

		MECHANICAL KEYNOTES #
	#	DESCRIPTION
JSER	1	ROUTE HVAC CONDENSER REFRIGERANT LINES UP IN WALL TO ABOVE CEILING. FIELD COORDINATE EXACT LOCATION. REFERENCE MANUFACTURER INSTALLATION INSTRUCTIONS FOR LINE LENGTHS.
	2	GROUND MOUNTED CONDENSING UNIT. INTERLOCK WIT INTERIOR UNIT. MOUNT UNIT ON CONCRETE PAD WITH VIBRATION ISOLATORS PER MANUFACTURER INSTALLATION INSTRUCTIONS. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR.
	3	NEW ELECTRIC UNIT HEATER. MOUNT AT 16'-0" A.F.F. TO BOTTOM OF UNIT. REF STRUCTURAL DRAWINGS AS REQUIRED. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
	4	INSTALL WALL EXHAUST/SUPPLY FAN AT A MINIMUM OF 15'-0" AFF. GENERAL CONTRACTOR TO PROVIDE ALL STRUCTURAL SUPPORT REQUIRED FOR EXHAUST/SUPF FAN IN WALL. FLASH AND SEAL OPENING WATERTIGHT. INSTALL PER MANUFACTURER INSTALLATION INSTRUCTIONS.
		S NOTE: NTRACTOR TO PROVIDE A STANDARD ELECTRONIC MMABLE THERMOSTAT FOR COMMISSIONING OF HVAC
		AL CONTRACTOR WILL PROVIDE A WALL-MOUNTED, ANG BOXES FOR MOUNTING SENSORS.
		NTRACTOR WILL FURNISH AND INSTALL SENSOR WIRE, STATS, AND MAKE FINAL WIRING CONNECTIONS.
	CONTRAC	ES TO CONFIRM LOCATIONS ON SITE WITH GENERAL TOR, MODULAR WALL SYSTEM SUPPLIER AND WALL- EQUIPMENT.
	INTERLOC	K EXHAUST AND SUPPLY FANS AS SPECIFIED. PROVIDE

	1.	NOTES APPLY TO ALL MECHANICAL SHEETS.
P IN CT ATION K WITH VITH	2.	EACH CONTRACTOR IS RESPONSIBLE FOR HAVING THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS AS THEY RELATE TO THIS WORK. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED DUE TO LACK OF THIS KNOWLEDGE.
.F. TO S M OF .L SUPPLY GHT.	3.	INSTALL FLUES A MINIMUM OF 36" FROM ROOF EDGE AND/OR PARAPET WALLS. INSTALL FLUES AND EXHAUST FANS A MINIMUM OF 10'-0" FROM OUTSIDE AIR INTAKE OF HVAC EQUIPMENT. INSTALL EXHAUST FANS AND INTAKE VENTILATORS A MINIMUM OF 10'-0" FROM ROOF EDGE OR A MINIMUM OF 5'-0" FROM PARAPET WALLS THAT ARE AT LEAST 42" HIGH WHEN LOCATED ON THE ROOF.
	4.	COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL

PANELS, LIGHTING FIXTURES, ETC.

INTERLOCK EXHAUST AND SUPPLY FANS AS SPECIFIED. PROVIDE CONTROL WIRES AS REQUIRED.

8. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE REQUIREMENTS.

9. COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND ROOF PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. 10. DUCTWORK IDENTIFICATION AND INSTALLATION TO ADHERE TO GOVERNING CODES. INSTALL

> BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED. 11. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT. DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF DECK.

12. COORDINATE LOCATION OF EQUIPMENT 5. AVOID DAMAGING SURFACES AND EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT FOR NEW INSTALLATION DURING WORK. REPAIR ACCESS PANELS/DOORS TO ENABLE SERVICE OF DAMAGE CAUSED DURING CONSTRUCTION AT EQUIPMENT.

GRILLES WITH THE SUPPLIER TO MEET THE

NO EXTRA COST TO THE OWNER. 13. SEAL PENETRATIONS THROUGH THE BUILDING 6. MECHANICAL CONTRACTOR SHALL PROVIDE ALL COMPONENTS IN ACCORDANCE WITH THE MATERIALS AND ALL MECHANICAL EQUIPMENT PENETRATIONS THROUGH FIRE RATED FOR A COMPLETE INSTALLATION IN ALL RESPECTS READY FOR INTENDED USE AND IN STRICT ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS. CODES AND MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE

NEW MECHANICAL EQUIPMENT, DUCTWORK AND CEILING, WALL AND DUCT INSTALLATION PIPING ARE SHOWN TO APPROXIMATE REQUIREMENTS. LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION 15. ADJUST LOCATION OF CEILING DIFFUSERS, AND MAKE ADJUSTMENTS AS REQUIRED TO FIT REGISTERS AND GRILLES AS REQUIRED TO THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL LIGHTING LOCATIONS. **EQUIPMENT LOCATIONS MEET** MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.

SHOWN ON THE PLANS, VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INTENDED FOR DUCTWORK AND PIPING MEET

OTHERWISE INDICATED ON PLANS, INSTALL WIRING IN CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. 18. ALL ACTUATORS ON MOTORIZED DAMPERS, SMOKE DAMPERS, AND FIRE-SMOKE DAMPERS ARE TO BE LOW VOLTAGE UNLESS OTHERWISE

19. COORDINATE THE LOCATION AND ELEVATION OF DUCTWORK AND EQUIPMENT PARALLEL TO BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED BY OTHERS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-

MECHANICAL GENERAL NOTES

MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION. 20. ALL FLEXIBLE DUCT SHALL BE INSTALLED FULLY EXTENDED, FREE OF KINKS, SAME SIZE AS DIFFUSER NECK AND NO LONGER THAT 5'-0" UNLESS NOTED OTHERWISE. DUCT TAPS, BRANCH TAKE-OFFS AND BRANCH DUCTS TO DIFFUSERS SHALL BE SAME SIZE AS DIFFUSER

CONTRACT SPECIFICATIONS. FIREPROOF PROHIBITTED. COMPONENTS IN ACCORDANCE WITH U.L. 21. PROVIDE RECTANGULAR/ROUND BRANCH DUCT TAKE-OFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH 14. COORDINATE THE EXACT MOUNTING SIZE AND DUCT CONNECTIONS AND TAKE-OFFS TO FRAME TYPE OF DIFFUSERS, REGISTERS AND INDIVIDUAL DIFFUSERS, REGISTERS AND

GRILLES.

22. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.

NECKS. FLEXIBLE DUCT SHALL NOT BE

CEILING; EXPOSED FLEXIBLE DUCT IS

INSTALLED IN ANY AREA WITHOUT A FINISHED

23. SPRINKLER HEAD AND LIGHTING FIXTURE ACCOMMODATE FINAL CEILING GRID AND LOCATIONS TAKE PRECEDENCE OVER DIFFUSER LOCATIONS. COORDINATE WITH ELECTRICAL 16. DUCTWORK CROSSING FIRE RATED WALLS OR CONTRACTOR AND FIRE PROTECTION OTHER FIRE RATED ASSEMBLIES SHALL BE CONTRACTOR. MINIMUM 26 GAUGE SHEET METAL.

17. LOCATE AND SET THERMOSTATS AT LOCATIONS 24. INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED DUCTWORK AND HVAC UNITS FROM EXPOSURE INSTALLATION. INSTALL DEVICES 48" AFF UNLESS TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS GOTTEN WET AT ANY TIME DURING CONSTRUCTION, DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY

TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST.

25. COORDINATE CONDENSATE LINES WITH

CONTRACT PLUMBING DRAWINGS. WALL-MOUNTED DEVICES WITH PRESENTATION 26. MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL LOW VOLTAGE WIRING FOR HVAC SYSTEM, AND COMPLETE ALL LINE VOLTAGE CONTROL WIRING AS RELATED TO THE HVAC SYSTEMS.

> 27. ALL MAIN AND BRANCH DUCTWORK SHALL BE GALVANIZED STEEL AS RECOMMENDED IN THE LATEST EDITION OF SMACNA MANUAL. DUCTWORK SHALL BE INSTALLED PER SMACNA STANDARDS.

28. PROVIDE A MANUAL BALANCING DAMPER IN EACH BRANCH DUCT TAKE-OFF FROM MAIN SUPPLY, RETURN AND EXHAUST AIR DUCTS.

29. PROVIDE TESTING AND BALANCING OF THE MECHANICAL AIR SYSTEMS TO MEET DESIGN INDICATED. TESTING AND BALANCING WORK SHALL BE DONE PER AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCING. PROVIDE A COPY OF REPORT TO LOCAL AHJ AS REQUIRED. MECHANICAL CONTRACTOR SHALL FIELD COORDINATE SYSTEM ADJUSTMENTS AS REQUIRED BY TESTING FIRM. REPLACE FILTERS ON NEW HVAC EQUIPMENT NO MORE THAN ONE DAY PRIOR TO STARTING TEST & BALANCE PROCEDURES.

30. GUARANTEE AGAINST DEFECTIVE WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL PAYMENT. GUARANTEE INCLUDES ALL LABOR AND

31. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC. 32. SHOP DRAWINGS SHALL BE SUBMITTED TO AND

APPROVED BY THE ARCHITECT PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. 33. ELECTRICAL CONTRACTOR TO PROVIDE ALL

HIGH VOLTAGE ELECTRICAL WIRING, CONDUIT, DISCONNECT SWITCHES, FUSES, ECT. TO EQUIPMENT. ALL FINAL ELECTRICAL CONNECTIONS ARE BY ELECTRICAL CONTRACTOR.

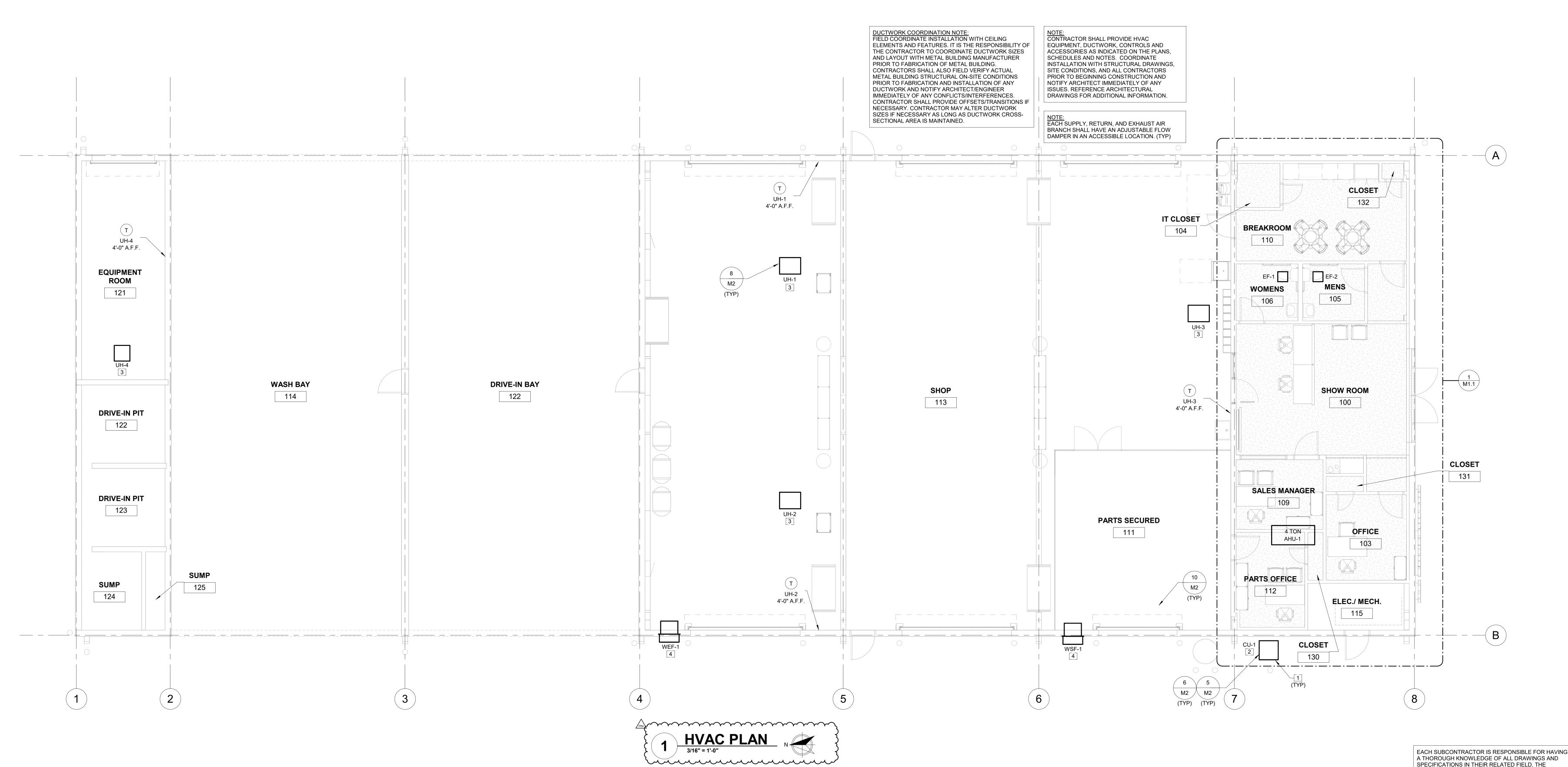
34. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SPOTTING AND COORDINATING INSTALLATION OF ROOF PENETRATIONS WITH THE ROOFING CONTRACTOR.

35. IF HVAC EQUIPMENT IS INSTALLED BEFORE ROOFING IS COMPLETED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE WHICH OCCURS DURING THE ROOFING PROCESS, INCLUDING TAR ON COILS.

36. AIR HANDLER UNITS SHALL BE INSTALLED WITH AN AUXILIARY CONDENSATE DRAIN PAN UNDER THE UNIT. PROVIDE AN ELECTRONIC WATER LEVEL DETECTOR WIRED TO SHUTDOWN THE UNIT UPON DETECTION IN SECONDARY DRAIN

37. LOCATION OF REFRIGERATION CONDENSERS TO BE FIELD COORDINATED TO MINIMIZE REFRIGERANT LINE LENGTH. SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.

38. PROVIDE SEISMIC BRACING BASED ON APPROPRIATE SEISMIC ZONE REQUIREMENTS PER SMACNA PUBLISHED SEISMIC DETAILS, LOCAL AND NATIONAL CODES. CONTRACTOR'S RESPONSIBLITY INCLUDES STRUCTURAL ENGINEER'S CERTIFICATION ON DETAILS SUBMITTED FOR PERMITTING.



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MECHANICAL PLAN

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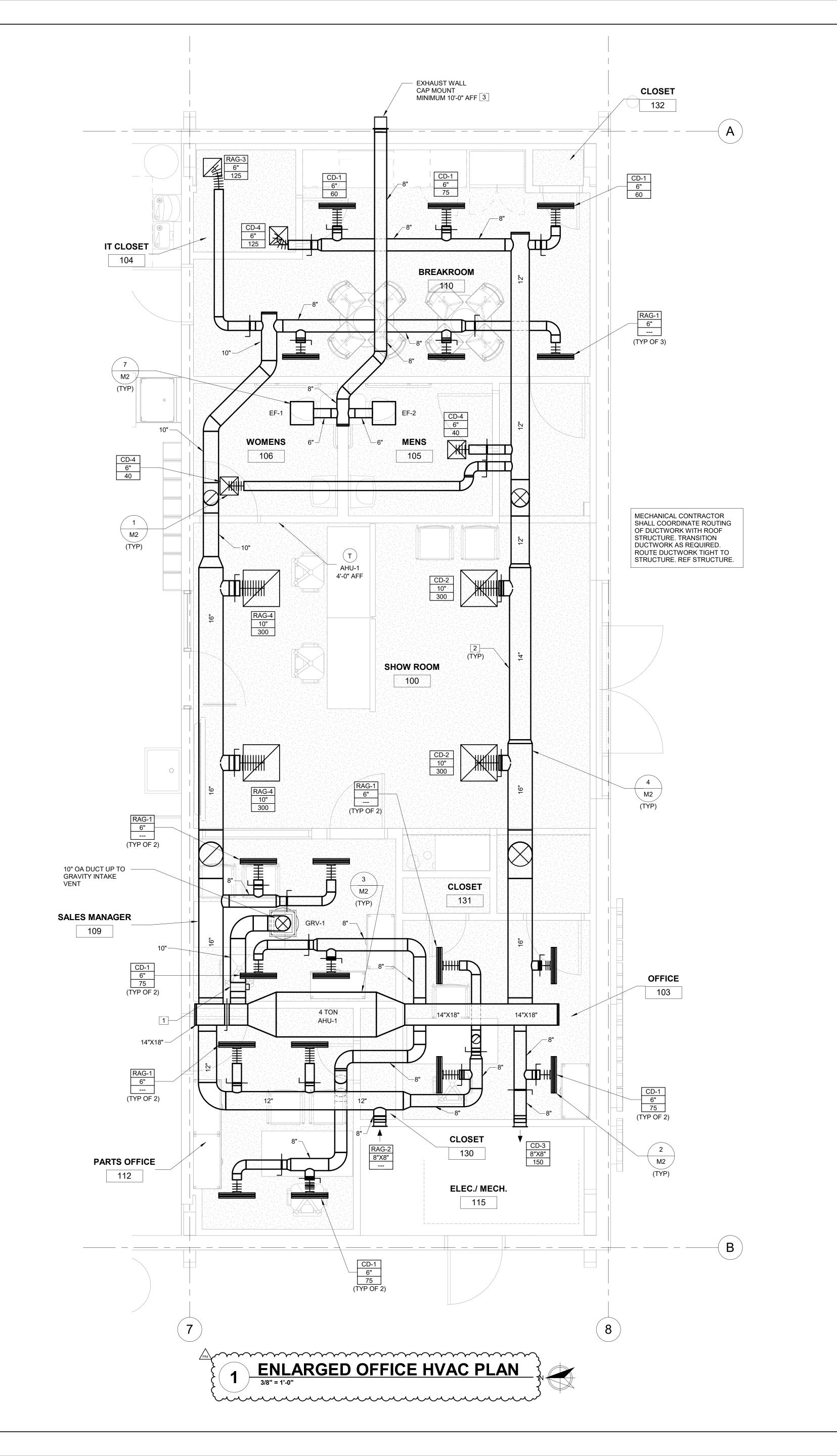
FAILURE TO ACQUAINT THEMSELF WITH THIS

OF PERFORMING THE WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED

KNOWLEDGE.

BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS

KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY



	MECHANICAL KEYNOTES	#
#	DESCRIPTION	
1	INTERLOCK MOTORIZED DAMPER WITH A CONTROLLER.	Н
2	FIELD COORDINATE EXACT LOCATION WE MAIN TRUNK DUCT CAN BE RUN TO CLEAR STRUCTURAL MAIN FRAME BEAMS. ROUT DUCTWORK AS HIGH AS POSSIBLE. FIELD COORDINATE ROUTING WITH ELECTRICAL FIRE PROTECTION CONTRACTORS.	R E)
3	EXHAUST DUCT OUT THRU WALL. PROVID WALL CAP EQUAL TO GREENHECK WC. SI OPENING WATER TIGHT.	

0.12	WING WATER TIGHT.
ME	CHANICAL SYMBOLS
18/12	RECTANGULAR DUCT 18" WIDE BY 12" DEEP (INSIDE CLEAR DIMENSIONS)
12"	12" DIAMETER ROUND DUCT (INSIDE CLEAR DIMENSIONS)
	SUPPLY DUCT IN SECTION
	RETURN OR EXHAUST DUCT IN SECTION
7373737	ELBOW WITH TURNING VANES
John John Charles	TEE WITH TURNING VANES
	ROUND (OR OVAL) ELBOW
	SUPPLY AIR DIFFUSER WITH ROUND SUPPLY DUCT
	RETURN OR EXHAUST AIR DIFFUSER WITH ROUND DUCT
< □	SUPPLY AIR DIFFUSER (SIDEWALL)
$\longrightarrow $	RETURN OR EXHAUST AIR DIFFUSER (SIDEWALL)
MARK SIZE CFM	DIFFUSER OR GRILLE TYPE NECK SIZE CFM
T	THERMOSTAT
(c)	CO2 SENSOR
H	HUMIDISTAT
(8)	TEMPERATURE SENSOR
TS	DUCT DETECTOR REMOTE TEST STATION
	BALANCE DAMPER
CD	CONDENSATE PIPING (CD)
R	REFRIGERANT PIPING

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+engineering

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ENLARGED MECHANICAL PLANS

EACH SUBCONTRACTOR IS RESPONSIBLE FOR HAVING A THOROUGH KNOWLEDGE OF ALL DRAWINGS AND SPECIFICATIONS IN THEIR RELATED FIELD. THE FAILURE TO ACQUAINT THEMSELF WITH THIS KNOWLEDGE DOES NOT RELIEVE THE RESPONSIBILITY OF PERFORMING THE WORK PROPERLY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED BECAUSE OF CONDITIONS THAT OCCUR DUE TO FAILURE TO FAMILIARIZE WORKERS WITH THIS

KNOWLEDGE.

M1.1

MECHANICAL SPECIFICATIONS

<u>HVAC SPECIFICATIONS</u>
DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS APPLY TO THIS

ALL MECHANICAL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE APPLICABLE MECHANICAL CODE WITH LOCAL AMENDMENTS.

HVAC WORK SHALL BE AS INDICATED ON THE PLANS AND AS HEREIN SPECIFIED. THE WORK SHALL CONSIST OF PROVIDING COMPLETE OPERATIONAL HVAC SYSTEMS AS INDICATED ON THE DRAWINGS. THE SYSTEM SHALL BE TESTED AND BALANCED. CAPACITIES SHALL BE AS SHOWN ON THE DRAWINGS. ADJUSTMENTS AS REQUIRED SHALL BE MADE BY THE CONTRACTOR TO INSTALL THE WORK WITHIN THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND TO PROVIDE AN ACCEPTABLE SYSTEM IN ACCORDANCE WITH STATE CODES, LOCAL CODES, ASHRAE, AND SMACNA RECOMMENDATIONS.

WHENEVER A MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT IS IDENTIFIED ON THE DRAWINGS BY REFERENCE TO MANUFACTURERS OR VENDORS NAMES, TRADE NAMES, CATALOG NUMBERS, OR THE LIKE, IT IS SO IDENTIFIED FOR THE PURPOSE OF ESTABLISHING A STANDARD, AND ANY MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT OF OTHER MANUFACTURER'S OR VENDORS WHICH WILL PERFORM ADEQUATELY THE DUTIES IMPOSED BY THE GENERAL DESIGN WILL BE CONSIDERED EQUALLY ACCEPTABLE PROVIDED THE MATERIAL, ARTICLE, OR PIECE OF EQUIPMENT SO PROPOSED IS OF EQUAL SUBSTANCE, APPEARANCE, AND FUNCTION.

DUCTWORK SHALL BE GALVANIZED SHEET METAL FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA RECOMMENDATIONS. ALL SQUARE ELBOWS SHALL INCLUDE SINGLE THICKNESS TURNING VANES. FIBERGLASS DUCTBOARD SHALL NOT BE USED AND WILL NOT BE ACCEPTED.

DUCTWORK SHALL BE INSULATED AS FOLLOWS:

EXTERIOR RECTANGULAR DUCTWORK
ALL EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL BE INTERNALLY LINED (USE CERTAINTEED-150 2" LINER WITH R-VALUE OF 8) TO 12" MINIMUM INSIDE. INTERIOR SHOW ROOM DUCTWORK (EXPOSED IN CONDITIONED AREA) THE FIRST 4' OF INTERIOR RECTANGULAR SUPPLY AND RETURN DUCTWORK EXPOSED IN THE SHOW ROOM AREA SHALL BE PROVIDED WITH 1" LINER. DUCTWORK SHALL TRANSITION TO DOUBLE WALL SPIRAL DUCT AT STRUCTURE EQUAL TO UNITED MCGILL

ACOUSTIC-K27. ALL CONCEALED DUCTWORK (RECTANGULAR OR SPIRAL) ALL CONCEALED DUCTWORK (RECTANGULAR OR SPIRAL) RUN ABOVE THE CEILING SHALL

BE WRAPPED WITH 2" FIBERGLASS INSULATION (R-VALUE OF 8). INTERIOR DUCTWORK (EXPOSED IN UNCONDITIONED AREA)
ALL INTERIOR SUPPLY AND RETURN DUCTWORK SHALL BE INTERNALLY LINED (USE

CERTAINTEED-150 2" LINER WITH R-VALUE OF 8). INTERIOR DUCTWORK (EXPOSED IN CONDITIONED AREA)
THE FIRST 4' OF INTERIOR SUPPLY AND RETURN DUCTWORK EXPOSED IN THE

CONDITIONED AREA SHALL BE PROVIDED WITH 1" LINER.

INTERNAL INSULATION SHALL BE MINIMUM 1" THICK 1-1/2" PCF FIBERGLASS, NEOPRENE COATED, AND ADHERED WITH AN APPROVED ADHESIVE WITH 100% COVERAGE AND STICK CLIPS ON 12" CENTERS. INTERNALLY LINED INSULATION SHALL MEET BACTERIOLOGICAL STANDARD ASTM C 665. SHEET METAL SIZES SHALL BE INCREASED ACCORDINGLY TO ALLOW FOR DUCT LINER.

ALL TAKE-OFF FITTINGS SHALL HAVE EXTRACTORS AND DAMPERS. STAINLESS STEEL CLAMPS SHALL BE USED FOR ALL FLEXIBLE CONNECTIONS. FLEXIBLE DUCTWORK SHALL BE EXTERNALLY INSULATED AND CONFORM TO UL 181.

EQUIPMENT:

ALL AIR HANDLING EQUIPMENT, DIFFUSERS, GRILLES, REGISTERS, FANS, REFRIGERATION UNITS, ETC. SHALL BE PROVIDED AS SCHEDULED ON THE DRAWINGS. CONTROLS SHALL BE PROVIDED AS REQUIRED AND DESCRIBED ON THE DRAWINGS AND IN COMPLIANCE WITH LOCAL ENERGY CODES. ALL CONTROL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH NEC REQUIREMENTS. ALL RELAYS, INTERLOCKS, ETC. SHALL BE PROVIDED AS REQUIRED. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UP TO AND INCLUDING FINAL CONNECTION. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL STARTERS, DISCONNECTS, AND OTHER DEVICES AS REQUIRED BY CODE UNLESS INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL MOUNT ALL DEVICES, ETC., AND THE ELECTRICAL CONTRACTOR SHALL WIRE THROUGH THEM AS REQUIRED. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NEC. REFRIGERANT PIPING WHERE REQUIRED SHALL BE OF THE PRECHARGED TYPE AS SUPPLIED BY THE REFRIGERATION EQUIPMENT MANUFACTURER, PROPERLY SIZED AND INSULATED OR FIELD FABRICATED AT THE CONTRACTOR'S OPTION. FIELD FABRICATED REFRIGERANT PIPING SHALL BE TYPE "L" A.R.I. COPPER, SOLDERED WITH 95/5 SOLDER, INSULATED WITH 1" ARMAFLEX AND WEATHERPROOFED. PIPING SHALL BE ARRANGED AND PIPED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND SHALL INCLUDE SIGHT GLASSES, SERVICE VALVES, AND FILTER DRYERS WITH BY-PASS WHEN INDICATED OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER FOR PROPER EQUIPMENT OPERATION. ALL PIPING ARRANGEMENTS SHALL BE APPROVED BY BOTH THE EQUIPMENT MANUFACTURER AND THE ENGINEER PRIOR TO INSTALLATION.

AIR AS INDICATED. CHARGE REFRIGERATION EQUIPMENT. PROVIDE CLEAN FILTERS. START SYSTEMS, AND INSTRUCT THE OWNER IN OPERATION OF THE SYSTEM AFTER ALL TEST AND BALANCING HAS BEEN ACCOMPLISHED. ALL LEAKS OBSERVED IN THE SYSTEM SHALL BE REPAIRED BY EITHER REPLACING OR REPAIRING THE DEFECTIVE MATERIAL OR EQUIPMENT IN A MANNER APPROVED BY THE ENGINEER. THE ENTIRE HVAC SYSTEM SHALL BE UNCONDITIONALLY GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. ALL DEFECTIVE EQUIPMENT AND/OR MATERIAL SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL REFRIGERATION COMPRESSORS SHALL HAVE AN EXTENDED WARRANTY OF FOUR ADDITIONAL YEARS. ALL GUARANTEES SHALL BE WRITTEN, DATED, AND FORWARDED TO THE OWNER. EQUIPMENT SHALL BE PROVIDED WITH ISOLATORS, FLEXIBLE CONNECTORS AT EQUIPMENT CONNECTIONS AND INSULATED DRAIN LINES PIPED TO FLOOR DRAINS, HUB DRAINS, OR OTHER APPROVED DRAIN POINTS.

THE CONTRACTOR SHALL TEST ALL DUCT AND PIPING SYSTEMS FOR LEAKAGE, BALANCE

PIPE AND FITTINGS SHALL BE BLACK STEEL WITH MALLEABLE IRON FITTINGS UP THROUGH

2" I.P.S. AND STEEL WELDING FITTINGS 2-1/2" I.P.S. AND ABOVE. DIELECTRIC COUPLINGS OR UNIONS SHALL BE UTILIZED WHEN PIPING OF DISSIMILAR METAL IS CONNECTED.

GAS PIPING SYSTEM SHALL BE INSTALLED TO THE REQUIREMENTS OF THE AGA PAMPHLET "INSTALLATION OF GAS APPLIANCES AND GAS PIPING" AND NFPA STANDARD NO. 54. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS AND PAY ALL FEES WITH THE "LOCAL" GAS COMPANY FOR THE INSTALLATION OF THE GAS METER, GAS SERVICE, AND ITS ACCESSORIES.

GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN NFPA NO. 54. ANY OTHER TESTS AS REQUIRED BY THE LOCAL BUILDING INSPECTION DEPARTMENT OR GAS COMPANY SHALL ALSO BE PERFORMED. PAINT GAS PIPING WITH RUST RESISTANT PAINT.

SPLIT SYSTEM EQUIPMENT SCHEDULE

										_		_											ı
REFERENCE FAN COIL SELECTION										CONDENSER SELECTION					ELECTRICAL								
TAG	MANUFACTURER	AREA SERVED	GAS FURNACE MODEL	EVAPORATOR COIL MODEL	NOMINAL TONS	AIR FLOW (CFM)	FAN HP	OUTSIDE AIR FLOW (CFM)	COOLING CAPACITY (BTU/HR)	SEER	HEATING INPUT	HEATING OUTPUT (BTU/HR)	OPERATING WEIGHT (LBS)	MODEL	OPERATING WEIGHT (LBS)	FAN VOLTS		SELEC		CONDENSI VOLTS PH			REMARKS
AHU-1	YORK	SHOW ROOM AREA	JHETB48GBCS2N1	C48C	4	1,600	0.625	270	47,500	14.3	(KW)	24,600	201	YH2E48B21S	220	208	1	50	60	208 1	26.1	45	A,B,C,D,E,F
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GENERAL INFORMATION (ALL UNITS): 1. UNITS FURNISHED BY THE MECHANICAL CONTRACTOR. INSTALLATION AND STARTUP BY MECHANICAL CONTRACTOR. 2. 14.3 SEER2 MINIMUM UNITS WITH R-410A REFRIGERANT.

3. PROVIDE SINGLE POINT POWER CONNECTION KIT FOR EACH AHU AND ASSOCIATED ELECTRICAL HEATING COIL 4. ELECTRICAL CONTRACTOR TO PROVIDE UNITS WITH FIELD MOUNTED AND WIRED DISCONNECT FOR SINGLE-POINT ELECTRICAL CONNECTION. REF ELECTRICAL.

5. PROVIDE ELECTRONIC PROGRAMMABLE THERMOSTAT AT LOCATIONS SHOWN.

6. PRIMARY CONDENSATE SHALL BE TRAPPED AND ROUTED AS SHOWN ON PLANS. 7. PROVIDE ONE YEAR COMPLETE PARTS AND LABOR WARRANTY.

8. PROVIDE ADDITIONAL FIVE YEAR WARRANTY COVERING COMPRESSORS. 9. PROVIDE OUTDOOR CONDENSOR UNITS WITH RUBEER ISOLATOR KIT.

10. MOUNT OUTDOOR CONDENSOR UNIT ON 4" CONCRETE PAD. FIELD COORDINATE INSTALLATION WITH GENERAL CONTRACTOR. 11. EQUIPMENT LISTED IS PROVIDED TO ESTABLISH A STANDARD. APPROVED EQUALS: TRANE, LENNOX, CARRIER. 12. PROVIDE FACTORY CORROSION PROTECTION FOR PROJECTS LOCATED WITH 10 MILES OF BRACKISH WATER.

A. PROVIDE REMOTE SENSOR. B. PROVIDE REMOVEABLE/THROWAWAY FILTER IN FILTER RACK. C. INDOOR UNIT TO HAVE FACTORY MOUNTED THERMAL EXPANSION VALVE IF REQUIRED FOR 14.3 SEER2 RATING.

D. PROVIDE FIELD INSTALLED ELECTRIC HEAT KIT: OUTPUT SPECIFIED IN SCHEDULE E. PROVIDE FLOAT SWITCH IN AUXILLARY DRAIN PAN FOR SECONDARY CONDENSATE SHUTOFF.

F. PROVIDE REFRIGERANT FILTER DRYER AT OUTDOOR CONDENSOR UNIT AS REQUIRED BY MANUFACTURER.

VOLUME DAMPER SCHEDULE MANUFACTURER | MODEL 16 GAUGE GALVANIZED STEEL SINGLE BLADE: 16 GAUGE UP TO 36" GALVANIZED ROLLED STEEL FRAME; 1/2" DIAMETER STEEL AIR BALANCE INC. A70 IN HEIGHT ROD AXLE WITH FLANGE BRONZE BEARINGS AND HEAVY BLADE DUTY MANUAL LOCKING QUADRANT. 16 GUAGE GALVANIZED STEEL SINGLE BLADE; 16 GUAGE RECTANGULAR UP TO 48" | GALVANIZED STEEL FRAME; 1/2" DIAMETER AIR BALANCE IN HEIGHT STEEL ROD AXLE WITH BRONZE OILITE BEARINGS AND SINGLE BLADE HEAVY DUTY MANUAL LOCKING QUADRANT. 14 GAUGE GALVANIZED STEEL OPPOSED BLADES; 20 GAUGE MOTORIZED ROUND UP TO 24" ROLLED STEEL FRAME; 1/2" DIAMETER RUSKIN SINGLE BLADE IN HEIGHT STEEL ROD AXLE WITH NYLON BEARINGS AND CONTROL MODULE.

		VEN ⁻	TILATION CAI	CULATION	S ASHRA	E STD.	62.1-2016 (FM	C 2020)				
LOCATION	AREA (Az)	UNIT SERVED BY	OCC. LOAD/ 1,000 SQ FT	TOTAL OCCUPANTS ~~(Rz)~~	CFM / PERSON	CFM / SQ FT ~(Ra)	ZONE EFFECTIVENESS	AREA BASED CFN	OCCUPANCY BASED CFM	BREATHING ZONE (Vbz)	ZONE OUTDOOR AIRFLOW MIN (Voz)	O/A PROVIDED
SHOW ROOM-100	438	AHU-1	10	4	5	0.06	0.8	26	22	48	60	60
OFFICE-103	113	AHU-1	5	1	5	0.06	0.8	7	3	10	12	20
IT CLOSET-104	31	AHU-1	0	0	0	0.12	0.8	4	0	4	5	10
SALES MANAGER-109	101	AHU-1	5	1	5	0.06	0.8	6	3	9	11	20
BREAKROOM-110	227	AHU-1	50	11	5	0.06	0.8	14	57	70	88	100
PARTS OFFICE-112	106	AHU-1	5	1	5	0.06	0.8	6	3	9	11	20
ELEC./ MECH115	78	AHU-1	0	0	0	0.12	0.8	9	0	9	12	20
CLOSET-130	12	AHU-1	0	0	0	0.12	0.8	1	0	1	2	10
CLOSET-131	9	AHU-1	0	0	0	0.12	0.8	1	0	1	1	10
TOTAL	1,114			17				75	87	161	202	270
7												

			INTAKE	VENTIL	ATOR SCHED	ULE			
MARK	AREA SERVED	MANUFACTURER	MODEL	CFM	PRESSURE DROP (IN. WG)	THROAT AREA (FT²)	INTAKE AREA (FT²)	MOUNTING FAN TYPE	REMARKS
GRV-1	OUTSIDE AIR	GREENHECK	GRSI-12	270	0.03	1	3.36	ROOFTOP INTAKE	-

1. ALL VENTILATORS AND ROOF CURBS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.

2. MATCH ARCHITECTURAL COLOR SCHEME. REF ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION. 3. PROVIDE GRAVITY BACKDRAFT DAMPER AND BIRDSCREEN.

4. FANS MUST BE AMCA CERTIFIED AS WELL AS UL OR ETL LISTED. 5. FASTEN THE BASE OF INTAKE VENTILATOR TO ROOF CURB WITH (8) #10 SET SCREWS AND NEOPRENE / SS BONDED WASHERS (2 PER SIDE). 6. APPROVED EQUALS SHALL BE ACCEPTED.

					AIR [DEVICE SCHE	DULE	
	MARK	MANUFACTURER	MODEL	TYPE	DAMPER	MOUNTING POSITION	FACE	REMARKS
~	CD-1	PRICE	SDS	SUPPLY	NO (SURFACE MOUNTED	3/4" SLOT WIDTH, 2-SLOT	LINEAR SLOT DIFFUSER; 3/4" SLOT WIDTH; 2 SLOTS: 1 SLOT ANGLED TO WASH DOWN WALL, 1 SLOT TO WASH DOWN CEILING; ALUMINUM; WHITE ENAMEL; PROVIDE SDBI INSULATED
L	CD-2	TITUS	TMS-AA	SUPPLY	YES	SURFACE MOUNTED	24" X 24"	SQUARE DIFFUSER; ALUMINUM; WHITE ENAMEL; 360 DEGREE PATTERN; OPPOSED BLADE DAMPER IN NECK.
	CD-3	TITUS	272RL	SUPPLY	YES {	SURFACE MOUNTED	REF DRAWINGS	RECTANGULAR REGISTER; STEEL; WHITE ENAMEL; DOUBLE DEFLECTION 3/4" ADJUSTABLE LOUVERS; FRONT BLADES TO BE HORIZONTAL; OPPOSED BLADE DAMPER IN NECK.
	CD-4	TITUS	TMS-AA	SUPPLY	YES	SURFACE MOUNTED	312" X 12"	SQUARE DIFFUSER; ALUMINUM; WHITE ENAMEL; 360 DEGREE PATTERN; OPPOSED BLADE DAMPER IN NECK.
	RAG-1	PRICE	SDR	RETURN	NO	SURFACE MOUNTED	3/4" SLOT WIDTH, 2-SLOT	LINEAR SLOT DIFFUSER; 3/4" SLOT WIDTH; 2 SLOTS; ALUMINUM; WHITE ENAMEL; PROVIDE SDBI INSULATED PLENUM
	RAG-2	TITUS	25RL	RETURN	NO }	SURFACE MOUNTED	REF BRAWINGS	RECTANGULAR GRILLE; STEEL; WHITE ENAMEL; 1/2" SPACING; 30 DEGREE DEFLECTION; OPPOSED BLADE DAMPER IN NECK.

24" X 24" PERFORATED DIFFUSER; ALUMINUM; WHITE ENAMEL; 360 DEGREE PATTERN. MOUNTED GENERAL NOTES (APPLY TO ALL ABOVE):

1. PROVIDE MOUNTING FRAME TO MATCH CEILING TYPE. VERIFY WITH ARCHITECT'S PLANS PRIOR TO ORDERING.

2. BRANCH DUCT SIZE SHALL BE SAME AS NOTED DIFFUSER NECK SIZE UNLESS NOTED OTHERWISE. 3. STANDARD WHITE BAKED ENAMEL FINISH, UNLESS NOTED OTHERWISE.

RETURN NO

4. FOUR-WAY THROW PATTERN FOR SQUARE DIFFUSERS UNLESS NOTED OTHERWISE. 5. REFER TO PLANS FOR DIRECTIONAL ARROWS INDICATING CFM THROWS. NO DIRECTIONAL ARROWS INDICATES 4-WAY THROW.

SURFACE SURFACE PERFORATED DIFFUSER; ALUMINUM; WHITE MOUNTED PERFORATED DIFFUSER; ALUMINUM; WHITE

SURFACE

6. DAMPERS SHALL BE MOUNTED IN DUCT TAKE-OFFS. 7. APPROVED EQUALS SHALL BE ACCEPTED.

MECHANICAL PIPE MATERIAL SCHEDULE										
SERVICE	UNDERGROUND	ABOVE GROUND								
GAS	-	BLACK STEEL, SCHEDULE 40								
CONDENSATE DRAIN	-	HARD DRAWN COPPER TUBE TYPE "M" OR SCHEDULE 40 PVC								
REFRIGERANT PIPING	-	COPPER REFRIGERANT PIPING								
CONCENTRIC VENT FLUE	-	STAINLESS STEEL SINGLE WALL CATEGORY III								

GENERAL INFORMATION: 1. ALL MATERIALS SHALL BE APPROVED BY THE OWNER.

2. NO PVC PLASTIC PIPING IS ALLOWED WITHIN CEILING VOIDS IF USED FOR NON-DUCTED RETURN AIR 3. CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH ELASTOMERIC INSULATION MINIMUM 3/8"

4. LOCKING CAPS SHALL BE PROVIDED FOR ALL REFRIGERANT ACCESS PORTS.

AHU-1	0	0	0 0.12	0.	.8	1		0		1	1	10
		17				75		87	1	61	202	270
~~~	~~~~	~~~~~	~~~~	~~~	~~	~~~	•	~~	~~	₩ ₩		~~~~
REFERENCE GENERAL PERFORMANCE ELECTRICAL												
A SERVED	MANUFACTURER	MODEL	TYPE	DRIVE	CFM	ESP (IN WC)	MOTOR HP	MAX BHP	VOLTS	PH	CONTROL METHOD	REMARKS
OP AREA	GREENHECK	AER-20-02-0621	WALL / TYPE L	DIRECT	5,200	0.25	1	0.99	460	3	CONTINUOUS	Α
ADMANTION //	ALL FANS AS APPLIC	CABLE):									E ELECTRICAL C	
_	A SERVED	REFERENCE A SERVED MANUFACTURER	SHO  REFERENCE A SERVED MANUFACTURER MODEL	SHOP AREA EXHA  REFERENCE GENERA A SERVED MANUFACTURER MODEL TYPE	SHOP AREA EXHAUST FA  REFERENCE GENERAL A SERVED MANUFACTURER MODEL TYPE DRIVE	SHOP AREA EXHAUST FAN SC  REFERENCE GENERAL PERFO  A SERVED MANUFACTURER MODEL TYPE DRIVE CFM	SHOP AREA EXHAUST FAN SCHEDULI  REFERENCE  A SERVED MANUFACTURER MODEL  TYPE DRIVE CFM (IN WC)	SHOP AREA EXHAUST FAN SCHEDULE  REFERENCE  REFERENCE  A SERVED  MANUFACTURER  MODEL  TYPE  DRIVE  CFM  (IN WC)  HP	SHOP AREA EXHAUST FAN SCHEDULE  REFERENCE  REFERENCE  A SERVED  MANUFACTURER  MODEL  TYPE  DRIVE  CFM  (IN WC)  HP  BHP	SHOP AREA EXHAUST FAN SCHEDULE  REFERENCE  REFERENCE  A SERVED  MANUFACTURER  MODEL  TYPE  DRIVE  CFM  (IN WC)  HP  BHP  WOLTS	SHOP AREA EXHAUST FAN SCHEDULE  REFERENCE  REFERENCE  A SERVED  MANUFACTURER  MODEL  TYPE  DRIVE  CFM  (IN WC)  HP  BHP  VOLTS  PH	SHOP AREA EXHAUST FAN SCHEDULE  REFERENCE  GENERAL  A SERVED  MANUFACTURER  MODEL  TYPE  DRIVE  CFM  CFM  CFM  CFM  CFM  CFM  CFM  CF

8. NO SUBSTITUTIONS ALLOWED TO WORK WITH PEMB PROVIDED OPENINGS. 9. INTERLOCK FANS WITH FIRE ALARM AS REQUIRED BY AHJ. FIELD COORDINATE REQUIREMENTS WITH FIRE ALARM CONTRACTOR.

A. INTERLOCK EXHAUST FAN WITH WSF-1.

6. ALL FANS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.

7. PROVIDE FACTORY PRE-WIRED FAN SPEED CONTROLLER FOR DIRECT DRIVE FANS.

			SHC	P AREA SUP	PLY FA	N SCI	HEDULE	<b>=</b>					
REFERENCE GENERAL PERFORMANCE ELECTRICAL													
MARK	AREA SERVED	MANUFACTURER	MODEL	TYPE	DRIVE	CFM	ESP (IN WC)	MOTOR HP	MAX BHP	VOLTS	PH	CONTROL METHOD	REMARKS
WSF-1	SHOP AREA	GREENHECK	AER-20-02-0621	WALL / TYPE L	DIRECT	5,200	0.25	1	0.99	460	3	CONTINUOUS	-
		ALL FANS AS APPLIC RACTOR SHALL CO		CT VOLTAGE AND	PHASE C	F EACH	I AND EVE	RY EQUIF	MENT I	TEM WIT	н тн	E ELECTRICAL C	ONTRACTOR,

2. PROVIDE PREFINISHED WEATHERPROOF LOUVERS. REFERENCE ARCHITECTURAL DRAWINGS FOR FINISH SELECTION. 3. PROVIDE GRAVITY BACKDRAFT DAMPER. BIRDSCREEN, HEAVY-DUTY SAFETY MOUNTED DISCONNECT, OSHA MOTOR SIDE GUARD, AND WEATHERHOOD.

4. FANS MUST BE AMCA CERTIFIED AS WELL AS UL OR ETL LISTED. 5. ALL FANS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. 6. PROVIDE FACTORY PRE-WIRED FAN SPEED CONTROLLER FOR DIRECT DRIVE FANS.

8. NO SUBSTITUTIONS ALLOWED TO WORK WITH PEMB PROVIDED OPENINGS. 9. INTERLOCK FANS WITH FIRE ALARM AS REQUIRED BY AHJ. FIELD COORDINATE REQUIREMENTS WITH FIRE ALARM CONTRACTOR. 

	INLINE EXHAUST FAN SCHEDULE										
MARK	AREA SERVED	MANUFACTURER	MODEL	CFM	E.S.P. (IN. WC)	DRIVE	WATTS	V	PH	CONTROL	REMARKS
EF-1	WOMEN'S-106	GREENHECK	CSP-A125	100	0.25	DIRECT	53	115	1	SWITCH	А
EF-2	MENS-105	GREENHECK	CSP-A125	100	0.25	DIRECT	53	115	1	SWITCH	А
CENIEDAL IN	NEDAL INFORMATION (ALL FANCACADDI ICADLE):										

GENERAL INFORMATION (ALL FANS AS APPLICABLE): 1. PROVIDE CEILING GRILLE, WALL DISCHARGE CAP, GRAVITY BACKDRAFT DAMPER. BIRDSCREEN, AND SAFETY MOUNTED DISCONNECT. 2. FANS MUST BE AMCA CERTIFIED AS WELL AS UL OR ETL LISTED.

3. PROVIDE FACTORY PRE-WIRED FAN SPEED CONTROLLER FOR DIRECT DRIVE FANS. 4. ENSURE MINIMUM 10'-0" CLEARANCE FROM AIR INTAKES, DOORS, AND OPERABLE WINDOWS. 6. ALL FANS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. 7. APPROVED EQUALS SHALL BE ACCEPTED.

7. PROVIDE MOTOR-OPERATED DAMPER WITH 120V ACTUATOR AND FAN START TIME DELAY CONTROLS.

A. INTERLOCK WITH RESTROOM LIGHTS.

		ELECTRIC UNIT HEATER SCHEDULE										
	MADIC	AREA SERVED	MANUEACTURER	MODEL	KW	HP	CEM	ELI	ECTRI	C DATA	OPERATING	NOTES
	MARK	AREA SERVED	MANUFACTURER	MODEL	KW	ПР	CFM	V	PH	MOCP	WEIGHT	NOTES
	UH-1	SHOP	REZNOR	EGHB-3	2	0.033	510	480	3	15	45	A,B,C
	UH-2	SHOP	REZNOR	EGHB-3	2	0.033	510	480	3	15	45	A,B,C
	<b>~</b> ₩-3~	SHQP	A BEZNOB	~EGHB-3~	~~~	بـ33م	~51Q~	<del>48</del> Q~	~3~	~ ¹⁵ ~	~~ ⁴⁵ ~~	ABC ABC
<u> </u>	UH-4	SHOP	REZNOR	EGHB-2	2	0.033	510	480	3	15	45	A,B,C
'	GÉNÉRALIN	FORMATION (ALL UNITS				$\overline{}$						

1. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE EXACT VOLTAGE AND PHASE OF EACH AND EVERY EQUIPMENT ITEM WITH THE ELECTRICAL CONTRACTOR, PRIOR TO ORDER. 2. ALL UNITS ARE 480V, 3 PHASE, 60 HERTZ. 3. INSTALL BOTTOM OF HEATER AT ELEVATION INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.

4. PROVIDE UNIT WITH DISCONNECT SUPPLIED AND WIRED BY ELECTRICAL CONTRACTOR FOR A SINGLE POINT ELECTRICAL CONNECTION.

A. MOUNT AT 16'-0" AFF WITHOUT OBSTRUCTING AIR FLOW. B. PROVIDE WITH WALL MOUNTED STANDARD THERMOSTAT KIT. C. PROVIDE WITH MANUFACTURER'S STANDARD LOUVER AND CEILING MOUNTING BRACKET.

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> Engineer of Record Joshua Dale McCall, P.E. Florida License No. 79905 COA License No. 26880

PR4 PLAN REV. 4 09.24.2024 CHECKED BY:

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PR1 PLAN REV. 1 10.13.2023

PR2 PLAN REV. 2 11.10.2023

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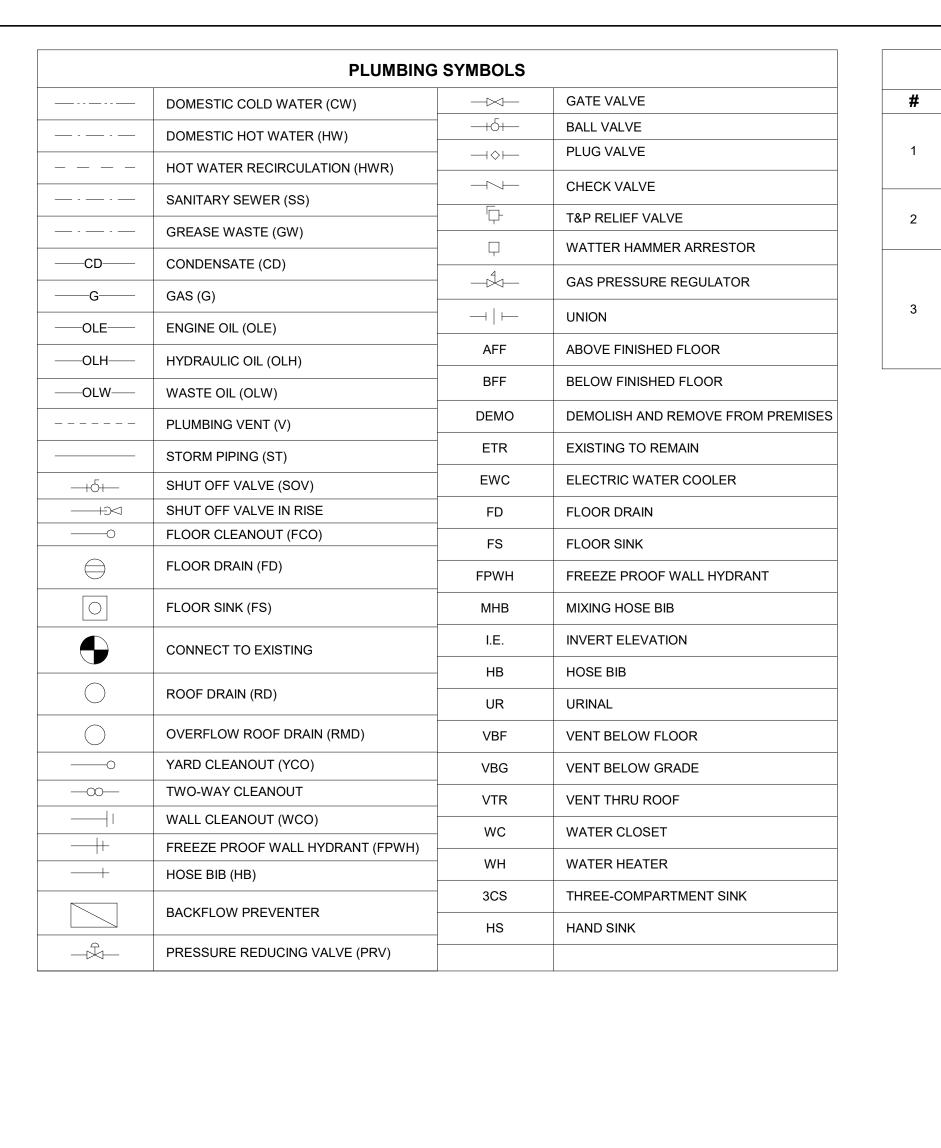
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MECHANICAL SCHEDULES

SHEET:



PLUMBING KEYNOTES #		
DESCRIPTION  DO NOT INSTALL PLUMBING PIPES ABOVE NEW ELECTRICAL EQUIPMENT OR ELECTRICAL PANELS. COORDINATE INSTALLATION OF OVERHEAD PIPING ACCORDINGLY.	1.	NOTES AP PROVIDE / INSTALLAT
TWO-WAY CLEANOUT WITH 2 LONG SWEEP OR 2 COMBINATION WYE AND EIGHTH BENDS (A SINGLE FITTING TWO-WAY CLEANOUT TEE IS NOT ALLOWED).		WITH STATE MANUFACT OBTAIN AND BY THIS W
COORDINATE 4" SANITARY SEWER SERVICE WITH AUTHORITY HAVING JURISDICTION AND CIVIL DRAWINGS. FIELD VERIFY EXACT LOCATION PRIOR TO STARTING ANY WORK IN THIS AREA. FIELD VERIFY CONNECTION POINT INVERT TO ALLOW PROPER COVER AND SLOPE OF SANITARY LINES AND	3.	EACH CON HAVING TH DRAWING RELATE TO COMPENS LACK OF T
CONNECTION.	4.	COORDINA CIVIL, GC, REDUCINO

NOTES APPLY TO ALL PLUMBING SHEETS.	14. PROVIDE TYPE "L" HARD DRAWN COPPER
	WATER PIPE ABOVE GRADE. PROVIDE TYPE
PROVIDE ALL MATERIALS FOR A COMPLETE	HARD DRAWN COPPER WATER PIPE BELOW
NSTALLATION, IN ALL RESPECTS READY FOR	GRADE. INSULATION IS REQUIRED ON ALL
NTENDED USE, AND IN STRICT ACCORDANCE	WATER SUPPLY PIPING ABOVE FINISHED
WITH STATE AND LOCAL CODES AND	FLOOR IN ACCORDANCE WITH THE STATE
MANUFACTURER'S RECOMMENDATIONS.	PLUMBING CODE OR PER LOCAL
OBTAIN AND PAY FOR ALL PERMITS REQUIRED	JURISDICTION.
BY THIS WORK.	
	45 CONTRACTOR TO MAINTAIN A CLEAN MORK

- 15. CONTRACTOR TO MAINTAIN A CLEAN WORK ONTRACTOR IS RESPONSIBLE FOR ENVIRONMENT AND REMOVE TRASH AND DEBRIS FROM WORK AREA DAILY. ANY THOROUGH KNOWLEDGE OF ALL IGS AND SPECIFICATIONS AS THEY CHARGES FOR CLEAN UP CREATED DUE TO TO THIS WORK. NO ADDITIONAL NEGLIGENCE WILL BE WITHHELD FROM ISATION SHALL BE ALLOWED DUE TO
- CONTRACTOR'S RETAINAGE, NO EXCEPTIONS. THIS KNOWLEDGE. 16. ALL FIXTURES, PIPING, VALVES, ETC ARE NEW NATE UTILITY CONNECTIONS WITH UNLESS DENOTED AS EXISTING.

ARE SUBJECT TO FREEZING.

OF DOMESTIC COLD WATER PIPING IN ANY

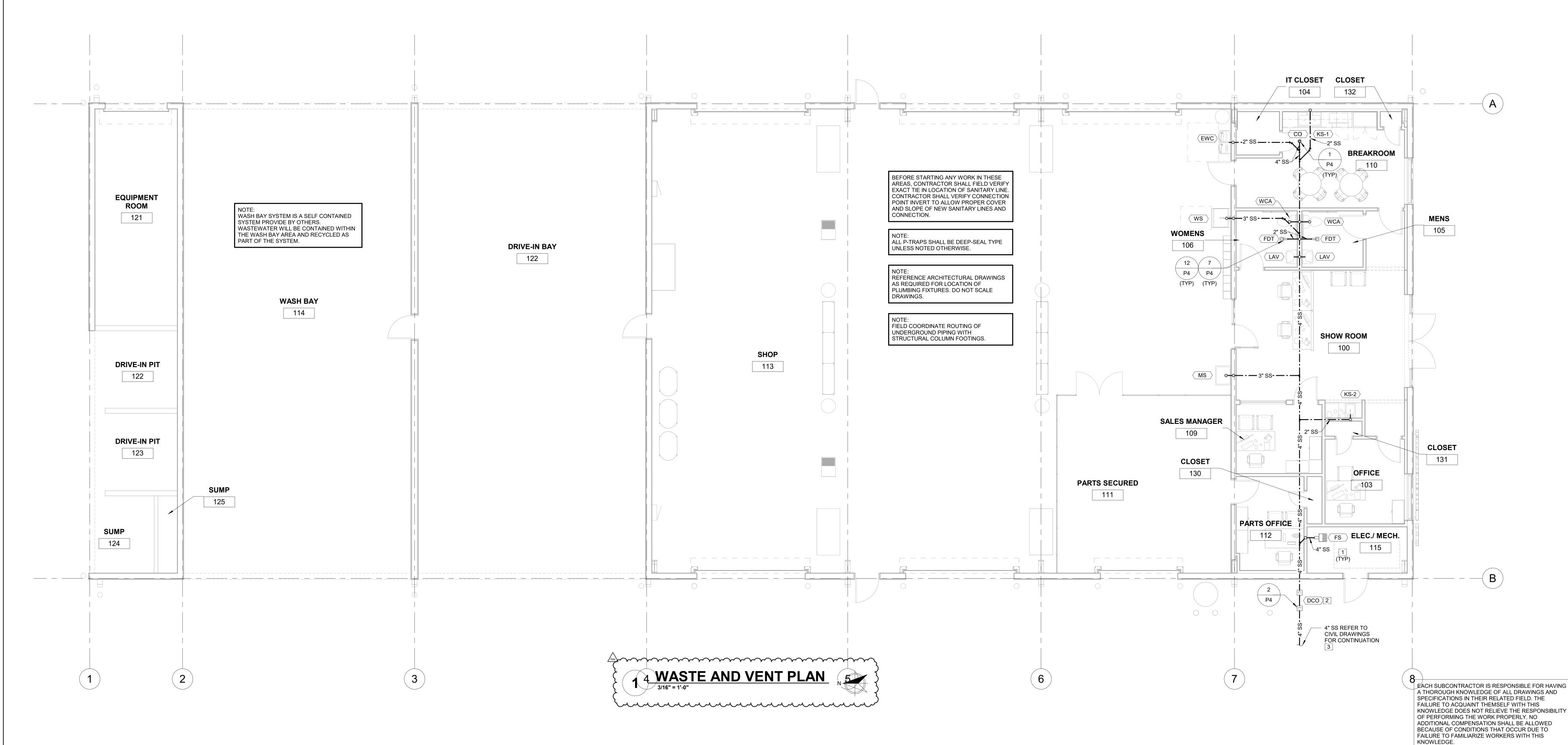
COORDINATE CLOSELY WITH THE

CONFLICT WITH OTHER TRADES.

PLUMBING GENERAL NOTES

- , AND AHJ. PROVIDE PRESSURE 17. PROVIDE INSULATION ON HOT AND COLD ING VALVE AND BACK FLOW PREVENTER AS SHOWN OR REQUIRED BY AHJ. WATER, ROOF DRAIN BODIES, AND HORIZONTAL ROOF DRAIN PIPES. ALL PIPE REFER TO RISER DIAGRAMS AND PLUMBING INSULATION SHALL RUN CONTINUOUSLY
- FIXTURE SCHEDULE FOR ALL PIPING AN PIPE THROUGH FLOORS, WALLS, AND PARTITIONS. SIZES NO SHOWN ON PLAN. 18. ALL GRAVEL FOR BEDDING AND COVER OF 6. SANITARY AND STORM SEWER PIPING SHOWN WATER AND WASTEWATER PIPING SHALL BE IS BASED ON 1/4" PER FOOT FALL FOR ALL PIPE GRADE 4 PEA GRAVEL, ROUNDED WITH NO SMALLER THAN 4" DIAMETER AND 1/8" PER SHARP CORNERS. ALL WATER AND FOOT FALL FOR PIPE 4" DIAMETER AND WASTEWATER PIPING SHALL BE BEDDED 6"
- BELOW PIPE AND 6" ABOVE PIPE MINIMUM. LARGER. ALL SEWER PIPING BELOW SLAB TO BE 2" 19. HEAT TAPE SHALL BE PROVIDED FOR ALL DOMESTIC WATER LINES LOCATED IN DIAMETER MINIMUM. EXTERIOR WALLS IN CLIMATES WHERE PIPES
- 8. PROVIDE ACCESS DOORS TO ALL CONCEALED VALVES AND CLEAN-OUTS THAT ARE NOT 20. MAINTAIN 36" CLEARANCE FOR INSTALLATION LOCATED ABOVE AN ACCESSIBLE CEILING.
- 9. PROVIDE AUTOMATIC TRAP SEAL PRIMERS AS DIRECTION OR OVERTOP AND ALL ELECTRICAL SHOWN OR AS REQUIRED BY AHJ. SWITCHGEAR, MAIN DISTRIBUTION PANELS, SUB-PANELS, ETC. 10. INSTALL VTR'S AND FLUES A MINIMUM 5'-0" 21. ALL SOIL, WASTE AND VENT LINES SHALL BE FROM PARAPET OR OUTSIDE WALL UNLESS CONCEALED IN THE BUILDING CONSTRUCTION.
- NOTED OTHERWISE AND 10'-0" MINIMUM ABOVE GRADE AND FROM EQUIPMENT WITH OUTSIDE AIR INTAKE. 22. THE PLUMBING CONTRACTOR SHALL 11. INSTALL WATER PIPE ON INSIDE OF EXTERIOR MECHANICAL, FIRE PROTECTION, AND
- WALL INSULATION TO PREVENT FREEZING. ELECTRICAL CONTRACTORS TO AVOID 12. PROVIDE FIRE SEAL WHERE PIPES PENETRATE FIRE RATED ASSEMBLY. 23. PROVIDE DRAIN VALVES IN THE HOT AND COLD
- WATER SYSTEM AT ALL LOW POINTS TO 13. SANITARY DRAINAGE LINES AND FITTINGS ALLOW FOR COMPLETE DRAINAGE. (DRAIN, WASTE AND VENT) SHALL BE PVC-DWV PLASTIC SCHEDULE 40. WHERE REQUIRED BY 24. VACUUM BREAKERS SHALL BE PROVIDED FOR ALL FIXTURES TO WHICH HOSES MAY BE LOCAL CODES, CAST IRON, COATED INSIDE AND OUTSIDE SHALL BE USED. REFER TO ATTACHED. VACUUM BREAKERS SHALL BE SPECIFICATIONS. PERMANENTLY ATTACHED.

- 25. PROVIDE DEEP SEAL TRAPS FOR ALL FLOOR /IDE TYPE "K" DRAINS. E BELOW 26. ALL SUSPENDED MATERIALS AND EQUIPMENT ON ALL SHALL BE INDIVIDUALLY SUPPORTED FROM
  - THE BUILDING STRUCTURE. DO NOT SUSPEND ITEMS FROM THE CEILING OR ITS SUPPORT
  - 27. PLUMBING CONTRACTOR SHALL PROVIDE ONE YEAR WARRANTY FOR PROPER SEWER SYSTEM OPERATION. 28. ALL FLOOR CLEANOUTS SHALL BE INSTALLED
    - FLUSH WITH FLOOR FINISH MATERIAL OR FLUSH WITH CONCRETE SLAB IF NO FLOOR FINISH MATERIAL IS CALLED OUT FOR ON ARCHITECTURAL DRAWINGS.
  - 29. CAP ALL PIPING OPENINGS DURING CONSTRUCTION UNTIL FINAL CONNECTIONS TO EQUIPMENT AND ACCESSORIES ARE MADE.
  - 30. INSTALL CONTINUOUS SEALANT AT ALL EXTERIOR WALL PENETRATIONS.
  - 31. FIRE PROTECTION DESIGN IS NOT PART OF THESE DESIGN DOCUMENTS. FIRE PROTECTION DESIGN DRAWINGS SHALL BE PREPARTED BY THE FIRE PROTECTION CONTRACTOR AND SUBMITTED FOR REVIEW AND APPROVAL AT THAT TIME.
  - 32. ALTERNATE MANUFACTURER'S SHALL BE ACCEPTED FOR THE FIXTURES LISTED IN THE PLUMBING FIXTURE SCHEDULE, UNLESS NOTED OTHERWISE.
  - 33. PROVIDE SEISMIC BRACING BASED ON APPROPRIATE SEISMIC ZONE REQUIREMENTS PER SMACNA PUBLISHED SEISMIC DETAILS, LOCAL AND NATIONAL CODES. CONTRACTOR'S RESPONSIBILITY INCLUDES STRUCTURAL ENGINEER'S CERTIFICATION ON DETAILS SUBMITTED FOR PERMITTING.





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COA License No. 26880

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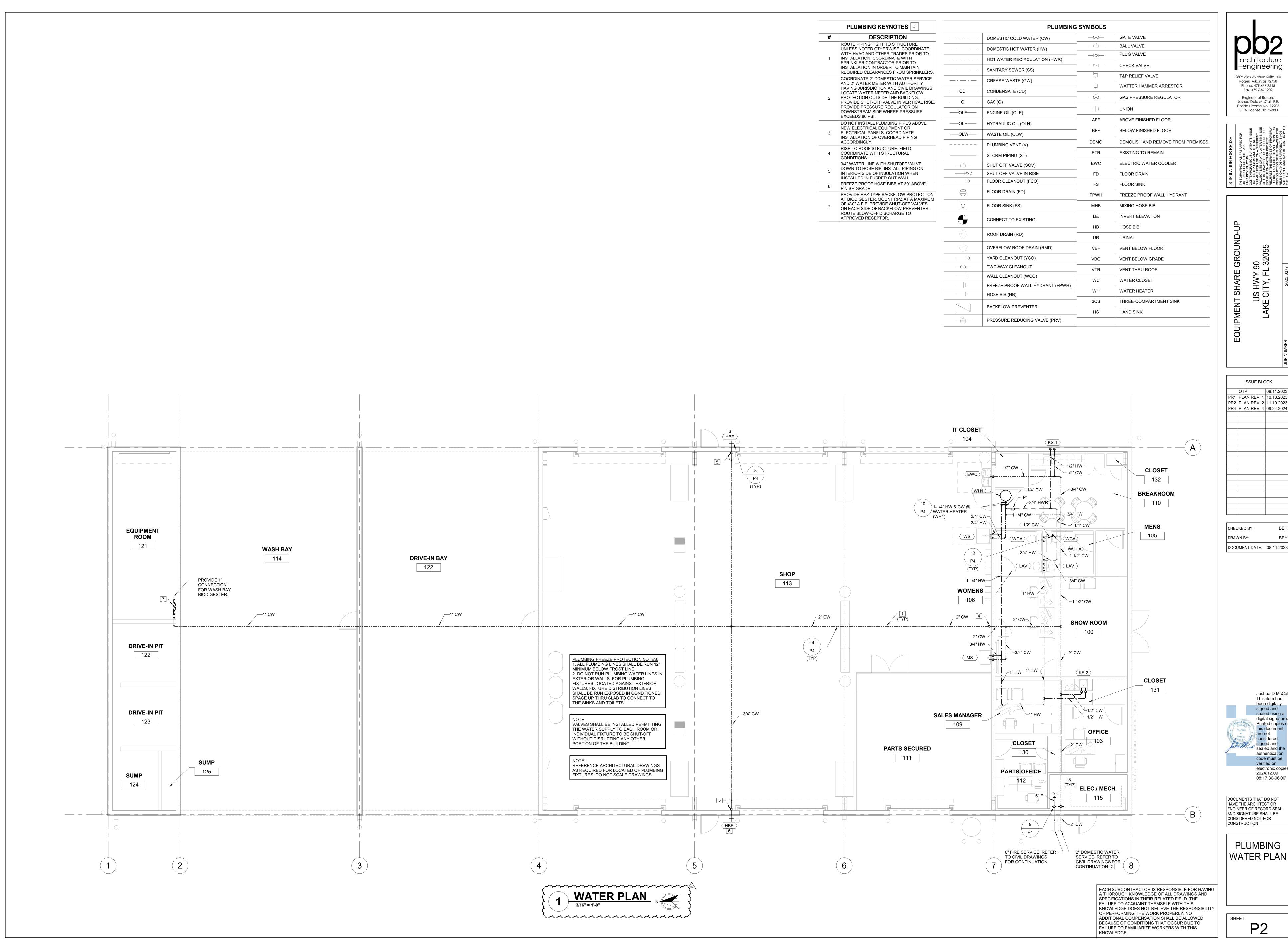
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**PLUMBING** WASTE AND VENT PLAN

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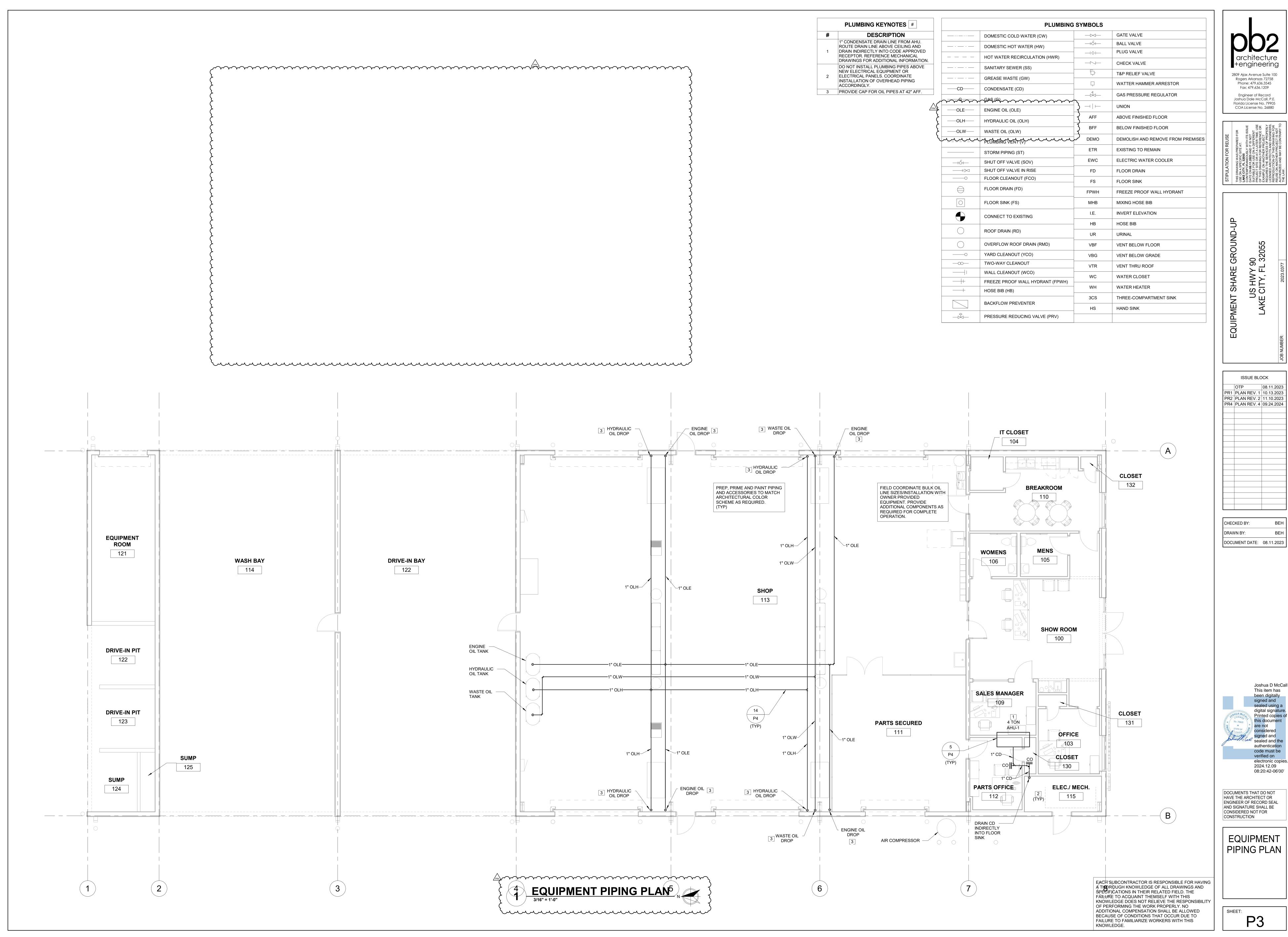
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**PLUMBING** WATER PLAN



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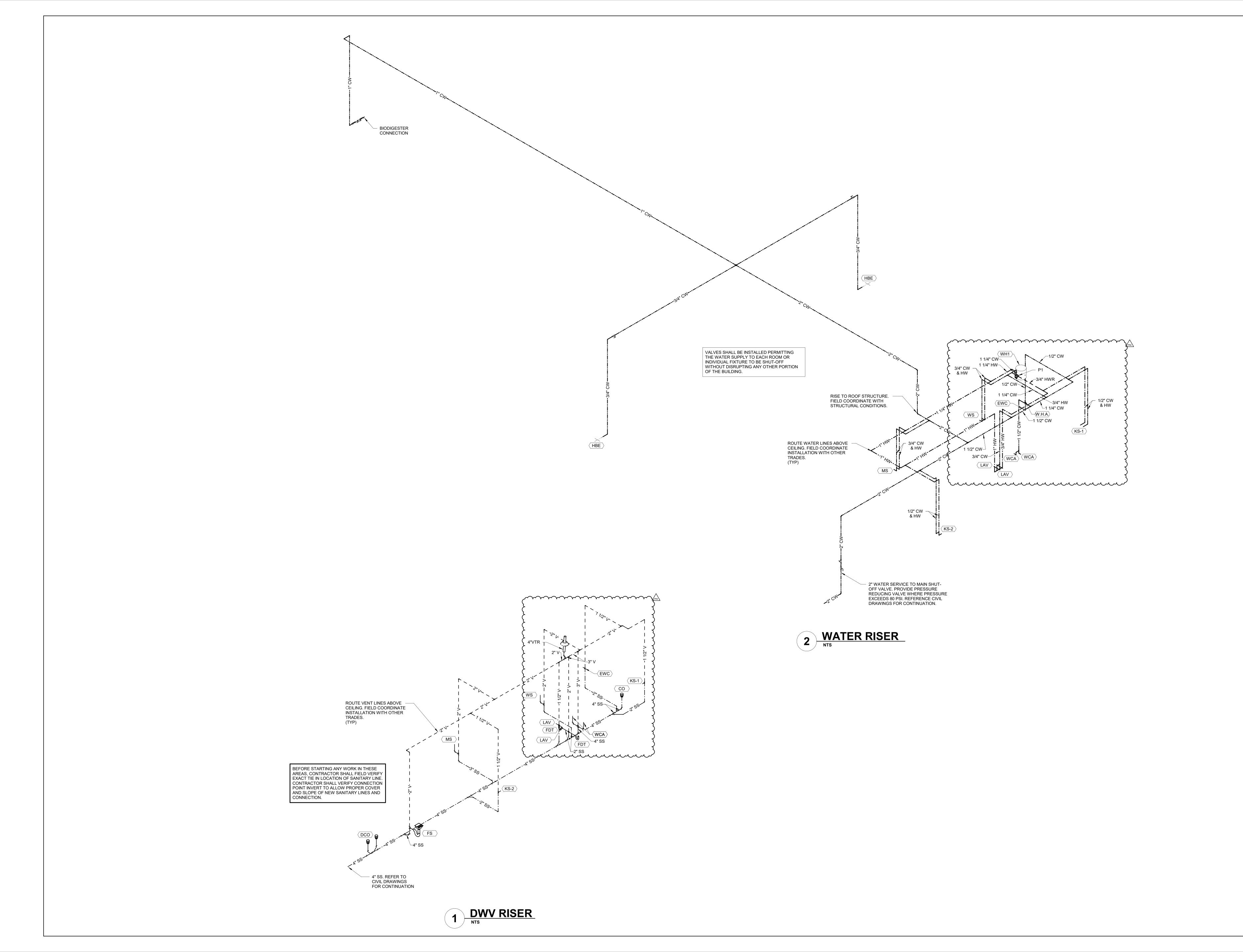
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**EQUIPMENT** PIPING PLAN



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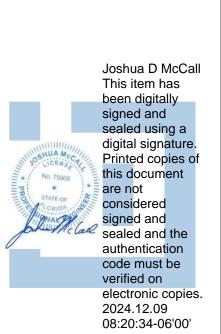
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PLUMBING RISERS

P4.1

#### PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS, AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT REQUIREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING VALUE OF R4. WHITE IN COLOR. CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING. PROVIDE AN ISOLATING DIELECTRIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS ELASTOMERIC PIPE INSULATION WITH REQUIREMENTS COMPLYING INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, SUPPLIES, WASTE OUTLET, TRAPS, ETCETERAS AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY TENANT. GENERAL CONTRACTOR, EQUIPMENT SUPPLIER, ETCETERA. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SANITARY SEWER PIPING: PROVIDE ALL DRAINS AND PIPING WITHIN THE PROJECT SPACE WITH CONNECTION TO THE EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE ABS/PVC PLASTIC PIPE (WHERE APPROVED BY LOCAL AUTHORITY). WITH SOLVENT WELD FITTINGS, OR HUBLESS CAST-IRON PIPE AND FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE ABS/PVC PLASTIC PIPING (WHERE APPROVED BY LOCAL AUTHORITY), WITH SOLVENT WELD FITTINGS, OR SERVICE-WEIGHT HUB AND SPIGOT TYPE CAST-IRON WITH NEOPRENE GASKET JOINT SYSTEM. NO ABS/PVC PLASTIC PIPING IS ALLOWED WITHIN CEILING VOIDS IF USED FOR NON-DUCTED RETURN AIR PLENUM. ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED AT 1/4" PER FOOT FOR PIPE SIZES 3" AND SMALLER AND 1/8" PER FOOT FOR PIPE SIZES 4" AND LARGER, UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS OR INDICATED ON THE DRAWINGS.

SANITARY VENT PIPING: PROVIDE A COMPLETE SYSTEM OF ABS/PVC PLASTIC PIPE (WHERE APPROVED BY LOCAL AUTHORITY), WITH SOLVENT WELD FITTINGS, OR STANDARD WEIGHT CAST-IRON NO-HUB PIPE AND FITTINGS. NO ABS/PVC PIPING IS ALLOWED WITHIN THE CEILING VOIDS IF USED FOR NON-DUCTED RETURN AIR PLENUMS. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING: TYPE M COPPER TUBING UP TO 1" ID, TYPE DWV COPPER TUBING AND FITTINGS FOR 1-1/4" AND LARGER SIZES.

STORM WATER PIPING: PROVIDE ALL STORM DRAINS AND PIPING WITHIN THE PROJECT SPACE WITH CONNECTION TO THE EXISTING STORM SYSTEMS ON-SITE. STORM PIPING ABOVE FLOOR SHALL BE ABS/PVC PLASTIC PIPE, WITH SOLVENT WELD FITTINGS, OR HUBLESS CAST-IRON PIPE AND FITTINGS AND CONNECTIONS. STORM PIPING BELOW GRADE SHALL BE ABS/PVC PLASTIC PIPE, WITH SOLVENT WELD FITTINGS, OR SERVICE-WEIGHT HUB AND SPIGOT TYPE CAST-IRON WITH NEOPRENE GASKET JOINT SYSTEM, NO ABS/PVC PLASTIC PIPING IS ALLOWED WITHIN THE CEILING VOIDS IF USED FOR NON-DUCTED RETURN AIR PLENUMS. ALL STORM PIPING SHALL BE UNIFORMLY PITCHED AT A MINIMUM OF 1/8" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL STORM, WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZES AS THE PIPES THEY SERVE. CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM EXTERIOR OF THE BUILDING WITH RUST RESISTANT TYPE PAINT.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. ABOVE GRADE HOT AND COLD WATER PIPING SHALL BE 1/2" MINIMUM TYPE L COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT CONNECTIONS. BELOW GRADE HOT AND COLD WATER PIPING SHALL BE 1/2" MINIMUM TYPE K COPPER TUBING WITH WROUGHT COPPER FITTINGS AND SWEAT CONNECTIONS. PROVIDE WATER HAMMER ARRESTORS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS). USE LEAD FREE OR TIN-ANTIMONY SOLDER, 95/5 FOR ALL SWEAT FITTINGS OF COOPER PIPING.

PIPE INSULATION: RIGID ONE-PIECE FIBERGLASS PIPE INSULATION WITH REQUIREMENTS COMPLYING WITH ASTM C 547, SELF-SEALING ADHESIVE LAP LONGITUDINAL JOINTS AND BUTT STRIPS FOR TRANSVERSE JOINTS. JACKETING SHALL CONFORM TO ASTM C 1136, TYPE I. MAXIMUM VAPOR TRANSMISSION RATING OF 0.02 PERM WHEN TESTED ACCORDING TO ASTM E 96, PROCEDURE A. (K VALUE) 0.25 BTU/IN./HR. * FT2 * °F AT 75°F MEAN TEMPERATURE WITH A MINIMUM R-

PROVIDE INSULATION THICKNESS AS INDICATED: DOMESTIC COLD WATER PIPING 1" AND SMALLER: 1/2" THICKNESS. DOMESTIC COLD WATER PIPING 1-1/4" - 2": 3/4" THICKNESS. PLUMBING VENT PIPING WITHIN 6 FEET OF ROOF OUTLET: 1"

STORM WATER PIPING: 1" THICKNESS. OVERFLOW STORM WATER PIPING: 1" THICKNESS. CONDENSATE PIPING: 1/2" THICKNESS. DOMESTIC HOT WATER PIPING 2" AND SMALLER: 1" THICKNESS. WATER AND WASTE PIPING BELOW HANDICAP LAVATORIES/SINKS:

THICKNESS.

PIPE INSULATION: FLEXIBLE, ONE PIECE, EXPANDED CLOSED-CELL WITH ASTM C 518, SELF-SEALING, WITH A MAXIMUM VAPOR TRANSMISSION RATING OF 0.20 PERM WHEN TESTED ACCORDING TO ASTM E 96. THERMAL CONDUCTIVITY (K VALUE) SHALL NOT EXCEED 0.27 BTU/IN./HR. * FT2 * °F AT 75°F MEAN TEMPERATURE WITH A MINIMUM R-VALUE OF R3.7, AND INSULATION AND JACKET SHALL BE RATED FOR OPERATING TEMPERATURES FROM 40°F TO 180°F.

PROVIDE INSULATION THICKNESS AS INDICATED: DOMESTIC COLD WATER PIPING 2" AND SMALLER: 1/2" THICKNESS. DOMESTIC HOT WATER PIPING 2" AND SMALLER: 1/2" THICKNESS. SANITARY PIPING 2" AND SMALLER: 1/2" THICKNESS. CONDENSATE PIPING: 1/2" THICKNESS.

SHUTOFF VALVES WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. PIPING LINE VALVES SHALL BE EQUAL TO CRANE SERIES #9200, QUARTER TURN BALL VALVE. CONSTRUCTION - TWO PIECE, BRONZE BODY, FULL PORTED, CHROME PLATED BRASS BALL, REPLACEABLE "TEFLON OR TFE" SEATS AND SEALS. RATING - 150 PSI WSP, 600 PSI WOG. CONNECTIONS - SOLDER OR THREADED ENDS TO MATCH PIPING. STANDARDS COMPLIANCE -BRONZE OR BRASS VALVES: MSS-SP-110. WHEN SHUTOFF VALVES ARE PLACED IN THE CEILING THE VALVES SHALL BE LOCATED A MAXIMUM OF 12" ABOVE THE CEILING, AND NOTHING SHALL BE PLACED BETWEEN THE CEILING ACCESS AND THE VALVES.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETCETERA ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILING, ACCESS PANELS ARE NOT REQUIRED.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEMS COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS. TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE. FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND

REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS FIRED HVAC EQUIPMENT AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. PAINT GAS PIPING TO MATCH ARCHITECTURAL COLOR SCHEME WHEN LOCATED ON THE

TYPE "K"  TYPE "L"  CAST IRON SCHEDULE 40 PVC SCHEDULE 40  ANITARY VENT  CAST IRON SCHEDULE 40 PVC SCHEDULE 40  HARD DRAWN COPPER TUBE TYPE "M"	PIPE MATERIAL SCHEDULE									
TYPE "K"  TYPE "K"  TYPE "L"  CAST IRON SCHEDULE 40 PVC SCHEDULE 40 PVC SCHEDULE 40  CAST IRON SCHEDULE 40 PVC SCHEDULE 40  CAST IRON SCHEDULE 40 PVC SCHEDULE 40 PVC SCHEDULE 40  NDIRECT DRAIN  -  ASTM A53 SCHEDULE 40	SERVICE	UNDERGROUND	ABOVE GROUND							
PVC SCHEDULE 40  PVC SCHEDULE 40  CAST IRON SCHEDULE 40 PVC SCHEDULE 40 PVC SCHEDULE 40  PVC SCHEDULE 40  PVC SCHEDULE 40  PVC SCHEDULE 40  HARD DRAWN COPPER TUBE TYPE "M"  ASTM A53 SCHEDULE 40	COLD & HOT WATER									
PVC SCHEDULE 40  PVC SCHEDULE 40  HARD DRAWN COPPER TUBE TYPE "M"  ASTM A53 SCHEDULE 40	SANITARY WASTE									
TYPE "M"  - ASTM A53 SCHEDULE 40	SANITARY VENT									
JIL PIPING	INDIRECT DRAIN	-								
	OIL PIPING	-								
GENERAL INFORMATION:	1. ALL MATERIALS SHALL	BE APPROVED BY THE OWNER.	S IF USED FOR NON-DUCTED RETURN AI							

	WATER HEATING SYSTEM SCHEDULE										
MARK	MANUFACTURER	TYPE	MODEL	TANK SIZE GPM	VOLTS	РН	HEATING TYPE	WATTS	REMARKS		
WH1	WH1 A.O. SMITH COMMERCIAL DEL-20 20 120 1 ELECTRIC 2,500 A,B										
	ENERAL INFORMATION (TANK TYPE WATER HEATERS AS APPLICABLE): INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.										

2. PROVIDE ASME PRESSURE RELIEF VALVE FOR ALL WATER HEATERS AS REQUIRED. 3. PROVIDE VACUUM RELIEF VALVES FOR ALL WATER HEATERS AS REQUIRED.

A. INSTALL WATER HEATER ON SUSPENDED SUPPORT PLATFORM. SECURE TO STRUCTURE PER MANUFACTURER INSTALLATION INSTRUCTIONS. B. PROVIDE EXPANSION TANK EQUAL TO AMTROL ST-12.

MARK	MANUFACTURER	MODEL	APPROVED EQUALS	DESCRIPTION	VOLTS	РН	WATTS	GPM	HEAD
P1	BELL & GOSSETT	PL-36B	UP15-18B7	LEAD FREE BRONZE WET ROTOR INLINE CIRCULATOR PUMP WITH 3/4" SWEATED CONNECTIONS.	120	1	125	35	5 FT

					PLU	JMBING	FIXTU	RE SCHEDULE	
MARK	FIXTURE	MANUFACTURER	MODEL	CW	RANCH	SIZES (MI WASTE		DESCRIPTION	REMARKS
WCA	A.D.A. WATER CLOSET	SLOAN	ST-2029	1-1/4"	-	4"	2"	SLOAN, LOW CONSUMPTION (1.28 GPF) MODEL #ST-2029-A, FLUSH VALVE: REGAL 111XL, WHITE, CHURCH ELONGATED OPEN FRONT SEAT WITHOUT PLASTIC COVER. NEW A.D.A. WATER CLOSET WITH COLD WATER TAP WITH SHUT-OFF VALVE. FLOOR MOUNTED VITREOUS CHINA, SIPHON-ACTION-JET. MOUNT FLUSH LEVER OPPOSITE OF WALL. SUPPLIES AND STOPS: MCQUIRE 185 AS REQUIRED. PROVIDE CAULKING AROUND BASE. COORDINATE WATER ROUGH-IN HEIGHT FROM MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH GRAB BAR LOCATION. APPROVED EQUALS SHALL BE ACCEPTED.	A
LAV	A.D.A. LAVATORY WALL MOUNTED	ZURN	Z5344	1/2"	1/2"	2"	1-1/2"	ZURN Z5344 "WHITE" WALL MOUNT, WITH ZURN Z7440-XL CENTERSET FAUCET NO LIFT ROD HOLE. WALL MOUNTED VITEROUS CHINA, FRONT OVERLAY SELF RIMMING, FURNISH WITH ZURN Z8743-PC GRID DRAIN AND OFFSET TAILPIECE, VANDAL-RESISTANT AERATOR, CENTERSET FAUCET WITH FACTORY SET FOR A MAXIMUM OF 0.5 GALLON FLOW, ZURN Z1021WL-PC TRAP PRIMER WITH TRAP ARM AND ZURN Z8946-1NT ADA PROTECTOR COMBINATION KIT, ZURN Z8804-XL-LR-PC SUPPLIES AND STOPS. PROVIDE CAULKING AROUND LAVATORY. PROVIDE WITH Z1231 CONCEALED ARM LAVATORY CARRIER INSTALLED IN WALL.	-
KS-1	COUNTERTOP SINK	ELKAY	LRAD291850	1/2"	1/2"	2"	1-1/2"	ELKAY LRAD291850, 18-GAUGE STAINLESS STEEL, DOUBLE COMPARTMENT SINK, SELF RIMMING WITH 1-3/4" RADIUS COVER CORNERS, FULLY COATED UNDERSIDE, 4 HOLES, 29" x 18" x 5". ELKAY ELK801GN08L2, DECK MOUNTED FAUCET WITH 8" GOOSENECK, 8" CENTER, AERATOR AND QUARTER OPERATING CARTRIDGE. POLISHED CHROME FINISH, SIDE HOSE SPRAYER BASKET STRAINER AND DRAIN. SWIVEL LUGS, QUICK LOCK INSTALLATION GARBAGE DISPOSAL.`	В
KS-2	COUNTERTOP SINK	ELKAY	LRAD151750	1/2"	1/2"	2"	1-1/2"	ELKAY LRAD151750, 18-GAUGE STAINLESS STEEL, SINGLE COMPARTMENT SINK, SELF RIMMING WITH 1-3/4" RADIUS COVER CORNERS, FULLY COATED UNDERSIDE, 1 HOLE, 15" x 17-1/2" x 5". DELTA 1959LF CHROME BAR FAUCET WITH CHROME SINGLE LEVER HANDLE. POLISHED CHROME FINISH, BASKET STRAINER AND DRAIN.	-
EWC	HI/LOW DRINKING FOUNTAIN	ELKAY	LMABFTL8WSLK	1/2"	-	2"	1-1/2"	ELKAY LMABFTL8WSLK, STAINLESS STEEL, WALL MOUNTED, DOUBLE STATION, FURNISH WITH WASTE DRAIN WITH TRAP, SUPPLY, STOP AND WALL HANGER. PROVIDE WITH EMABF APRON AS REQUIRED. EXACT COLOR AND FINISH TO BE SELECTED BY ARCHITECT. SUPPLIES AND STOPS: ZURN X8804-XL-LR-PC.	-
MS	JANITOR SINK	FIAT	MSB-2424	3/4"	3/4"	3"	2"	FIAT #MSB-2424 FLOOR MOUNT; #830-AA FAUCET WITH VACUUM BREAKER, MOLDED STONE, FURNISH WITH FIAT MODEL #E-77-AA VYNL BUMPER GUARD, MODEL #832 HOSE AND BRACKET, AND MODEL #889-CC MOP HANGER. PROVIDE CAULK AROUND MOP SINK. APPROVED EQUALS	-
WS	STAINLESS STEEL UTILITY SINK	ULINE	H-10304	3/4"	3/4"	3"	2"	ULINE STAINLESS STEEL UTILITY SINK MODEL H-10304. WALL OUTLET WITH SUPPLY AND VENT OFF DRAIN. H-10305 10" CHROME SWIVEL FAUCET WITH SINGLE TEMPERATURE VALVE. SUPPLYS AND STOPS: MCQUIRE 185 AS REQUIRED. PROVIDE CAULKING AROUND ADJACENT WALL. PROVIDE ADDITIONAL ITEMS AS REQUIRED FOR COMPLETE OPERATION.	-
~NBE~	~HOSEBIB~	W ZWANT	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~3/4°C	w	m	سس	ANTI-SIPHON VACUUM BREAKER, LENGTH TO SUIT WALL THICKNESS MOUNTED 30" ABOVE GRADE	
W.H.A.	WATER HAMMER ARRESTER	SIOUX CHIEF	652-A	SEE PLANS	-	-	-	APPROVED EQUALS SHALL BE ACCEPTED.	-
FDT	FLOOR DRAIN	ZURN	Z415S-ZN-NH-P	1/2"	-	SEE PLANS	SEE PLANS	ZURN MODEL Z415S-ZN-NH-P CAST IRON BODY WITH FLASHING COLLAR, TRAP PRIMER CONNECTION AND ADJUSTABLE NICKEL BRONZE STRAINER HEAD AND 6 X 6 NICKEL BRONZE SQUARE TOP.	-
FS	FLOOR SINK	WADE	9140-16-27-179	-	-	SEE PLANS	SEE PLANS	LIGHT DUTY, ACID RESISTANT, WHITE PVC FLOOR SINK WITH 12" SQUARE NICKEL BRONZE TOP AND ALUMINUM DEBRIS BUCKET WITH LIFTING HANDLE.	-
CO	CLEANOUT	WADE	W-6000-Z-1-12-75 (FLOOR), W-6000-Z-12-75-X (EXTERIOR PAVING, EXTERIOR WALKS & SITE)	-	-	SEE PLANS	SEE PLANS	CAST IRON FERRULE AND PLUG, DURA-COATED CAST IRON, DOUBLE-FLANGED HOUSING, AND EXTRA HEAVY DUTY SCORIATED CAST IRON COVER WITH LIFTING DEVICE, VANDAL-PROOF SCREWS.	-
DCO	DOUBLE CLEANOUT	WADE	W-6000-Z-1-12-75 (FLOOR), W-6000-Z-12-75-X (EXTERIOR PAVING, EXTERIOR WALKS & SITE)	-	-	SEE PLANS	SEE PLANS	CAST IRON FERRULE AND PLUG, DURA-COATED CAST IRON, DOUBLE-FLANGED HOUSING, AND EXTRA HEAVY DUTY SCORIATED CAST IRON COVER WITH LIFTING DEVICE, VANDAL-PROOF SCREWS. DOUBLE CLEANOUT WITH SWEEPING ELBOWS.	-

1. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL BUT NOT LIMITED TO ALL PLUMBING FIXTURES, P-TRAPS WITH CLEANOUT PLUG, SINK CONTINUOUS WASTES, WATER SUPPLIES AND STOP VALVES AS REQUIRED FOR COMPLETE OPERATION. 2. REFERENCE MANUFACTURER INSTALLATION INSTRUCTIONS OF ALL FIXTURES FOR ROUGH-IN HEIGHTS PRIOR TO INSTALLATION.

3. INSULATE PIPING BELOW FIXTURES PER TAS/ADA REQUIREMENTS. 4. REFERENCE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF TOILETS, FIXTURES & DRAINS. DO NOT SCALE DRAWINGS.

5. PROVIDE ASSE 1070 RATED TMV AT ALL HAND SINK AND LAVATORIES.

6. PROVIDE CAULING AT ALL PLUMBING FIXTURES WHEN IN CONTACT WITH EXPOSED SURFACES. 7. ITEMS LISTED ARE PROVIDED TO ESTABLISH A STANDARD. APPROVED EQUALS SHALL BE ACCEPTED.

A. COORDINATE WATER ROUGH-IN HEIGHT FROM MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH GRAB BAR LOCATION. REF ARCH. B. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL BADGER MODEL #ISE-5, 120V/1PH, 1/2 HP GARBAGE DISPOSAL.

		SPECIALTY PLUMBING	FIXTURE SCHEDULE	
MARK	FIXTURE	FIXTURE DESCRIPTION	MANUFACTURER	APPROVED EQUALS
	VALVES	BRASS BALL VALVES WITH PLASTIC JACKETED LEVER TYPE HANDLE.	APOLLO SERIES 70LF	RED-WHITE 5044AB OR 5049AB ; CRANE LF9210 SERIES ; WATTS FBV-3C OR FBVS-3C ; NIBCO FB-600-A
	DOUBLE-CHECK VALVE BACKFLOW PREVENTER	INCLUDE TWO INDEPENDENT-ACTING CHECK VALVES, TWO SHUT-OFF VALVES, AND REQUIRED MEANS FOR TESTING FOR EACH ASSEMBLY. MINIMUM 175 PSI WORKING PRESSURE.	WATTS LF007QT OR LF719	BEECO FDC-LL; FEBCO LF850; WILKINS 350XL OR 950XLT2
	REDUCED PRESSURE BACKFLOW PREVENTER	PROVIDE STRAINER, SHUT-OFF VALVES AND TEST COCKS: INSTALL DRAIN LINE WITH AIR GAP ASSEMBLY TO RECEPTOR APPROVED BY AUTHORITY HAVING JURISDICTION. MINIMUM 175 PSI WORKING PRESSURE.	WATTS LF009QT OR LF909	HERSEY FRP-II ; FEBCO LF860 ; WILKINS 375XL OR 975XL
	LOCKABLE SHUT-OFF VALVES	BRASS BALL VALVES WITH PLASTIC JACKETED LEVER TYPE HANDLE.	APOLLO SERIES 75-100	RED-WHITE 5042 ; CRANE T-285 ; WATTS B-6000 OR B-6001
	TRAP PRIMER (SINGLE TRAP)	PROVIDE ALL BRONZE PRIMER VALVE WITH REMOVABLE OPERATING PARTS, INTEGRAL VACUUM BREAKER, AND GASKETED ACCESS COVER.	WATTS A200	SIOUX CHIEF SERIES 695; PRECISION PLUMBING PRODUCTS PRIME-RITE OR OREGON #1
	TRAP PRIMER (MULTIPLE TRAPS)	PROVIDE ALL BRONZE PRIMER VALVE WITH REMOVABLE OPERATING PARTS, INTEGRAL VACUUM BREAKER, GASKETED ACCESS COVER, AND MULTIPLE TRAP CAPABILITY.	PRECISION PLUMBING PRODUCTS PRIME-RITE OR OREGON #1	SIOUX CHIEF SERIES 695; MIFAB M-500; JOSAM 88300; PRECISION PLUMBING PRODUCTS PRIME-RITE OR OREGON #1
	VACUUM RELIEF VALVE	LEAD FREE, BRASS BODY, CSA/ANSI Z21.22	WATTS LFN36-M1	-

GENERAL INFORMATION (ALL FIXTURES): 1. THIS SCHEDULE IS COMPREHENSIVE. ALL MARKS MAY OR MAY NOT BE USED ON THE PLANS.

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DOCUMENTS THAT DO NOT HAVE THE ARCHITECT OR ENGINEER OF RECORD SEAL AND SIGNATURE SHALL BE CONSIDERED NOT FOR CONSTRUCTION

> **PLUMBING** SCHEDULES

SHEET: