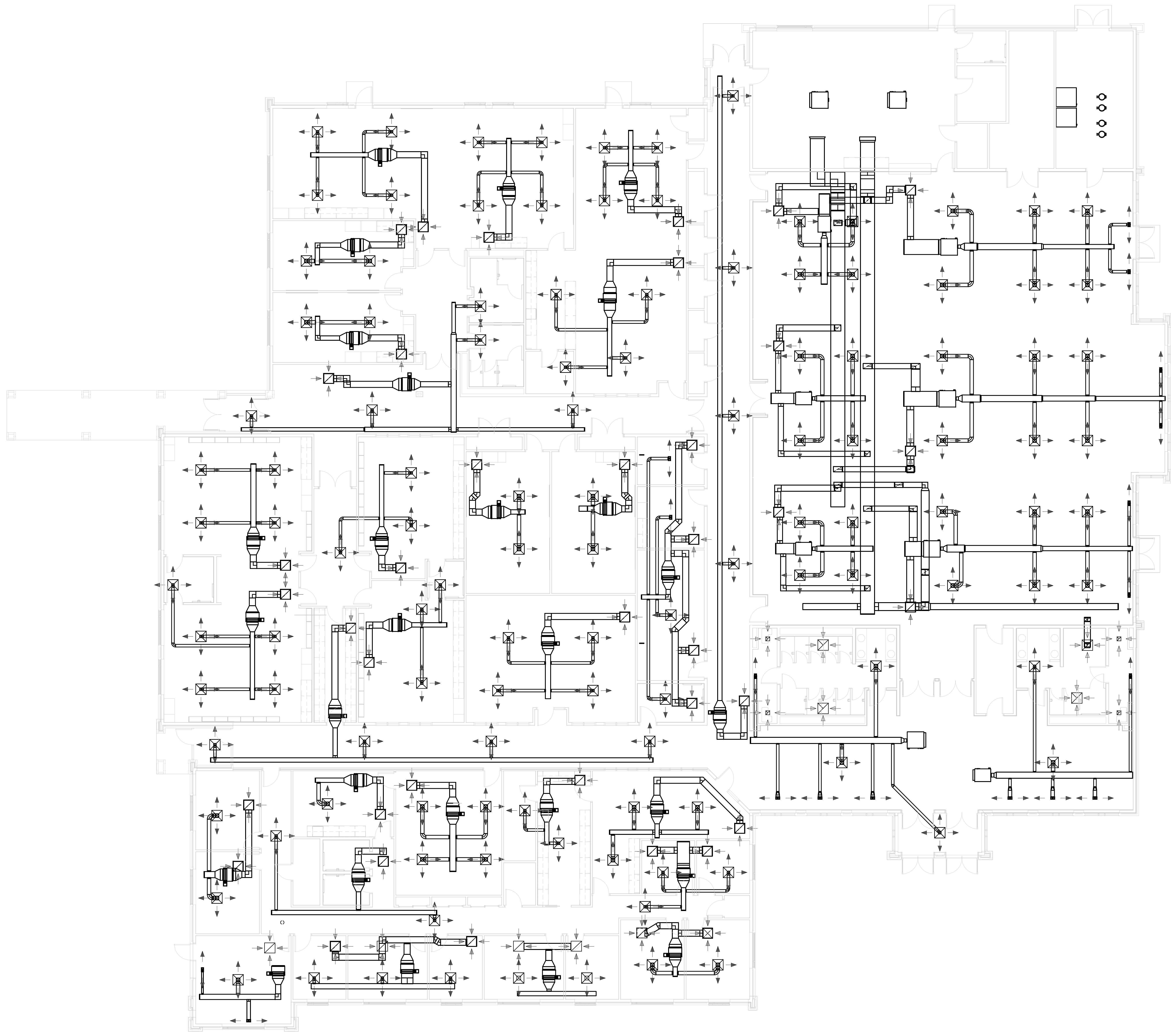
- VERIFY EXACT LOCATION OF EXISTING UTILITIES IN THE FIELD PRIOR TO EXCAVATION. REPORT DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL CONDITIONS PRIOR TO PROCEEDING WITH WORK.
- ANY UTILITY SHUTDOWN SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER PRIOR TO SHUTDOWN.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.

### KITCHEN GENERAL NOTES:

- ALL INTERCONNECTING REFRIGERATION PIPING AND INSULATION FOR WALK-IN COOLER/REFREEZER SHALL BE FURNISHED AND INSTALLED BY FOOD SERVICE EQUIPMENT SUBCONTRACTOR.
- ACCESS PANELS IN HARD SURFACE CEILING ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
- IF PIPE INSULATION OR EQUIPMENT TO REMAIN IS DAMAGED OR APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.
- REMOVE ALL ITEMS SHOWN HATCHED. ALL ITEMS SHOWN HALF TONED ARE EXISTING TO REMAIN.
- CONTRACTOR IS REQUIRED TO VISIT SITE AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING PROCEED.
- COORDINATE DEMOLITION WITH THE WORK OF OTHER TRADES. PROVIDE TEMPORARY UTILITIES AS REQUIRED TO ALLOW THE WORK OF OTHER TRADES TO PROCEED.

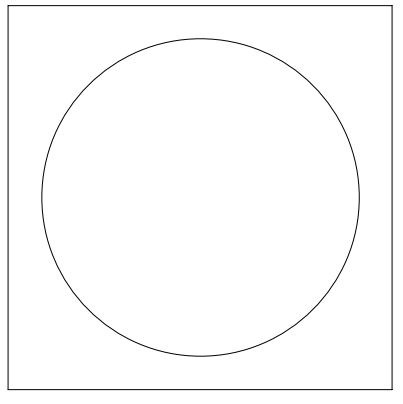
### PIPING GENERAL NOTES:

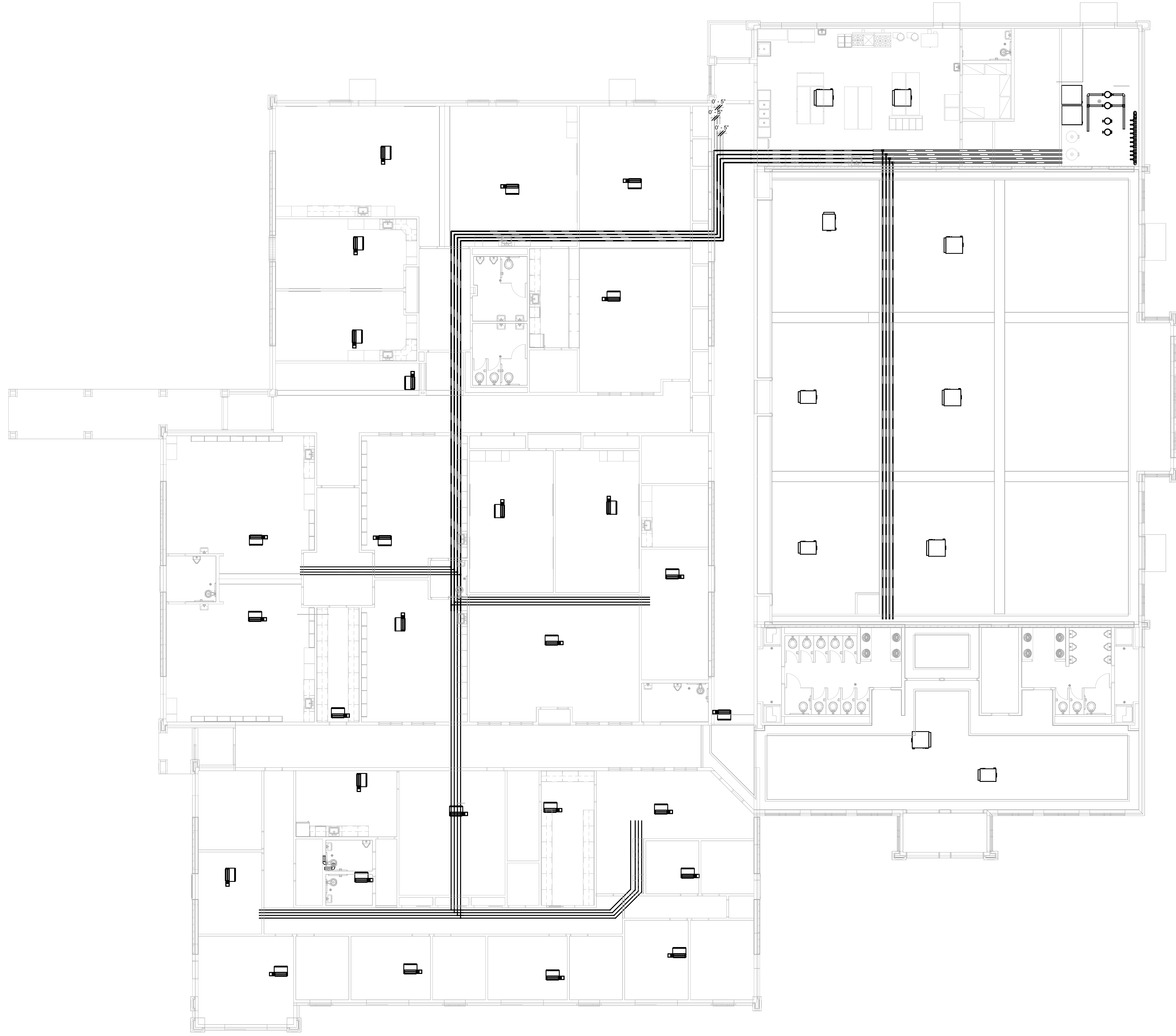
- ALL HWS & HWR BRANCH RUNOUTS TO TERMINAL UNITS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
- SIZE AND ROUTE REFRIGERANT PIPING PER MANUFACTURERS' RECOMMENDATIONS.
- ROUTE ALL HORIZONTAL HVAC PIPING IN MECHANICAL ROOMS AT A MINIMUM OF 7'-0" ABOVE FINISHED FLOOR.
- INSTALL PIPING TO TERMINAL UNIT REPEAT COLLS AND/OR HEAT PUMPS TO PROVIDE EASY ACCESS AND REMOVAL OF REPEAT COIL OR HEAT PUMP. DO NOT ROUTE PIPING UNDER TERMINAL UNIT OR HEAT PUMP.
- PIPING AND EQUIPMENT SHOWN HALF-TONE IS EXISTING TO REMAIN. PIPING AND EQUIPMENT SHOWN FULL-TONE IS NEW.
- SEE SCHEDULES FOR SIZES OF BRANCH RUNOUTS TO EQUIPMENT.
- ACCESS PANELS IN HARD SURFACE CEILING ARE REQUIRED FOR ALL VALVES, TRAPS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
- PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO AND WITHIN 50'-0" OF ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR SUPPORTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
- ELEVATIONS AS SHOWN ON THE DRAWINGS ARE TO THE CENTERLINE OF ALL PRESSURE PIPING AND TO THE INVERT OF ALL GRAVITY PIPING.
- MAINTAIN A MINIMUM OF 3'-0" OF GROUND COVER ABOVE ALL UNDERGROUND HVAC PIPING.
- UNLESS OTHERWISE NOTED, ALL CHILLED WATER AND HEATING WATER PIPING SHALL BE 3/4" SIZE, EIGHT SYSTEM TYPE OR PIPE SIZE TO SUIT PROJECT REQUIREMENTS.
- PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING WATER, CHILLED WATER, AND OTHER CLOSED WATER PIPING SYSTEMS (EIT SYSTEM TYPES TO SUIT PROJECT REQUIREMENTS). ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE LOW POINT OF ALL RISERS AND LOW POINTS.
- UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION IF REQUIRED.
- INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
- ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
- ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
- PROVIDE CHAINHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" AFF. CHAIN SHALL EXTEND TO 7'-0" AFF.
- ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BY-PASSES, AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
- PITCH STEAM PIPING DOWNWARD IN THE DIRECTION OF FLOW 1/4" IN 10'-0" (1" IN 40'-0") MINIMUM. PITCH ALL STEAM RETURN LINES DOWNWARD IN THE DIRECTION OF CONDENSATE FLOW 1/2" PER 10'-0" (1" IN 20'-0") MINIMUM. WHERE LENGTH OF BRANCH LINES ARE LESS THAN 8'-0", PITCH BRANCH LINES TOWARD MAINS 1/2" PER 1'-0" MINIMUM.
- PITCH UP ALL STEAM AND CONDENSATE RUNOUTS TO RISERS AND EQUIPMENT 1/2" PER 1'-0", WHERE THIS PITCH CANNOT BE OBTAINED, RUNOUTS OVER 8'-0" IN LENGTH SHALL BE ONE SIZE LARGER THAN NOTED.
- TAP ALL BRANCH LINES FROM TOP OF STEAM RISERS (45° PREFERRED, 90° ACCEPTABLE).
- PROVIDE AN END OF MAIN DRIP AT EACH RISE IN THE STEAM MAIN. PROVIDE CONDENSATE DRIPS AT THE BOTTOM OF ALL STEAM RISERS, DOWNFED RUNOUTS TO EQUIPMENT, RADIATORS, ETC. AT END OF MAINS AND LOW POINTS, AND AHEAD OF ALL PRESSURE REGULATORS, CONTROL VALVES, ISOLATION VALVES, AND EXPANSION JOINTS.
- ON STRAIGHT STEAM PIPING RUNS WITH NO NATURAL DRAINAGE POINTS, INSTALL DRIP LEGS AT INTERVALS NOT EXCEEDING 200'-0" WHERE PIPE IS PITCHED DOWNWARD IN THE DIRECTION OF STEAM FLOW AND A MAXIMUM OF 100'-0" WHERE THE PIPE IS PITCHED UP. SO THAT CONDENSATE FLOWS TO STEAM FLOW DIRECTION.
- STEAM TRAPS SHALL BE MINIMUM 3/4" SIZE.
- INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
- ALL PIPING SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
- ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING, AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COLLS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.
- SLOPE REFRIGERANT PIPING 1/8" IN THE DIRECTION OF OIL RETURN. LIQUID LINES MAY BE INSTALLED LEVEL.
- INSTALL HORIZONTAL REFRIGERANT HOT GAS DISCHARGE PIPING WITH 1/2" PER 10'-0" DOWNWARD SLOPE AWAY FROM THE COMPRESSOR.
- INSTALL HORIZONTAL REFRIGERANT SUCTION LINES WITH 1/2" PER 10'-0" DOWNWARD SLOPE TO THE COMPRESSOR, WITH NO LONG TRAPS OR DEAD ENDS WHICH MAY CAUSE OIL TO SEPARATE FROM THE SUCTION GAS AND RETURN TO THE COMPRESSOR IN DAMAGING SLAGS.
- PROVIDE LINE SIZE LIQUID INDICATORS IN MAIN LIQUID LINE LEAVING CONDENSER OR RECEIVER. INSTALL MOISTURE-LIQUID INDICATORS IN LIQUID LINES BETWEEN FILTER DRIVERS AND THERMOSTATIC EXPANS



1 1st Floor HVAC  
1/8" = 1'-0"

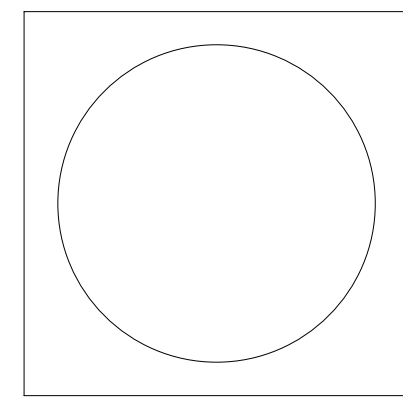
REVISIONS		
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1 1st Floor Piping  
1/8" = 1'-0"

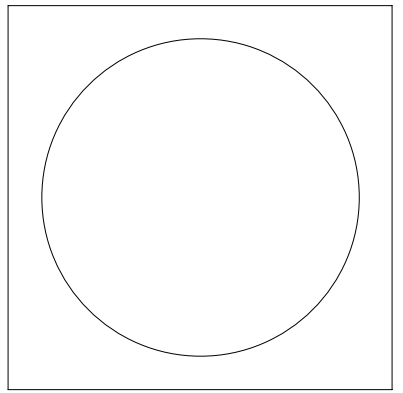
REVISIONS		
no.	description	by date



FAN COIL UNIT SCHEDULE

	PLAN TAG	FC-01	FC-02	FC-03	FC-04	FC-05	FC-06	FC-07	FC-08	FC-09	FC-10	FC-11	FC-12	FC-13	FC-14	FC-15	FC-16	FC-17	FC-18	FC-19	FC-20	FC-21	FC-22	FC-23	FC-24	FC-25	FC-26	FC-27		
GENERAL DATA	MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	
	MODEL NUMBER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	NOMINAL CFM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	TYPE	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL
	STYLE	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD
	OVERALL SIZE (WxHxD)(IN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	OPERATING WEIGHT (LBS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MINIMUM OA (CFM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	REMARKS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	AIRFLOW (CFM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FAN DATA	EXTERNAL SP (IN WG)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MOTOR HP (W)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	VOLTS	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
COOLING DATA	PHASE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	SENSIBLE (MBH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	TOTAL (MBH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	GPM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EWT (°F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	LWT (°F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EAT °F DB / °F WB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MAX WATER PD (FT HEAD)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	RUN OUT SIZE SUPPLY (IN DIA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	RUN OUT SIZE RETURN (IN DIA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HEATING DATA	DRAIN SIZE (IN DIA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	TOTAL (MBH)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	GPM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EWT (°F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	LWT (°F)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	EAT °F DB / °F WB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	WATER PD (FT HEAD)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE SUPPLY (IN DIA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE RETURN (IN DIA)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	KW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOLTS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PHASE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
NO OF CONTROL STEPS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

%%REMARKS%%U:  
 1) PROVIDE SUPPLY AND RETURN PLENUMS WITH DUCT COLLARS.  
 2) BASED ON 44°F EWT AND 56°F LWT.  
 3) BASED ON 200°F EWT AND 180°F LWT.



REV	NO.	DESCRIPTION	BY	DATE

FAN COIL UNIT SCHEDULE (CONTINUED)

	PLAN TAG	FC-28	FC-29	FC-30	FC-31	FC-32	FC-33	FC-34	FC-35	FC-36	FC-37	FC-38
GENERAL DATA	MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER	CARRIER
	MODEL NUMBER	-	-	-	-	-	-	-	-	-	-	-
	NOMINAL CFM	-	-	-	-	-	-	-	-	-	-	-
	TYPE	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL	VERTICAL
	STYLE	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD	CEILING MTD
	OVERALL SIZE (WxHxD)(IN)	-	-	-	-	-	-	-	-	-	-	-
	OPERATING WEIGHT (LBS)	-	-	-	-	-	-	-	-	-	-	-
	MINIMUM OA (CFM)	-	-	-	-	-	-	-	-	-	-	-
	REMARKS	-	-	-	-	-	-	-	-	-	-	-
	AIRFLOW (CFM)	-	-	-	-	-	-	-	-	-	-	-
FAN DATA	EXTERNAL SP (IN WG)	-	-	-	-	-	-	-	-	-	-	
	MOTOR HP (W)	-	-	-	-	-	-	-	-	-	-	
	VOLTS	120	120	120	120	120	120	120	120	120	120	
COOLING DATA	PHASE	1	1	1	1	1	1	1	1	1	1	
	SENSIBLE (MBH)	-	-	-	-	-	-	-	-	-	-	
	TOTAL (MBH)	-	-	-	-	-	-	-	-	-	-	
	GPM	-	-	-	-	-	-	-	-	-	-	
	EWT (°F)	-	-	-	-	-	-	-	-	-	-	
	LWT (°F)	-	-	-	-	-	-	-	-	-	-	
	EAT °F DB / °F WB	-	-	-	-	-	-	-	-	-	-	
	MAX WATER PD (FT HEAD)	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE SUPPLY (IN DIA)	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE RETURN (IN DIA)	-	-	-	-	-	-	-	-	-	-	
HEATING DATA	DRAIN SIZE (IN DIA)	-	-	-	-	-	-	-	-	-	-	
	TOTAL (MBH)	-	-	-	-	-	-	-	-	-	-	
	GPM	-	-	-	-	-	-	-	-	-	-	
	EWT (°F)	-	-	-	-	-	-	-	-	-	-	
	LWT (°F)	-	-	-	-	-	-	-	-	-	-	
	EAT °F DB / °F WB	-	-	-	-	-	-	-	-	-	-	
	WATER PD (FT HEAD)	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE SUPPLY (IN DIA)	-	-	-	-	-	-	-	-	-	-	
	RUN OUT SIZE RETURN (IN DIA)	-	-	-	-	-	-	-	-	-	-	
	KW	-	-	-	-	-	-	-	-	-	-	
VOLTS	-	-	-	-	-	-	-	-	-	-		
PHASE	-	-	-	-	-	-	-	-	-	-		
NO OF CONTROL STEPS	-	-	-	-	-	-	-	-	-	-		

%%REMARKS%%U:  
 1) PROVIDE SUPPLY AND RETURN PLENUMS WITH DUCT COLLARS.  
 2) BASED ON 44°F EWT AND 56°F LWT.  
 3) BASED ON 200°F EWT AND 180°F LWT.

FAN SCHEDULE

	PLAN TAG	XF-1
GENERAL DATA	MANUFACTURER	-
	MODEL NUMBER	-
	LOCATION	-
	SERVES	-
	TYPE	-
	MAX OPERATING WEIGHT (LBS)	-
	ROOF/WALL OPENING SIZE (IN)	-
	REMARKS	-
	AIRFLOW (CFM)	-
	TOTAL SP (IN WG)	-
FAN DATA	DRIVE	-
	CLASS	-
	WHEEL TYPE	-
MOTOR DATA	WHEEL DIAMETER (IN)	-
	MAX FAN BHP	-
	FAN RPM	-
	MAX SONES	-
	HP (W)	-
	VOLTS	-
PHASE	-	
RPM	-	
CONTROL DEVICE	-	

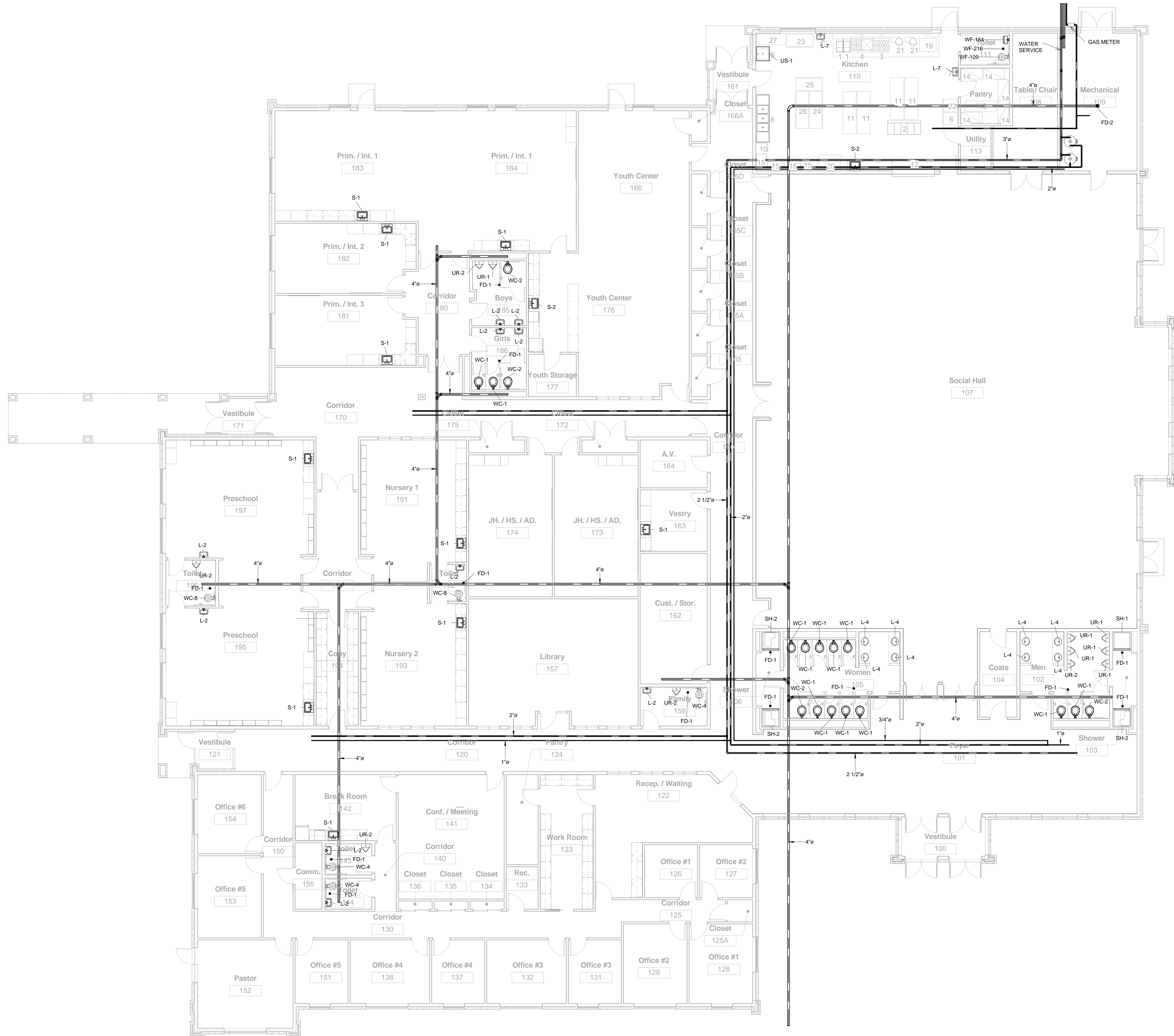
%%REMARKS%%U:  
 1) FAN CURVES SHALL BE SUBMITTED WITH ALL SHOP DRAWINGS.  
 2) PROVIDE FACTORY COMPUTER SELECTION PRINTOUT FOR CONDITION STATED ABOVE.

LOUVER SCHEDULE

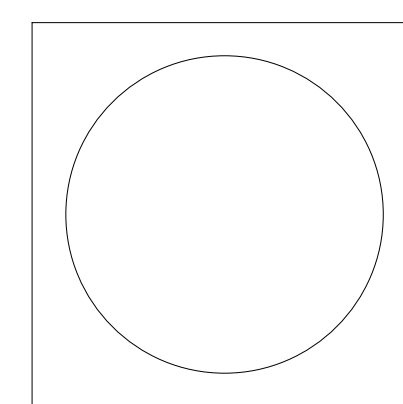
	PLAN TAG	L-1
GENERAL DATA	MANUFACTURER	GREENHECK
	MODEL NUMBER	-
	LOCATION	SEE PLAN
	SERVES	-
	CONSTRUCT. MATERIAL (1)	ALUMINUM
	TYPE	DRAINABLE
	AIRFLOW (CFM)	-
	TOTAL SP (IN WG)	-
	FREE AREA (SQFT)	-



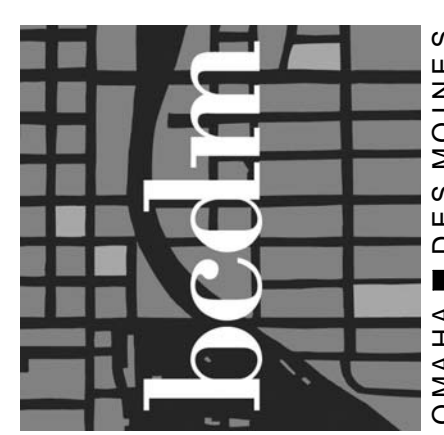




1 1st Floor Plumbing  
1/8" = 1'-0"

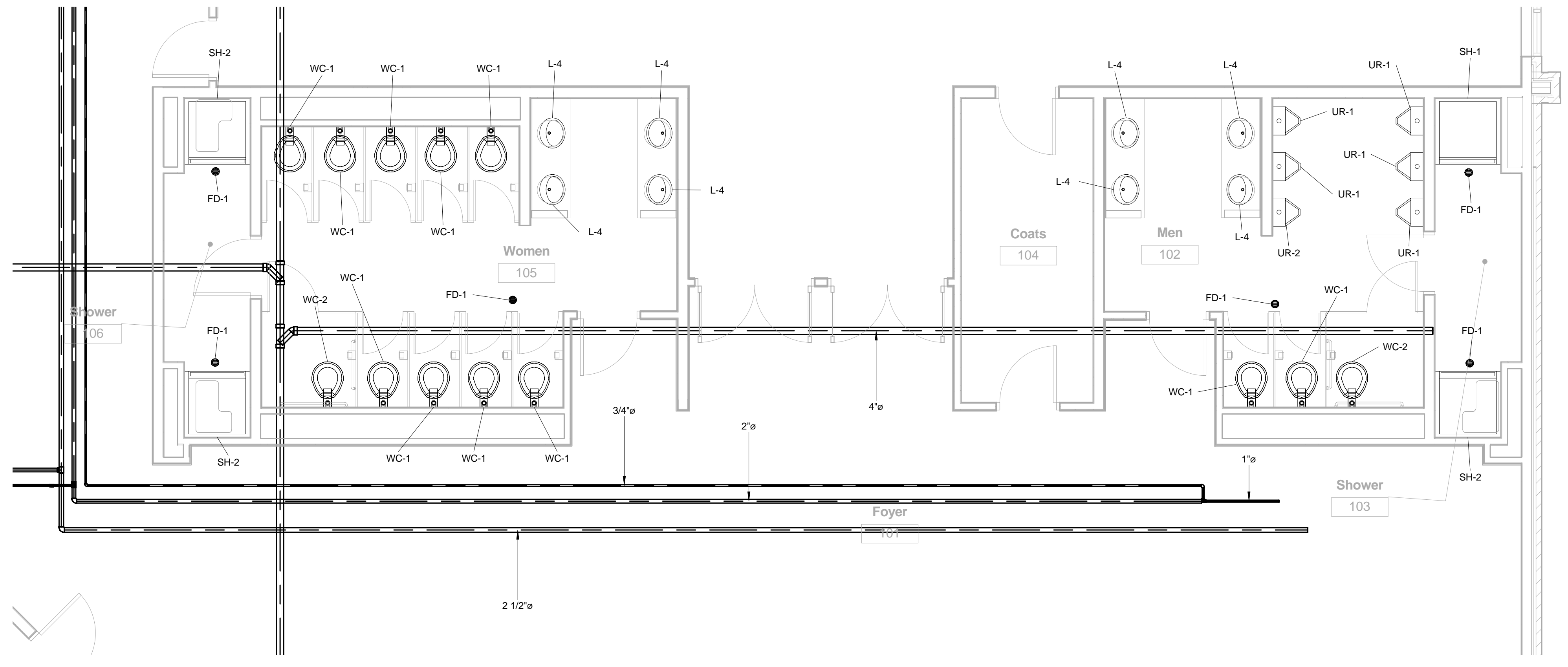


no.	description	by	date

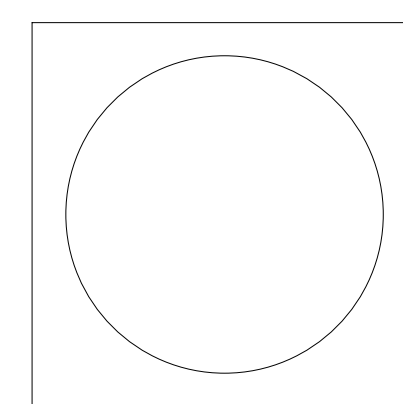


**P1-1** Holy Spirit Catholic Church

4754 SMALL HOUSE ROAD - BOWLING GREEN, KENTUCKY  
BERINGER CIACCIO DENNELL MABREY - ARCHITECTURE, LANDSCAPE ARCHITECTURE, INTERIOR DESIGN, CONSTRUCTION MANAGEMENT



1 1st Floor Plumbing - Enlarged Plan  
1/4" = 1'-0"



REVISIONS		
no.	description	by

**PUMP SCHEDULE**

GENERAL DATA	PLAN TAG	P-1				
	MANUFACTURER	-				
	MODEL NUMBER	-				
	LOCATION	-				
	SERVES	-				
	TYPE	-				
	MAX OPERATING WEIGHT (LBS)	-				
PUMP DATA	FLUID	-				
	REMARKS	-				
	FLOW (GPM)	-				
	HEAD (FT)	-				
	SHUT-OFF HEAD (FT)	-				
	RPM	-				
	NPSH	-				
MOTOR DATA	SUCTION SIZE (IN DIA)	-				
	DISCHARGE SIZE (IN DIA)	-				
	MAX IMPELLER DIA (IN)	-				
	HP (W)	-				
	VOLTS	-				
PHASE	-					
TYPE	-					
CONTROL DEVICE	-					

- %%REMARKS%%:
- 1) PROVIDE WITH CAST IRON CASING, BRONZE IMPELLER, AND CARBON STEEL SHAFT.
  - 2) PROVIDE MOTOR FOR VFD.
  - 3) PUMP SELECTED WITH 30% PROPYLENE GLYCOL MIXTURE.
  - 4) XXX CONNECTION WITH XXX FRAME.
  - 5) PROVIDE WITH INVERTER DUTY TYPE MOTOR.
  - 6) PROVIDE WITH 25' CORD AND PLUG.

**EXPANSION TANK SCHEDULE**

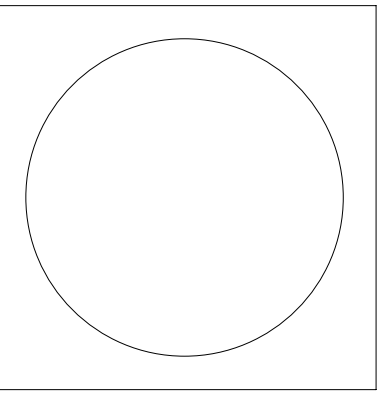
GENERAL DATA	PLAN TAG	ET-1				
	MANUFACTURER	-				
	MODEL NUMBER	-				
	LOCATION	-				
	SERVES	-				
	TYPE	-				
	CONFIGURATION	-				
	OPERATING WEIGHT (LBS)	-				
	MAX SIZE (DIAxL)	-				
	MIN ACCEPTANCE VOL (GAL)	-				
	PRV SETTING (Psig)	-				
	RV SETTING (Psig)	-				
	MIN SYSTEM TEMP (°F)	-				
	MAX SYSTEM TEMP (°F)	-				
	FILL CONNECTION SIZE (IN DIA)	-				
	SYSTEM CONNECTION SIZE (IN)	-				
REMARKS	-					

- %%REMARKS%%:
- 1) VERTICAL, FLOOR MOUNTED.
  - 2) XX-X GALLON TANK VOLUME. DIAPHRAGM TYPE.
  - 3) XX-X GALLON TANK VOLUME. BLADDER TYPE.

**WATER HEATER SCHEDULE (GAS)**

GENERAL DATA	PLAN TAG	GWH-1
	MANUFACTURER	RHEEM / RUUD
	MODEL NUMBER	G91-200
	LOCATION	A150
	SERVES	DOM. HW
	MAX OPERATING WEIGHT (LBS)	1500
	MAXIMUM SIZE (DIAxH)(IN)	27x77
	STORAGE CAPACITY (GAL)	90
	MAX CONTINUOUS FLOW (GPM)	-
	RECOVERY (GPH @ 100°F RISE)	258
	MIN EFFICIENCY (%)	80
	FLUE SIZE (IN DIA)	6
	REMARKS	(1)
	FUEL DATA	FUEL
DATA	PRESSURE (psig)	-
ELECTRICAL DATA	INPUT (MBH)	199.9
	VOLTS	120
	PHASE	1

- %%REMARKS%%:
- 1) WATER HEATER SHALL MEET ASHRAE REQUIREMENTS FOR ENERGY EFFICIENCY.



REVISIONS	
no.	description
	by
	date