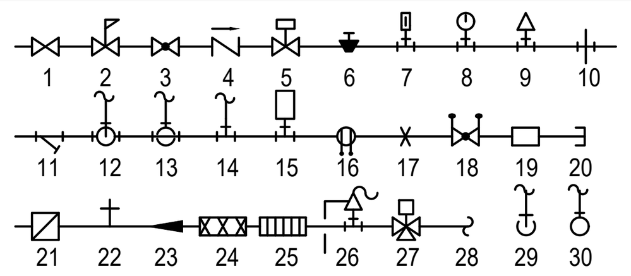
SYMBOLS & ABBREVIATIONS

SYMBOL	ABBREV.	DESCRIPTION
—— · ——	CW	COLD WATER
—— ·· ——	HW	HOT WATER
—— ··· ——	RHW	RECIRCULATED HOT WATER
—— A ——	A	AIR
—— AV ——	AV	ACID VENT
—— AW ——	AW	ACID WASTE
—— CD ——	CD	CONDENSATE
—— CHR ——	CHR	CHILLED WATER RETURN
—— CHS ——	CHS	CHILLED WATER SUPPLY
—— CWR ——	CWR	CONDENSER WATER RETURN
—— CWS ——	CWS	CONDENSER WATER SUPPLY
—— DI ——	DI	DEIONIZED WATER
—— DS ——	DS	DOWNSPOUT (RAINWATER)
—— DWR ——	DWR	DUAL WATER RETURN
—— DWS ——	DWS	DUAL WATER SUPPLY
—— FOR ——	FOR	FUEL OIL RETURN
—— FOS ——	FOS	FUEL OIL SUPPLY
—— FOV ——	FOV	FUEL OIL VENT
—— FSPR ——	FSPR	FIRE SPRINKLER
—— G ——	G	NATURAL GAS LINE (FIRM)
—— GI ——	GI	GREASE INTERCEPTOR
—— HG ——	HG	HOT GAS
—— HPR ——	HPR	HIGH PRESSURE STEAM RETURN
—— HPS ——	HPS	HIGH PRESSURE STEAM SUPPLY
—— HWR ——	HWR	HEATING WATER RETURN
—— HWS ——	HWS	HEATING WATER SUPPLY
—— IG ——	IG	NATURAL GAS LINE (INTERRUPTIBLE)
—— LPG ——	LPG	LIQUIFIED PETROLEUM GAS
—— LPR ——	LPR	LOW PRESSURE STEAM RETURN
—— LPS ——	LPS	LOW PRESSURE STEAM SUPPLY
—— LSPR ——	LSPR	LAWN SPRINKLER
—— MPR ——	MPR	MEDIUM PRESSURE STEAM RETURN
—— MPS ——	MPS	MEDIUM PRESSURE STEAM SUPPLY
—— NP· ——	NPCW	NON POTABLE COLD WATER
—— NP·· ——	NPHW	NON POTABLE HOT WATER
—— NP··· ——	NPRHW	NON POTABLE RECIRCULATED HOT WATER
—— O ——	O	OXYGEN
—— ORD ——	ORD	OVERFLOW DRAIN
—— RL ——	RL	REFRIGERANT LIQUID
—— RS ——	RS	REFRIGERANT SUCTION
—— S· ——	SCW	SOFT COLD WATER
—— S·· ——	SHW	SOFT HOT WATER
—— S··· ——	SRHW	SOFT RECIRCULATED HOT WATER
—— SD ——	SD	STORM DRAIN
—— TW ——	TW	TEMPERED WATER
—— V ——	V	VENT
—— VAC ——	VAC	VACUUM
—— W ——	W	WASTE ABOVE GRADE
— — W — —	W	WASTE BELOW FLOOR
—— W ——	W	WASTE BELOW GRADE

SYMBOL & DESCRIPTION



1. SHUT-OFF VALVE
2. PRESSURE REDUCING VALVE
3. BALANCE VALVE
4. CHECK VALVE
5. CONTROL VALVE
6. GAS COCK
7. THERMOMETER
8. PRESSURE GAUGE
9. MANUAL AIR VENT
10. UNION
11. STRAINER W/DRAIN VALVE
12. TOP CONNECTION TEE W/ELBOW
13. BOTTOM CONNECTION TEE W/ELBOW
14. SIDE CONNECTION TEE
15. SHOCK ABSORBER
16. FLOW METER FITTING
17. PIPE ANCHOR
18. BALANCE VALVE W/FLOW METER FITTING
19. FLOW CONTROL VALVE
20. PIPE CAP, PLUG OR CLEANOUT
21. FLOAT AND THERMOSTATIC TRAP
22. PRESSURE AND TEMPERATURE TEST PORT
23. FLOW DIRECTION ARROW
24. EXPANSION JOINT
25. FLEX CONNECTOR
26. PRESSURE AND TEMPERATURE RELIEF VALVE
27. THREE WAY CONTROL VALVE
28. CONTINUATION SYMBOL
29. PIPE DOWN
30. PIPE UP

ABBREV.	DESCRIPTION
	SPLASH BLOCK
	CONNECTION TO EXISTING
	POINT OF DISCONNECT
CO	CLEANOUT
WH	WALL HYDRANT
FD	FLOOR DRAIN
FS	FLOOR SINK
HB	HOSE BIBB
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
DCO	DOUBLE CLEANOUT
TD	TRENCH DRAIN
RD	ROOF DRAIN

SYMBOL	DESCRIPTION
	SUPPLY/OUTSIDE AIR DUCT UP (S/A OR O/A)
	SUPPLY/OUTSIDE AIR ROOF/FLOOR PENETRATION
	SUPPLY/OUTSIDE AIR DUCT DOWN (S/A OR O/A)
	RETURN AIR DUCT UP (R/A)
	RETURN AIR ROOF/FLOOR PENETRATION
	RETURN AIR DUCT DOWN (R/A)
	EXHAUST AIR DUCT UP (E/A)
	EXHAUST AIR ROOF/FLOOR PENETRATION
	EXHAUST AIR DUCT DOWN (E/A)
	ROUND DUCT SECTION UP
	ROUND DUCT ROOF/FLOOR PENETRATION
	ROUND DUCT SECTION DOWN
1/2	1. WIDTH DIMENSION 2. DEPTH DIMENSION
R	DUCT RISE IN DIRECTION
D	DUCT DROP IN DIRECTION
1 2 3	1. WIDTH DIMENSION 2. WIDTH DIMENSION 3. DEPTH DIMENSION
R W	TYPICAL DUCT TURN R EQUAL TO W (MINIMUM)
	TYPICAL DUCT TURN WITH TURN VANES
1. 2. A 1/2 A	1. CONICAL TAKE-OFF 2. BRANCH DUCT INTO SIDE OF MAIN DUCT
	TYPICAL SQUARE TO ROUND TRANSITION
	FLEXIBLE DUCT CONNECTION (CANVAS)
M S 1. 2. 3.	1. MOTORIZED DAMPER 2. FIRE DAMPER 3. SMOKE DAMPER
B P S 1. 2. 3.	1. BACKDRAFT DAMPER 2. STATIC PRESSURE SENSOR 3. FIRE/SMOKE DAMPER
1. 2 3.	1. REHEAT COIL 2. SPLITTER DAMPER 3. MANUAL VOLUME DAMPER
D-X X"Ø CFM XXX	SUPPLY AIR DIFFUSER TAG
G-X X"/X" CFM XXX	RETURN GRILLE TAG
T	THERMOSTAT
T	THERMOSTAT W/LOCKING COVER
T N	NIGHT THERMOSTAT
T A	RECESSED STAT (ASPIRATING)
H	HUMIDISTAT
S	OCCUPIED-UNOCCUP. SWITCH
X	KEYED NOTES
X	KEYED DEMOLITION NOTES
X	REVISION NOTE NUMBER

ABBREVIATIONS

AF	AIRFOIL
AC-X	AIR COMPRESSOR
A/C	AIR CONDITIONING
ACCU-X	AIR COOLED CONDENSING UNIT
AHU-X	AIR HANDLING UNIT
AIR PD	AIR PRESSURE DROP
AS-X	AIR SEPARATOR
ATU	AIR TERMINAL UNIT
AMB	AMBIENT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS
AMP	AMPERE
ANG	ANGLE
A	AREA
AD-X	AIR DOOR
APPROX	APPROXIMATE
AUX	AUXILIARY
ATM	ATMOSPHERE
AVG	AVERAGE
BI	BACKWARD INCLINED
BIBC	BACKWARD INCLINED BACKWARD CURVED
BOD	BOTTOM OF DUCT
BOJ	BOTTOM OF JOIST
B-X	BOILER
BHP	BREAK HORSE POWER
BTU	BRITISH THERMAL UNIT
BLDG	BUILDING
CUH-X	CABINET UNIT HEATER
CLG	CEILING
C TO C	CENTER TO CENTER
CL	CENTER LINE
CENT	CENTRIFUGAL
CF-X	CHEMICAL FEED SYSTEM
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CH-X	CHILLER
CPVC	CHLORINATED POLYVINYL CHLORIDE
CLR	CLEAR
CO	CLEANOUT
CMPR	COMPRESSOR
CRAC-X	COMPUTER ROOM AIR CONDITIONER
CP-X	CONDENSATE PUMP
CDU	CONDENSER UNIT
CU-X	CONDENSING UNIT
CUHP-X	CONDENSING UNIT HEAT PUMP
CV	CONSTANT VOLUME / CONTROL VALVE
CCC-X	CLOSED CIRCUIT COOLER (FLUID COOLER)
CC-X	COOLING COIL
CT-X	COOLING TOWER
CU FT	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CU IN	CUBIC INCH
DEG	DEGREE
DP	DEPTH / DEEP
DIA	DIAMETER
D-X	DIFFUSER
DX	DIRECT EXPANSION
DISC	DISCONNECT
DWG	DRAWING
DB	DRY BULB (Temperature)
DDVAV	DUAL DUCT VARIABLE AIR VOLUME
DC-X	DUST COLLECTOR

DWDI	DOUBLE WHEEL DOUBLE INLET
ERAD-X	ELECTRIC BASEBOARD RADIATOR
EFT-X	ELECTRIC FIN TUBE
ERH-X	ELECTRIC RADIANT HEATER
EUH-X	ELECTRIC UNIT HEATER
EL/ELEV	ELEVATION
ERV-X	ENERGY RECOVERY VENTILATOR
EAT	ENTERING AIR TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
EQUIP	EQUIPMENT
ECU-X	EVAPORATIVE CONDENSING UNIT
EVAP	EVAPORATOR
EXH	EXHAUST
EA	EXHAUST AIR
EF-X	EXHAUST FAN
EH-X	EXHAUST HOOD
EXIST	EXISTING
ET-X	EXPANSION TANK
ESP	EXTERNAL STATIC PRESSURE
°F	DEGREE FAHRENHEIT
FCU-X	FAN COIL UNIT
FPB-X	FAN POWERED BOX
FT	FEET
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT-X	FIN TUBE
FF-X	FINAL FILTER
FLT-X	FLASH TANK
FLR	FLOOR
FC-X	FAN COIL
FC	FORWARD CURVED
FA	FREE AREA / FIRE ALARM
FOT-X	FUEL OIL TANK
FLA	FULL LOAD AMPS
F-X	FURNACE
GAL	GALLONS
GPM	GALLONS PER MINUTE
GALV	GALVANIZED
G	GAS
GPR-X	GAS PRESSURE REGULATOR
GA	GAUGE
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GH-X	GRAVITY HOOD
G-X	GRILLE
HZ	HERTZ
HD	HEAD
HE-X	HEAT EXCHANGER
HP-X	HEAT PUMP
HPWR	HEAT PUMP WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HTR	HEATER
HTG	HEATING
HC-X	HEATING COIL
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HGT	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
HR	HOUR
H-X	HUMIDIFIER

HF-X	HYDRONIC FILTER
ID	INSIDE DIAMETER
IH-X	INTAKE HOOD
ISP	INTERNAL STATIC PRESSURE
KW	KILOWATT
KWH	KILOWATT HOUR
KES	KITCHEN EQUIPMENT SUPPLIER
KEF-X	KITCHEN EXHAUST FAN
KH-X	KITCHEN HOOD
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
LG	LENGTH
LTG	LIGHTING
LD-X	LINEAR DIFFUSER
LF	LINEAR FEET
LP	LIQUID PROPANE
LRA	LOCKED ROTOR AMPS
L-X	LOUVER
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LBS	POUNDS
MBH	1000 BTU'S
MFR	MANUFACTURER
MAX	MAXIMUM
MCA	MAXIMUM CIRCUIT AMPACITY
MA	MAKE-UP AIR
MAU-X	MAKE-UP AIR UNIT
MECH	MECHANICAL
MC	MECHANICAL CONTRACTOR
MPC	MEDIUM PRESSURE CONDENSATE
MPS	MEDIUM PRESSURE STEAM
MIN	MINIMUM
MISC	MISCELLANEOUS
MV-X	MIXING VALVE
MTD	MOUNTED
MTG	MOUNTING
NOM	NOMINAL
NC	NORMALLY CLOSED / NOISE CRITERIA
NO	NORMALLY OPEN / NUMBER
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NA	NEUTRAL AIR
OA	OUTSIDE AIR
OC	ON CENTER
ORD	OVERFLOW STORM DRAIN PIPING
ORD	OVERFLOW ROOF DRAIN
PTAC-X	PACKAGED TERMINAL A/C
PTHP-X	PACKAGED TERMINAL HEAT PUMP
PPM	PARTS PER MILLION
PERP	PERPENDICULAR
PH	PHASE
PLBG	PLUMBING
PC	PLUMBING CONTRACTOR
PHVAC	PLUMBING, HEATING, VENTILATION AND AIR CONDITIONING
PVC	POLYVINYL CHLORIDE
PDU-X	POOL DEHUMIDIFICATION UNIT
PIV	POST INDICATOR VALVE
PWR	POWER

PF-X	PRE FILTER
PHC-X	PREHEAT COIL
PD	PRESSURE DROP
P-X	PLUMBING FIXTURE
PRV-X	PRESSURE REDUCING VALVE
P-X	PUMP
PROP	PROPELLER
RECIRC	RECIRCULATE
R-X	REGISTER
RHC-X	REHEAT COIL
RLFA	RELIEF AIR
RV-X	RELIEF VALVE
REQ'D	REQUIRED
RA	RETURN AIR
RD	ROOF DRAIN
RF-X	RETURN FAN
RPM	REVOLUTIONS PER MINUTE
RH	RELATIVE HUMIDITY
RTU-X	ROOFTOP UNIT
RM	ROOM
SCHED	SCHEDULE
SEN	SENSOR
SIM	SIMILAR
SWSI	SINGLE WHEEL SINGLE INLET
SA-X	SOUND ATTENUATOR
SD	STORM DRAIN PIPING
SPEC(S)	SPECIFICATIONS
SQ	SQUARE
STD	STANDARD
SUCT	SUCTION
SP	STATIC PRESSURE
SA	SUPPLY AIR
SF-X	SUPPLY FAN
TEMP	TEMPERATURE
TD	TEMPERATURE DIFFERENCE
TU-X	TERMINAL UNIT
TUR	TERMINAL UNIT REHEAT
T-STAT	THERMOSTAT
TK	THICK
TONS	12000 BTU
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UH-X	UNIT HEATER
UV-X	UNIT VENTILATOR
UNO	UNLESS NOTED OTHERWISE
VAR	VARIABLE
VAV	VARIABLE AIR VOLUME
VFD-X	VARIABLE FREQUENCY DRIVE
VERT	VERTICAL
V	VOLT
VOL	VOLUME
WG	WATER GAUGE
WPD	WATER PRESSURE DROP
W	WATT / WIDTH
WT	WEIGHT
WB	WET BULB TEMPERATURE
YD	YARD

DRAWING INDEX

CODE REQUIREMENTS

2006 INTERNATIONAL MECHANICAL CODE
2015 OMAHA PLUMBING CODE
2009 INTERNATIONAL ENERGY CONSERVATION CODE
2006 INTERNATIONAL BUILDING CODE
2009 NATIONAL FIRE GAS CODE
NATIONAL FIRE PROTECTION ASSOCIATION

NOTICE

NOT DISCLOSED

GENERAL NOTES:

1. PIPING, DUCTWORK, AND EQUIPMENT SHOWN HALFTONE IS EXISTING TO REMAIN. PIPING, DUCTWORK AND EQUIPMENT SHOWN FULL-TONE IS NEW.
2. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING NEEDED FOR MECHANICAL INSTALLATION. PATCHING MUST MATCH EXISTING.
3. ACCESS PANELS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CONTROLS, ETC., IN HARD SURFACE CEILINGS. ACCESS PANELS SHALL BE FURNISHED BY MC AND INSTALLED BY THE MC. COORDINATE EXACT LOCATIONS WITH ARCHITECT.
4. 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.
5. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC AND PIPING) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, PLUMBING, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC.,SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
8. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
9. 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.
10. 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.
11. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
12. REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 315 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C94. CONCRETE WORK SHALL CONFORM TO ACI 318, PART ENTITLED "CONSTRUCTION REQUIREMENTS." COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3,000 PSI. TOTAL AIR CONTENT OF EXTERIOR CONCRETE SHALL BE BETWEEN 5 AND 7 PERCENT OF VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 INCHES. CONCRETE SHALL BE CURED FOR 7 DAYS AFTER PLACEMENT.
13. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S 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.
14. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 16 OF THE SPECIFICATION.
15. CONCRETE HOUSEKEEPING PADS TO SUIT MECHANICAL EQUIPMENT SHALL BE SIZED AND INSTALLED BY THE MC. MINIMUM CONCRETE PAD THICKNESS SHALL BE 4". PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 4" ON EACH SIDE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO COORDINATE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS.
16. WHEN MECHANICAL WORK (HVAC, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MC'S RESPONSIBLY 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.
17. 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.
18. 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.
19. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
20. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
21. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
22. ALL ROOF MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MC SHALL BE FURNISHED BY THE MC AND INSTALLED BY THE MC.
23. LOCATIONS AND SIZES OF ALL FLOOR, ROOF, AND WALL OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
24. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
25. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
26. ALL WORK SHALL COMPLY WITH LOCAL CODES, INTERNATIONAL BUILDING CODE, UNIFORM AND INTERNATIONAL MECHANICAL CODE, AND NFPA.

PIPING GENERAL NOTES:

1. DO NOT RUN PIPING ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES.
2. INSTALL PIPING TO HEAT PUMPS TO PROVIDE EASY ACCESS AND REMOVAL OF THE HEAT PUMP. DO NOT ROUTE PIPING UNDER HEAT PUMP.
3. 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.
4. PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEAT PUMP WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
5. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION IF REQUIRED.
6. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
7. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
8. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
9. PROVIDE CHAIN WHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7-0" A.F.F; CHAIN SHALL EXTEND TO 7'-O" A.F.F.
10. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
11. UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
12. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
13. ALL PIPING SHALL CLEAR DOORS AND WINDOWS.
14. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
15. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
16. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COILS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE.
17. PROVIDE LINE SIZE STRAINER UPSTREAM OF EACH AUTOMATIC VALVE. PROVIDE SHUTOFF VALVE ON EACH SIDE OF STRAINER.

HVAC GENERAL NOTES :

1. DO NOT RUN DUCTWORK ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES.
2. CONTRACTOR SHALL COORDINATE LOCATION OF DUCTWORK IN CEILING SPACE WITH ALL TRADES PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK.
3. FOR GENERAL DUCTWORK CONSTRUCTION, SEE DETAILS IN DRAWING SET.
4. DUCTWORK SHALL NOT BE FABRICATED UNTIL ALL COORDINATION CONFLICTS HAVE BEEN RESOLVED.
5. CAP ENDS OF ALL INSTALLED DUCTWORK DURING CONSTRUCTION TO MINIMIZE DIRT, DEBRIS, AND FOREIGN OBJECTS FROM ENTERING THE DUCT SYSTEM.
6. BRANCH DUCT SIZES ARE THE SAME AS DIFFUSER NECK SIZE, UNLESS NOTED OTHERWISE.
7. ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.
8. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
9 PROVIDE ALL 90° SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED.
10. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO HEAT PUMPS, FANS, AND OTHER EQUIPMENT WHICH REQUIRES VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
11. UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF REQUIRED.
12. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 3-0" AND NOT FORM AN ANGLE GREATER THAN 45°.
13. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
14. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH REQUIRE SERVICE AND/OR INSPECTION.
15. PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.
16. SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
17. PROVIDE VOLUME DAMPER IN ALL BRANCH TAKEOFFS CONNECTING TO DIFFUSERS OR REGISTERS.
18. COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS, FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUT.
19. LOCATE ALL MECHANICAL EQUIPMENT (HEAT PUMPS, MAKE-UP AIR UNITS, ETC.) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS AND VALVING, AS REQUIRED BY MANUFACTURER'S INSTALLATION AND OPERATION REQUIREMENTS AND/OR BY CODE.
20. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENT FOR THESE ITEMS.
21. ALL MAKE-UP AIR UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.
22. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
23. IN CORRIDORS WHERE CEILING DEVICES AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE SAME FIXTURE.
24. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM SENSORS AT 4-0" (CENTERLINE) A.F.F. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
25. 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 MANUFACTURER'S PRINTED INSTRUCTIONS.
26. MC TO MAKE CUTS IN FLOOR FOR PENETRATIONS OF DUCTWORK. MECHANICAL DUCT PENETRATIONS TO BE IN SLAB ONLY. DO NOT CUT OR DAMAGE CONCRETE JOIST STEMS.

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SYMBOLS & ABBREVIATIONS

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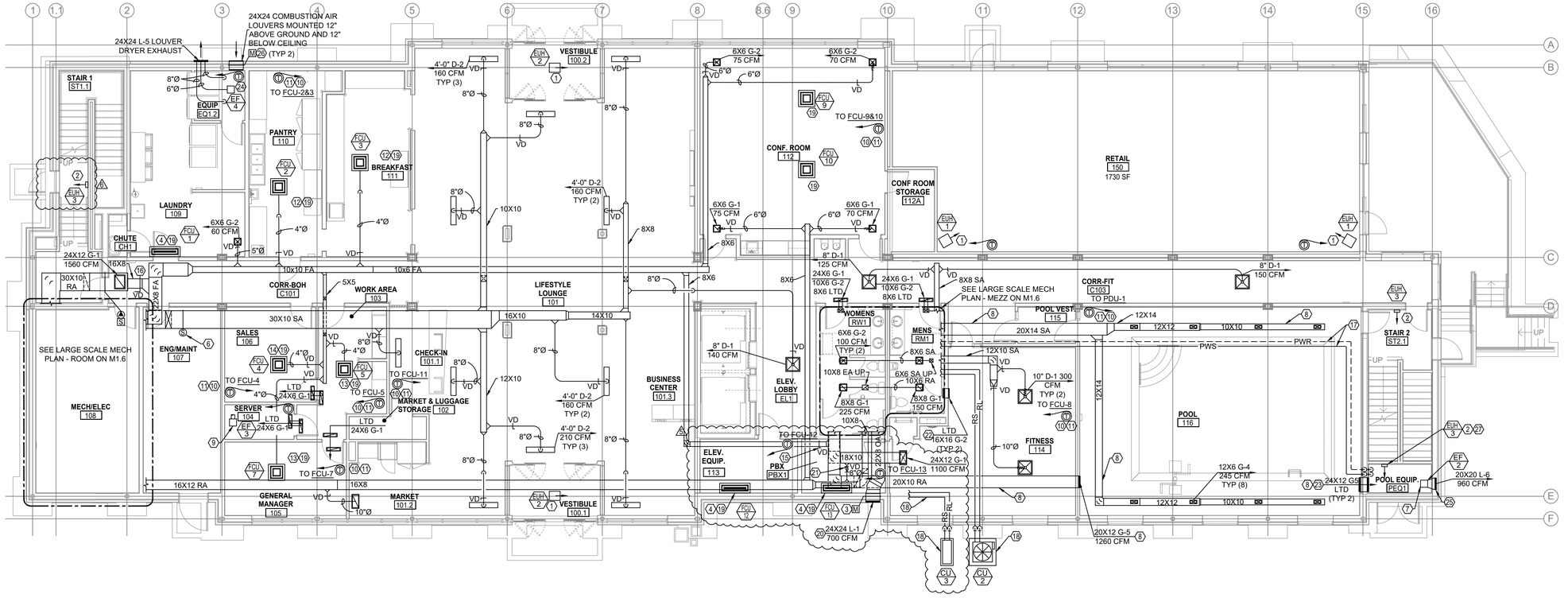

KEYED MECHANICAL NOTES:

1. MOUNT FROM CEILING USING SUPPLIED CEILING MOUNT KIT.
2. MOUNT TOP AT 30" A.F.F.
3. INTERLOCK MOTORIZED DAMPER WITH ASSOCIATED FAN MOTOR. DAMPER SHALL OPEN WHEN FAN IS ENERGIZED. DAMPER SHALL CLOSE WHEN FAN IS DE-ENERGIZED.
4. MOUNT BOTTOM OF FCU AT 7'-0" A.F.F.
5. TERMINATE DRYER EXHAUST 12'-0" A.F.F. EXHAUST THROUGH XVENT 6SEB-BR OR SIMILAR.
6. PROVIDE AND INSTALL SMOKE DETECTOR. SMOKE DETECTOR PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. UNIT TO BE WIRED BY ELECTRICAL CONTRACTOR. UNIT TO BE OF SAME MANUFACTURER AS THE FIRE ALARM SYSTEM.
7. PROVIDE EXPANED ALUMINUM GRATE OVER INLET.
8. ALUMINUM DUCTWORK ONLY ON SYSTEMS OPERATING IN POOL AREA.
9. DISCHARGE FAN EXHAUST TO PLENUM SPACE. INTERLOCK EF WITH LOW VOLTAGE THERMOSTAT.
10. MOUNT THERMOSTAT AT 50" A.F.F.
11. PROVIDE WITH LOCKING COVER.
12. BALANCE FA TO 40 CFM.
13. BALANCE FA TO 20 CFM.
14. BALANCE FA TO 15 CFM.
15. BALANCE FA TO 120 CFM.
16. BALANCE FA TO 460 CFM.
17. ROUTE WATER FROM POOL PUMP TO POOL DEHUMIDIFICATION UNIT. SEE POOL DEHUMIDIFICATION UNIT INSTRUCTIONS FOR SPECIFICS.
18. PROVIDE EQUIPMENT PAD 6" WIDER THAN OUTSIDE DIMENSIONS OF EQUIPMENT.
19. ROUTE RL/RS LINES PER MANUFACTURER'S SUPPLIED DRAWING, SEE SHEET M4.0.
20. MOUNT BOTTOM AT 13'-6" A.F.F.
21. BALANCE RA TO 120 CFM.
22. MOUNT BOTTOM OF LTD AT 11'-0" A.F.F. IN FITNESS AREA.
23. MOUNT BOTTOM OF LTD AT 8'-0" A.F.F.
24. INTERLOCK THERMOSTAT WITH EF-4.
25. MOUNT TOP OF LOUVER AT 8'-0" A.F.F.
26. INTERLOCK COMBUSTION AIR DAMPER WITH CLOTHES DRYER.
27. EPOXY BASED POWDER COAT PAINT FOR CORROSION RESISTANCE.
28. ROUTE RL/RS LINES FROM CU-3 TO FCU-12 AND FCU-13.

GENERAL NOTES:

1. LIMITED CEILING CLEARANCE THROUGHOUT LOBBY, COORIDORS, AND FITNESS AREA, COORDINATE WITH ALL TRADES BEFORE BEGINNING FABRICATION AND/OR INSTALLATION.

LINE TYPES:

- PWR — POOL WATER RETURN
- PWS — POOL WATER SUPPLY
- RL — REFRIGERANT LIQUID LINE
- RS — REFRIGERANT SUCTION LINE

1 LEVEL ONE MECHANICAL PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL ONE MECHANICAL PLAN

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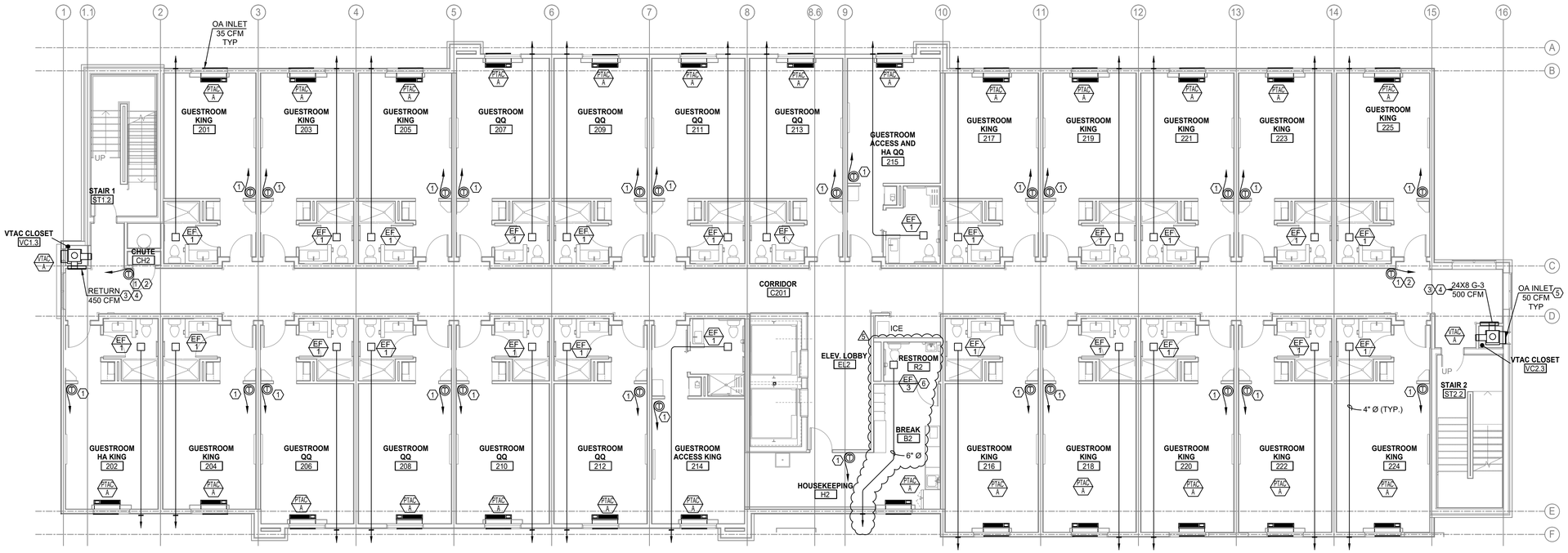

KEYED MECHANICAL NOTES: ⟨X⟩

1. INSTALL THERMOSTAT AT 50" A.F.F.
2. PROVIDE WITH LOCKING COVER.
3. MOUNT ACCESS PANEL WITH RETURN GRILL ACCORDING TO MANUFACTURERS INSTRUCTIONS.
4. MOUNT SUPPLY GRILL 7'-10" A.F.F. SEE VTAC CLOSET DETAIL.
5. BALANCE OA FOR VTAV-A TO 50 CFM.
6. INTERLOCK WITH LIGHT SWITCH.

1 LEVEL TWO MECHANICAL PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL TWO MECHANICAL PLAN

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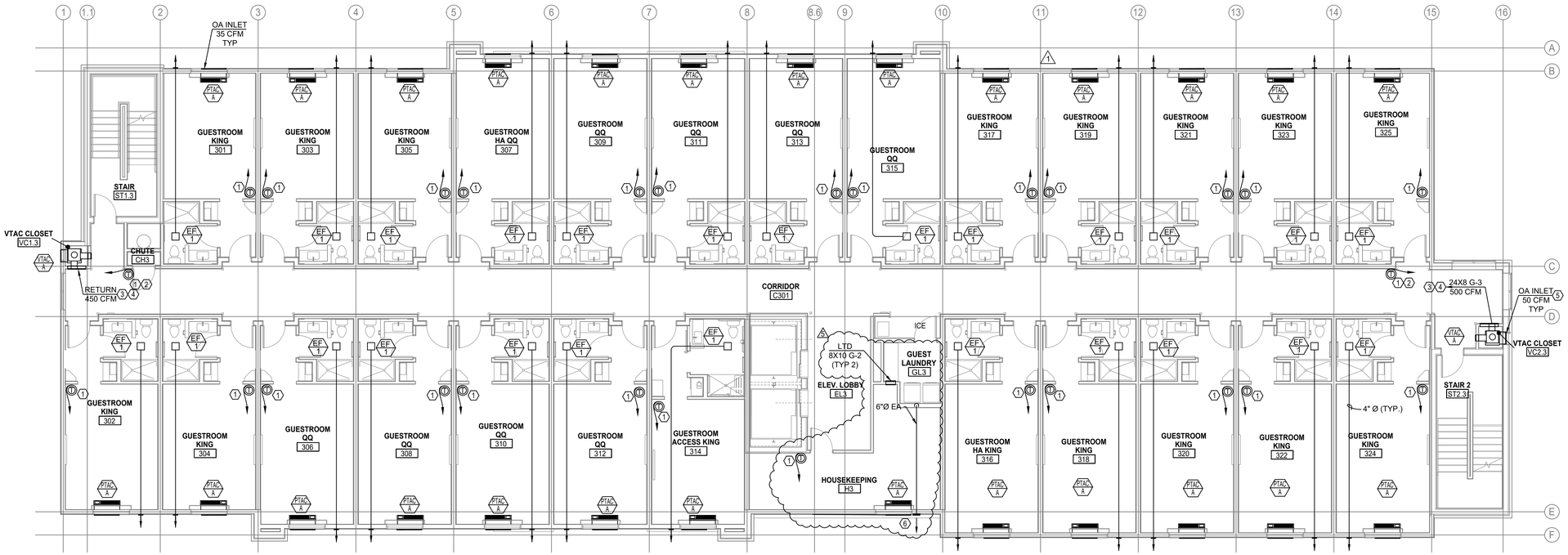

KEYED MECHANICAL NOTES: ⓧ

1. INSTALL THERMOSTAT AT 50" A.F.F.
2. PROVIDE WITH LOCKING COVER.
3. MOUNT ACCESS PANEL WITH RETURN GRILL ACCORDING TO MANUFACTURERS INSTRUCTIONS.
4. MOUNT SUPPLY GRILL 7'-10" A.F.F. SEE VTAC CLOSET DETAIL.
5. BALANCE OA FOR VTAV-A TO 50 CFM.
6. TERMINATE DRYER EXHAUST 12'-0" A.F.F. EXHAUST THROUGH XVENT 6SEB-BR OR SIMILAR.

1 LEVEL THREE MECHANICAL PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL THREE MECHANICAL PLAN

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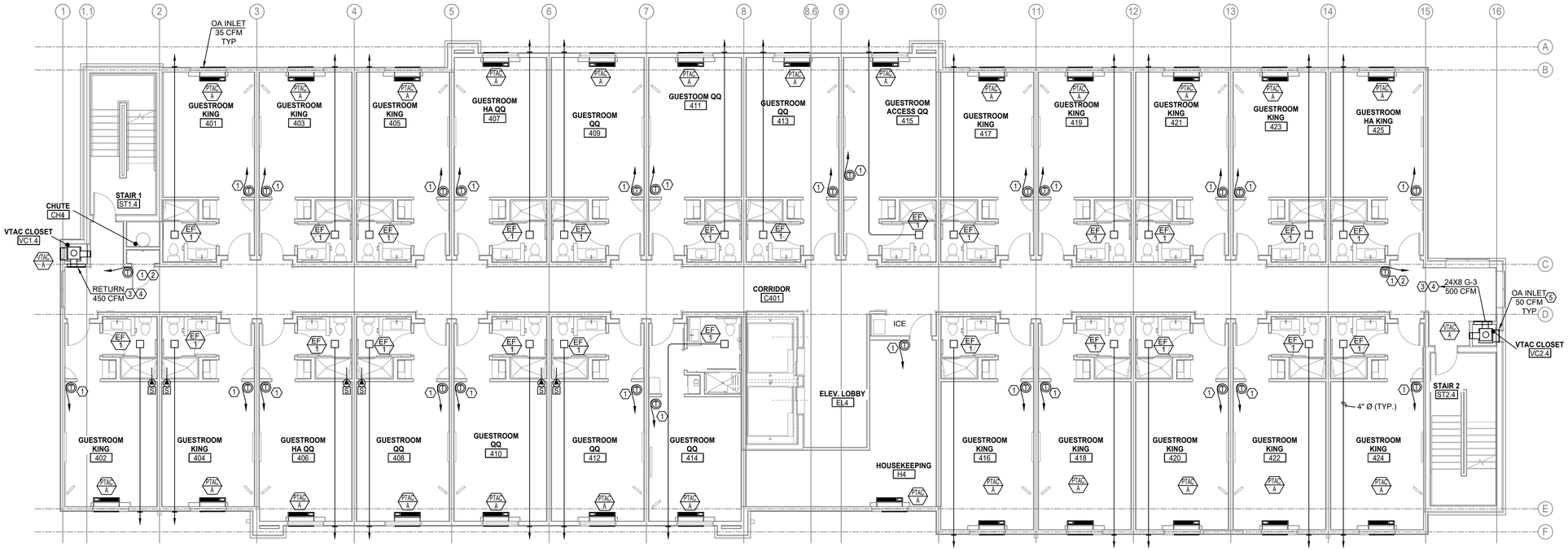

KEYED MECHANICAL NOTES: ⓧ

1. INSTALL THERMOSTAT AT 50" A.F.F.
2. PROVIDE WITH LOCKING COVER.
3. MOUNT ACCESS PANEL WITH RETURN GRILL ACCORDING TO MANUFACTURERS INSTRUCTIONS.
4. MOUNT SUPPLY GRILL 7'-10" A.F.F. SEE VTAC CLOSET DETAIL.
5. BALANCE OA FOR VTAV-A TO 50 CFM.

1 LEVEL FOUR MECHANICAL PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

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LEVEL FOUR MECHANICAL PLAN

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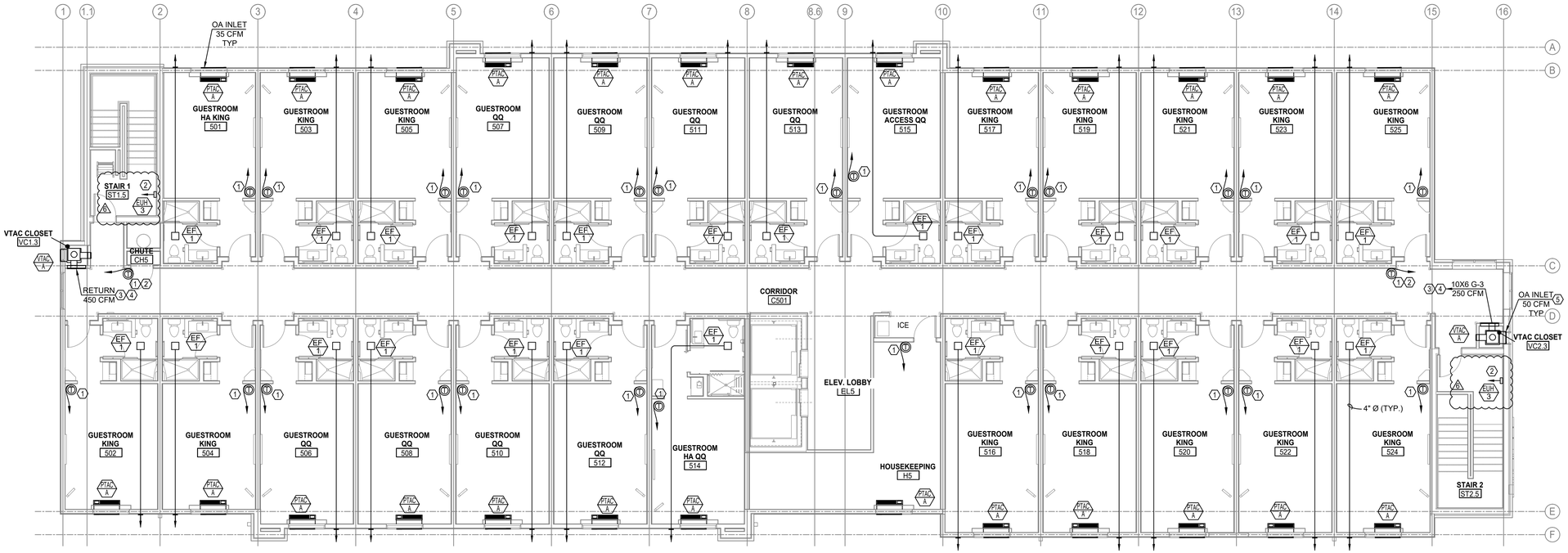

KEYED MECHANICAL NOTES: ⟨X⟩

1. INSTALL THERMOSTAT AT 50" A.F.F.
2. PROVIDE WITH LOCKING COVER.
3. MOUNT ACCESS PANEL WITH RETURN GRILL ACCORDING TO MANUFACTURERS INSTRUCTIONS.
4. MOUNT SUPPLY GRILL 7'-10" A.F.F. SEE VTAC CLOSET DETAIL.
5. BALANCE OA FOR VTAV-A TO 50 CFM.

1 LEVEL FIVE MECHANICAL PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL FIVE MECHANICAL PLAN

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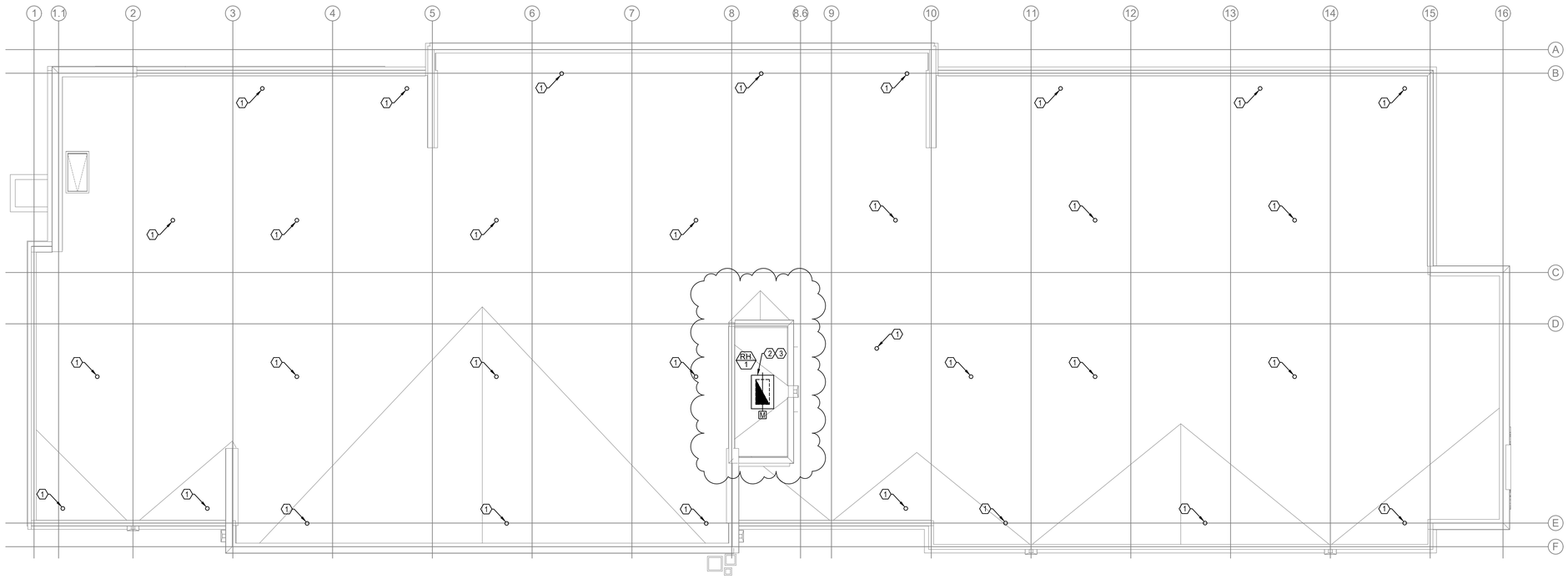

KEYED MECHANICAL NOTES: (X)

1. 4" VTR. SEAL PENETRATION WEATHER TIGHT.
2. SEAL PENETRATION WEATHER TIGHT.
3. INTERLOCK MOTORIZED DAMPER WITH FAC PANEL. DAMPER SHALL FAIL OPEN.

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

NORTH

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ROOF MECHANICAL PLAN

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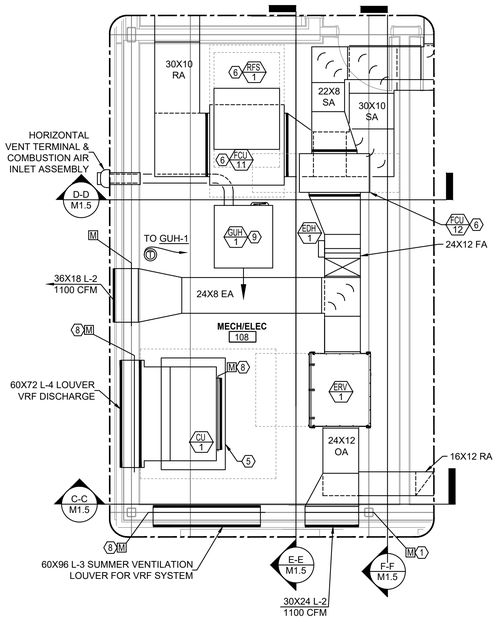
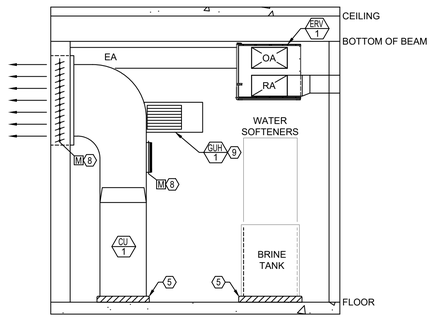


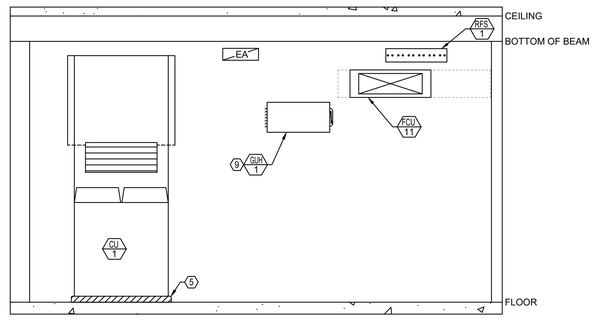
1 ENLARGED MECHANICAL PLAN - ROOM

1/4" = 1'-0"

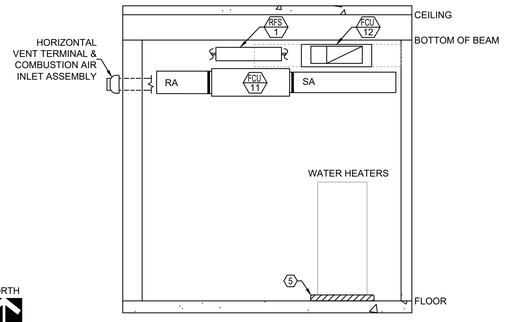
NORTH



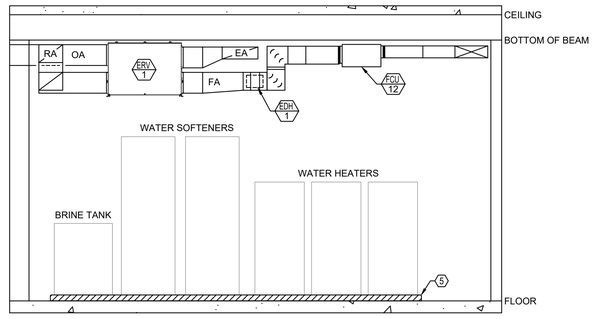
SECTION C-C
SCALE: 1/4" = 1'-0"



SECTION E-E
SCALE: 1/4" = 1'-0"



SECTION D-D
SCALE: 1/4" = 1'-0"



SECTION F-F
SCALE: 1/4" = 1'-0"

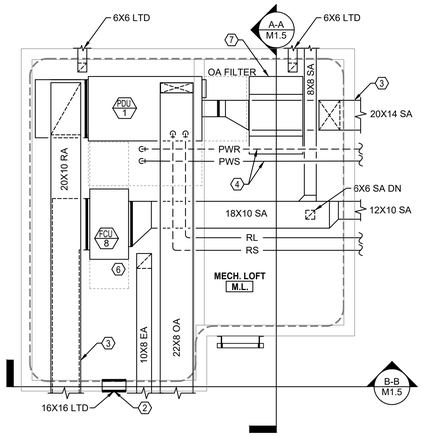
DETAIL THROUGH SECTION E-E CUTTING LINE

KEYED MECHANICAL NOTES: (X)

1. INTERLOCK MOTORIZED DAMPER WITH ASSOCIATED FAN MOTOR.
2. MOUNT BOTTOM OF LTD AT 11'-0" A.F.F. IN FITNESS ROOM. (NOTE: MOUNT AT 2'-3" A.F.F IN MECH MEZZ.)
3. ALUMINUM DUCTWORK ONLY ON SYSTEMS OPERATING IN POOL AREA.
4. ROUTE WATER FROM POOL PUMP TO POOL DEHUMIDIFICATION UNIT. SEE POOL DEHUMIDIFICATION UNIT INSTRUCTIONS FOR SPECIFICS.
5. PROVIDE EQUIPMENT PAD 6" WIDER THAT OUTSIDE DIMENSIONS OF EQUIPMENT.
6. ROUTE RL/RS LINES PER MANUFACTURER'S SUPPLIED DRAWING, SEE SHEET M4.0.
7. PROVIDE SERVICE PLATFORM OVER SUPPLY DUCTWORK. PLATFORM TO BE AT LEAST 3'-0" WIDE OR AS DIRECTED BY AHJ.
8. SEE SEQUENCE OF OPERATIONS FOR VRF MOTOR DAMPER OPERATION ON SHEET M2.0.
9. MOUNT BOTTOM OF GUH-1 AT 9'-6" A.F.F.

LINE TYPES:

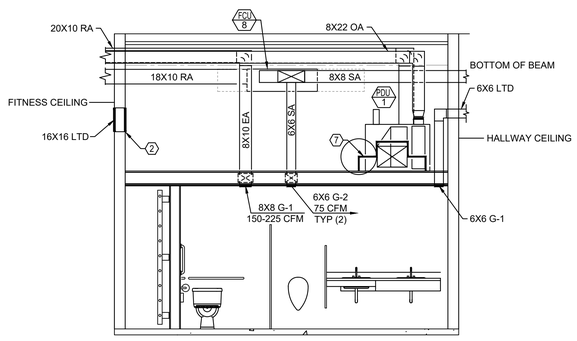
PWR	POOL WATER RETURN
PWS	POOL WATER SUPPLY
RL	REFRIGERANT LIQUID LINE
RS	REFRIGERANT SUCTION LINE



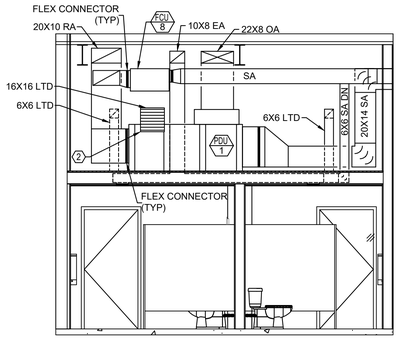
2 ENLARGED MECHANICAL PLAN - MEZZ LEVEL

1/4" = 1'-0"

NORTH



SECTION A-A
SCALE: 1/4" = 1'-0"



SECTION B-B
SCALE: 1/4" = 1'-0"
LADDER AND WALL NOT SHOWN FOR CLARITY.

NOT DISCLOSED

ENLARGED MECHANICAL PLANS

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ENERGY RECOVERY VENTILATOR

MARK	O.A CFM	E.A. CFM	COOLING SEASON: SUMMER AMBIENT DB (°F)	SUMMER AMBIENT WB (°F)	SUMMER RETURN DB (°F)	SUMMER RETURN REL HUM	VENTILATOR LAT DB (°F)	VENTILATOR LAT WB (°F)	TOTAL CAP (MBH)	SENS. CAP (MBH)	HEATING SEASON: WINTER AMBIENT DB (°F)	WINTER AMBIENT WB (°F)	WINTER RETURN DB (°F)	WINTER RETURN REL HUM	VENTILATOR LAT DB (°F)	VENTILATOR LAT WB (°F)	TOTAL CAP (MBH)	SENS. CAP (MBH)	ELECTRICAL V	PH	HP	FLA	MOP	MCA	BASIS OF DESIGN	WT (LBS)	NOTES
ERV-1	1100	1100	95	75	75	50%	80.1	67.7	19.5	6.1	-7	-9	70	35%	50.2	40.8	35.4	23.5	208	3	1.5	4.8	15	10.8	RENEWAIRE HE2X1NH	450	1,2,3

NOTES:
1. PROVIDE WITH HANGING BRACKETS TO MOUNT TO STRUCTURE.
2. PROVIDE WITH VIBRATION ISOLATION KIT.
3. MOUNT IN ACCORDANCE WITH MANUFACTURER'S CLEARANCE SPECIFICATIONS.

VRF CONDENSING UNIT/HEAT PUMP

MARK	MODEL	COOLING (MBH) NOMINAL	COOLING (MBH) CORRECTED	HEATING (MBH) NOMINAL	HEATING (MBH) CORRECTED	REQUIRED CAPACITY COOLING (MBH)	REQUIRED CAPACITY HEATING (MBH)	CONNECT INDOOR UNITS	CONNECT DIV.	MAX DIV.	LOCATION	ELECTRICAL V - Ø - Hz	ELECTRICAL MCA	ELECTRICAL MOCP
CU-1	TOSHIBA-CARRIER MMOX-MAP1686FT9P-UL	168.00	178.02	189.00	194.75	224.30 (224.30)	251.00 (251.00)	11	134%	135%	ROOM 108	208/230 - 3 - 60	66.20	70.00
HP-1	TOSHIBA-CARRIER MSP0487HD-UL	48.00	-	54.00	-	-	-	2	100%	135%	EXTERIOR	208/230 - 3 - 60	36.30	40.00

EXHAUST FANS

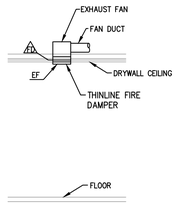
MARK	LOCATION	FAN DATA: WHEEL TYPE	FAN TYPE	CFM	TSP/ ESP (IN WG)	FAN RPM	DRIVE TYPE	HP	W	FLA	V	PH	WEIGHT	SONES	BASIS OF DESIGN	NOTES
EF-1	GUEST BATHROOM	FC WHEEL	EXHAUST	50	0.250	850	DIRECT	-	26.8	0.23	115	1	10	2.5	GREENHECK SP-L80	1,2,5,7,8
EF-2	POOL EQUIPMENT	BC WHEEL	EXHAUST	960	0.250	1358	BELT	1/4	-	3.7	115	1	39	6.3	GREENHECK SQ-100-VG	1,2,3
EF-3	RESTROOM (R3), SERVER (104)	FC WHEEL	EXHAUST	75	0.250	700	DIRECT	-	20.0	0.65	115	1	10	1.3	GREENHECK SP-B90	1,2,8
EF-4	LAUNDRY EQUIP	FC WHEEL	EXHAUST	260	.226	1050	DIRECT	-	81	0.72	115	1	24	2.5	GREENHECK SP-A290	1,2,4,6

NOTES:
1. PROVIDE WITH BACKDRAFT DAMPER AND INSECT SCREEN.
2. PROVIDE WITH INTEGRAL DISCONNECT.
3. PROVIDE WITH ALUMINUM HOUSING AND COMPONENTS.
4. PROVIDE WITH CEILING MOUNT KIT.
5. INTERLOCK WITH LIGHT SWITCH.
6. INTERLOCK WITH THERMOSTAT.
7. PROVIDE WITH XCENT BOX - MODEL 4SEB-BR OR EQUIVALENT.
8. PROVIDE WITH THINLINE FIRE DAMPER. (A)

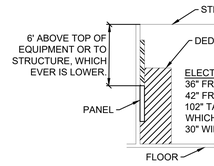
DIFFUSERS, REGISTERS & GRILLES

MARK	MAX . STATIC PD (IN W.G.)	MAX. NC	DAMPER (Y/N)	FRAME TYPE	FINISH	BASIS OF DESIGN	NOTES
D-1	0.05	20	N	LAY-IN	WHITE	KRUEGER 1400	1
D-2	0.05	15	N	LAY-IN	WHITE	KRUEGER 1900, 4 SLOT	1
G-1	0.05	30	N	SURFACE	WHITE	KRUEGER EGC5	1
G-2	0.05	15	N	SURFACE	WHITE	KRUEGER S80	1
G-3	0.05	15	N	SURFACE	WHITE	KRUEGER 880	1
G-4	0.10	20	N	SURFACE	WHITE	KRUEGER 5880	1
G-5	0.05	20	N	SURFACE	WHITE	KRUEGER S80	1,2

NOTES:
1. CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR ON FINAL CEILING PLAN AND FRAME TYPE.
2. ALUMINUM CONSTRUCTION FOR USE IN POOL AREA.



4 / M2.0 EXHAUST FAN DETAIL
SCALE: NONE



ELECTRIC WORKING SPACE: (NOTE 1)
36" FROM FRONT OF EQUIPMENT FOR 0-150V TO GROUND (120/208V).
42" FROM FRONT OF EQUIPMENT FOR 151-600V TO GROUND (277/480V).
102" TALL OR HEIGHT OF EQUIPMENT PLUS 24" WORKING SPACE. WHICHEVER IS GREATER.
30" WIDE OR WIDTH OF EQUIPMENT, WHICHEVER IS GREATER.

1. VERIFY WITH LOCAL CODE REQUIREMENTS, SPECIFICATIONS, AND NATIONAL ELECTRICAL CODE.

1 / M2.0 ELECTRIC WORKING SPACE
SCALE: NONE

PACKAGED TERMINAL AIR CONDITIONER

MARK	LOCATION	COOLING (MBH)	HEATING (MBH)	AIRFLOW (CFM)	VENTILATION (CFM)	MAIN FAN ELECTRICAL DATA FLA	LRA	EER	COP	HEAT (W)	V	PH	SUPPLEMENTAL HEATING DATA WATTS	BTU	AMPS	MCA	MOP	WT (LBS)	BASIS OF DESIGN	NOTES
PTAC-A	GUEST ROOMS	6.7	6.1	409	35	3.8	13.5	12	3.6	485	208	1	1,960	6,600	9.6	15	15	130	GE AZ65H07DAM	1,2,3,4

NOTES:
1. PROVIDE WITH WALL SLEEVE.
2. PROVIDE WITH EXTRUDED ANODIZED ALUMINUM EXTERIOR ARCHITECTURAL GRILLE (MANUFACTURERS OR APPROVED ALTERNATIVE).
3. ROUTE CONDENSATE WASTE TO CONDENSATE RISER.
4. PROVIDE WITH POWER CONNECTION KIT SIMILAR TO RAK315P.

VERTICAL TERMINAL AIR CONDITIONER

MARK	LOCATION	COOLING (MBH)	HEATING (MBH)	AIRFLOW (CFM)	VENTILATION (CFM)	MAIN FAN ELECTRICAL DATA MOP	MCA	EER	COP	HEAT (kW)	V	PH	WT (LBS)	BASIS OF DESIGN	NOTES
VTAC-A	CORRIDORS	8.6	8.0	500	50	15	15	10.5	3.4	2.19	208	1	175	GE AZ85H09DAC	1,2,3,4,5 (A)

NOTES:
1. PROVIDE WITH RATED INSTALLATION PLATFORM.
2. PROVIDE WITH EXTERIOR WALL PLENUM PER MANUFACTURERS SPECIFICATIONS.
3. PROVIDE WITH CONDENSATE SLINGER RING.
4. PROVIDE WITH 19-3/4" X 32" EXTRUDED ANODIZED EXTERIOR ARCHITECTURAL GRILLE (MANUFACTURERS OR APPROVED ALTERNATIVE).
5. PROVIDE WITH 20" X 20" X 1" AIR FILTER.

POOL DEHUMIDIFICATION UNIT

MARK	LOCATION	SUPPLY FAN CFM SA	SUPPLY FAN CFM OA	HP	TSP/ ESP (IN WC)	FAN FLA (A)	COMPRESSOR REFRI	RLA	LRA	EVAPORATOR COIL TOT COOL (MBH)	SENS COOL (MBH)	MAX AC SENS (MBH)	MAX AC TOT (MBH)	INSIDE UNIT ELECTRICAL V	PH	FLA (A)	MCA	MOP	AUX HEAT CAP (kW)	AUX HEAT FLA (A)	CONDENSING UNIT ELECTRICAL VOLT	PH	HP	FLA (A)	MCA	MOP	BASIS OF DESIGN	NOTES
PDU-1	MECH MEZZ	1960	700	2.2	1.0	5.0	R410A	17.6	123.0	54.8	27.7	32.8	61.2	208	3	92.0	114	125	25.0	69.4	208	3	0.6	2.6	4	15	SERESCO NE-004-PH-I-A2NH1202E1C2AED	1,2,3

NOTES:
1. OUTDOOR CONDENSER UNIT: CU-2.
2. PROVIDE REFRIGERATION LINE SET SIZED PER MANUFACTURER'S RECOMMENDATIONS.
3. PROVIDE WITH REQUIRED SENSORS AND CONTROLS PER MANUFACTURER'S RECOMMENDATION.

ELECTRIC - UNIT HEATER

MARK	CFM	KW	VOLTS	PHASE	AMPS	BASIS OF DESIGN	NOTES
EUH-1	270	5	208	3	13.8	QMARK IUH-1020	2,3
EUH-2	300	5	208	1	24.0	QMARK CDF-558	2, 5
EUH-3	65	2.0	208	1	9.6	QMARK CWH1208DSF	1, 2, 4 (A)

NOTES:
1. PROVIDE WITH MOUNTING HARDWARE AND INTEGRAL THERMOSTAT.
2. PROVIDE WITH INTEGRAL DISCONNECT SWITCH.
3. PROVIDE WITH A CEILING MOUNT KIT AND DOUBLE POLE THERMOSTAT SIMILAR TO IUHAT2.
4. PROVIDE WITH A SURFACE MOUNTING FRAME SIMILAR TO CWHSM. (A)
5. PROVIDE WITH SURFACE MOUNT FRAME SIMILAR TO CDF-SE AND THERMOSTAT SIMILAR TO CDF-T.

ROOF HOOD

MARK	CFM	MAX PRESS DROP	HOOD OVERALL SIZE (L x W x H)	THROAT SIZE (L x W)	CURB HT	BASIS FOR DESIGN	NOTES
RH-1	-	0.1	54 x 36 x 16	40 x 22	14	GREENHECK WRH	1,2,3,4

NOTES:
1. PROVIDE WITH INSECT SCREEN.
2. PROVIDE WITH MOTORIZED DAMPER.
3. INTERLOCK MOTORIZED DAMPER WITH FIRE ALARM CONTROL PANEL.
4. WIRE DAMPER TO FAIL IN OPEN POSITION.

ELECTRIC DUCT HEATER

MARK	SERVES	KW	VOLTS	PHASE	AMPS	WIDTH (IN)	HEIGHT (IN)	BASIS OF DESIGN	NOTES
EDH-1	FCU-11	3.7	208	3	10.4	24	12	WARREN CBK-5	1,2 (A)

NOTES:
1. PROVIDE WITH INTERNAL MAGNETIC DISCONNECT.
2. PROVIDE WITH INTERNAL FAN RELAY.

GAS FIRED - UNIT HEATER

MARK	CFM	MBH (OUTPUT)	FAN HP	VOLT	PHASE	HERTZ	DISCONNECT SIZE	BASIS OF DESIGN	NOTES
GUH-1	2256	121.83	1/4	115	1	60	20 A	REZNOR UEAS	1,2,3,4,5,6

NOTES:
1. INTEGRAL 24 VDC CONTROLS.
2. INTEGRAL DIAGNOSTIC INDICATOR LIGHTS.
3. MULTI-TRY DIRECT IGNITION WITH 100% LOCKOUT.
4. VIBRATION/NOISE ISOLATED FAN MOTOR.
5. PROVIDE WITH HORIZONTAL VENT TERMINAL ASSEMBLY SIMILAR TO CC6.
6. PROVIDE WITH SINGLE-STAGE THRMOSTAT SIMILAR TO CL1.

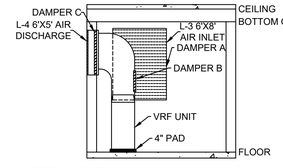
LOUVERS

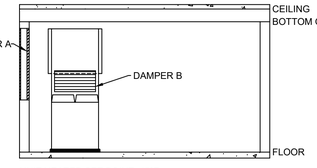
MARK	TYPE	CFM	MAX PD (IN WG)	SIZE W (IN)	SIZE H (IN)	SIZE D (IN)	BASIS OF DESIGN	NOTES
L-1	INTAKE	675	0.05	24	18	4	RUSKIN L375D	1
L-2	INTAKE	1100	0.04	30	24	4	RUSKIN L375D	1
L-3	INTAKE	10852	0.05	72	96	4	RUSKIN L375D	1
L-4	EXHAUST	10852	0.10	60	72	4	RUSKIN L375D	1
L-5	EXHAUST	1762	0.14	24	24	4	RUSKIN L375D	1
L-6	EXHAUST	960	0.10	20	20	4	RUSKIN L375D	1,2

NOTES:
1. PROVIDE WITH INSECT SCREEN.
2. PVDF COATING OR SIMILAR SUITABLE FOR CORROSIVE ENVIRONMENT.

No	NAME TYPE	NAME TAG NAME	NAME ROOM	MODEL	WEIGHT (LBS)	DESIGN TEMP (F) COOLING WB	COOLING DB	HEATING DB	CAPACITY (MBH) TOTAL RATED	TOTAL CORRECTED	TOTAL REQUIRED	HEATING RATED	HEATING CORRECTED	HEATING REQUIRED	ELECTRICAL V - Ø - Hz	FLA	MCA	MOCP	PIPE LENGTH FROM (ft) OUTDOOR	BRANCH	AIRFLOW (CFM)
1	COMPACT 4-WAY	FCU-7	GEN MANAGER 105	TOSHIBA-CARRIER MMU-AP0121MH2UL	45	80.0	67.0	70.0	12.00	12.00 (12.00)	9.20	13.50	13.50 (13.50)	13.10	208/230 - 1 - 60	0.4	0.5	15	42.0	18.0	330
2	COMPACT 4-WAY	FCU-4	SALES 106	TOSHIBA-CARRIER MMU-AP0071MH2UL	45	80.0	67.0	70.0	7.50	7.50 (7.50)	1.10	8.50	8.50 (8.50)	1.20	208/230 - 1 - 60	0.4	0.5	15	42.0	18.0	320
3	COMPACT 4-WAY	FCU-5	WORK AREA 103	TOSHIBA-CARRIER MMU-AP0071MH2UL	45	80.0	67.0	70.0	7.50	7.50 (7.50)	1.10	8.50	8.50 (8.50)	1.20	208/230 - 1 - 60	0.4	0.5	15	52.8	28.8	320
4	HIGH STATIC DUCT	FCU-11	LOBBY 101	TOSHIBA-CARRIER MMD-AP0726HP-UL	225	80.0	67.0	70.0	72.00	72.00 (72.00)	37.20	81.00	81.00 (81.00)	43.70	208/230 - 1 - 60	4.6	5.7	15	24.0	6.0	2200
5	HIGH WALL	FCU-1	LAUNDRY 109	TOSHIBA-CARRIER MMK-AP0153H2UL	35	80.0	67.0	70.0	15.40	15.40 (15.40)	14.00	17.00	17.00 (17.00)	1.90	208/230 - 1 - 60	0.4	0.5	15	60.0	36.0	490
6	COMPACT 4-WAY	FCU-2	PANTRY 110	TOSHIBA-CARRIER MMU-AP0151MH2UL	45	80.0	67.0	70.0	15.40	15.40 (15.40)	13.70	17.00	17.00 (17.00)	1.70	208/230 - 1 - 60	0.5	0.7	15	73.2	6.0	390
7	COMPACT 4-WAY	FCU-3	BREAKFAST 111	TOSHIBA-CARRIER MMU-AP0071MH2UL	45	80.0	67.0	70.0	7.50	7.50 (7.50)	0.80	8.50	8.50 (8.50)	0.90	208/230 - 1 - 60	0.4	0.5	15	79.2	12.0	320
8	HIGH STATIC DUCT	FCU-8	FITNESS 114	TOSHIBA-CARRIER MMD-AP0364H2UL	130	80.0	67.0	70.0	36.00	36.00 (36.00)	24.00	40.00	40.00 (40.00)	15.00	208/230 - 1 - 60	2.93	2.34	15	42.0	12.0	1100
9	COMPACT 4-WAY	FCU-9	CONF ROOM 112	TOSHIBA-CARRIER MMU-AP0071MH2UL	45	80.0	67.0	70.0	7.50	7.50 (7.50)	6.00	8.50	8.50 (8.50)	6.00	208/230 - 1 - 60	0.4	0.5	15	54.0	12.0	320
10	COMPACT 4-WAY	FCU-10	CONF ROOM 112	TOSHIBA-CARRIER MMU-AP0071MH2UL	45	80.0	67.0	70.0	7.50	7.50 (7.50)	6.00	8.50	8.50 (8.50)	6.00	208/230 - 1 - 60	0.4	0.5	15	54.0	12.0	320
11	HIGH STATIC DUCT	FCU-12	FRESH AIR	TOSHIBA-CARRIER MMD-AP0364H2UL	130	80.0	67.0	70.0	36.00	36.00 (36.00)	32.00	40.00	40.00 (40.00)	23.00	208/230 - 1 - 60	2.93	2.34	15	36.0	12.0	1100
12	HIGH WALL	FCU-13	ELEVATOR EQUIPMENT	TOSHIBA-CARRIER MMK-AP0243H2UL	130	80.0	67.0	70.0	24.00	24.00 (24.00)	24.00	27.00	27.00 (27.00)	-	208/230 - 1 - 60	0.4	0.5	15	-	-	-
13	HIGH WALL	FCU-14	PBX	TOSHIBA-CARRIER MMK-AP0243H2UL	130	80.0	67.0	70.0	24.00	24.00 (24.00)	24.00	27.00	27.00 (27.00)	-	208/230 - 1 - 60	0.4	0.5	15	-	-	-

2 / M2.0 VTAC CLOSET DETAIL
SCALE: NONE





ORDER OF OPERATION

AMBIENT TEMPERATURE ABOVE 45°F
DAMPER A - OPEN
DAMPER B - CLOSED
DAMPER C - OPEN

UNIT DRAWS IN OUTSIDE AIR

AMBIENT TEMPERATURE BELOW 43°F
DAMPER A - CLOSE
DAMPER B - OPEN
DAMPER C - CLOSED

UNIT RECIRCULATES AIR WITHIN MECHANICAL ROOM

UNIT HEATER SET POINT: 45°F

DAMPER INFORMATION

DAMPER A: FAILSAFE CLOSED (POWERED OPEN; SPRING RETURN)

DAMPER B: FAILSAFE OPEN (POWERED CLOSED, SPRING RETURN)

DAMPER C: FAILSAFE CLOSED (POWERED OPEN, SPRING RETURN)

DAMPERS ALL POWERED DOWN WHEN UNIT IS SATISFIED OR OFF (INTERLOCK MODULE, PN# TCB-PCIN4UL)

3 / M2.0 VRF DAMPER OPERATION
SCALE: NONE

NOT DISCLOSED

MECHANICAL SCHEDULES & DETAILS

RDH Engineering, Inc.
13504 Stevens Street, Suite D
Omaha, NE 68137 Phone: 402.333.9009

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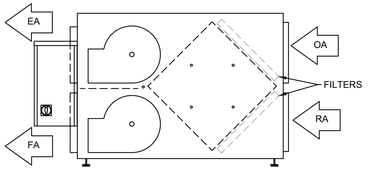
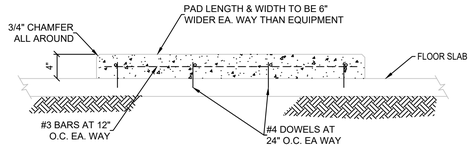


FRONT VIEW

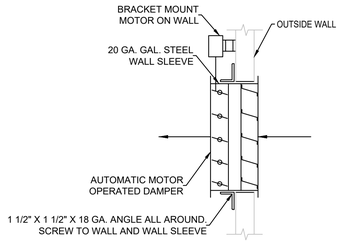
1 M2.1 ENERGY RECOVERY VENTALATOR (ERV)

SCALE: NONE



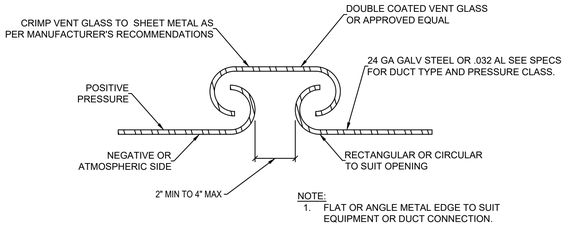
2 M2.1 EQUIPMENT BASE DETAIL

SCALE: NONE



3 M2.1 AIR INTAKE DETAIL

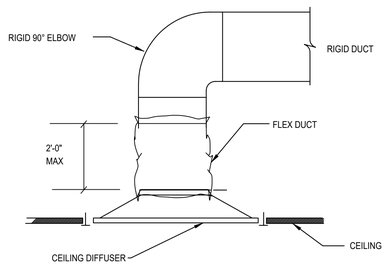
SCALE: NONE



NOTE:
1. FLAT OR ANGLE METAL EDGE TO SUIT EQUIPMENT OR DUCT CONNECTION.

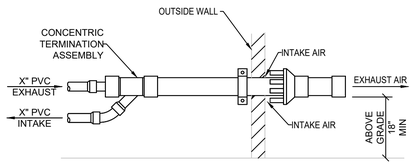
4 M2.1 FLEXIBLE CONNECTION DETAILS

SCALE: NONE



5 M2.1 CEILING DIFFUSER

SCALE: NONE

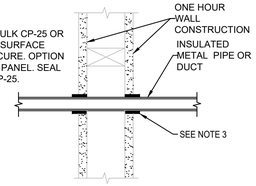


NOTE: SIZE EXHAUST AND INTAKE AS PER MANUFACTURER'S RECOMMENDATIONS FOR TOTAL EQUIVALENT LENGTH

6 M2.1 GAS-FIRED EXHAUST/INTAKE WALL PENETRATION DETAIL

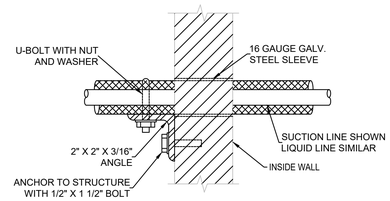
SCALE: NONE

NOTES:
1. INSTALL 3M FIRESTOP ON BOTH SIDES OF WALL.
2. TYPICAL FOR ONE HOUR WALLS AND CEILINGS (UL1479).
3. FOR ANNULAR SPACE UNDER 1/2" OPTION TO USE 3M CAULK CP-25 OR PUTTY 303 FULL DEPTH OF OPENING. COVER EXTERIOR SURFACE WITH MASKING TAPE TO PREVENT CAULK SAG DURING CURE. OPTION 1 WRAP 2" WIDE FS-195 WRAP/STRIP FLUSH TO GYPSUM PANEL. SEAL ENTIRE EDGE AND SEAMS WITH 1/4" LAYER OF CAULK CP-25.



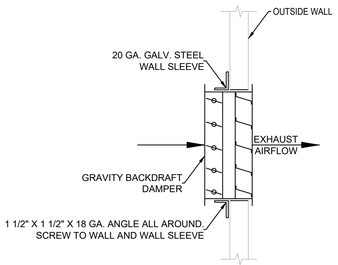
7 M2.1 ONE HOUR RATED WALL PENETRATION DETAIL

SCALE: NONE



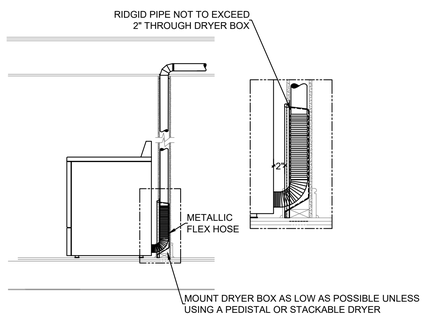
8 M2.1 REFRIGERANT PIPING WALL ANCHOR DETAIL

SCALE: NONE



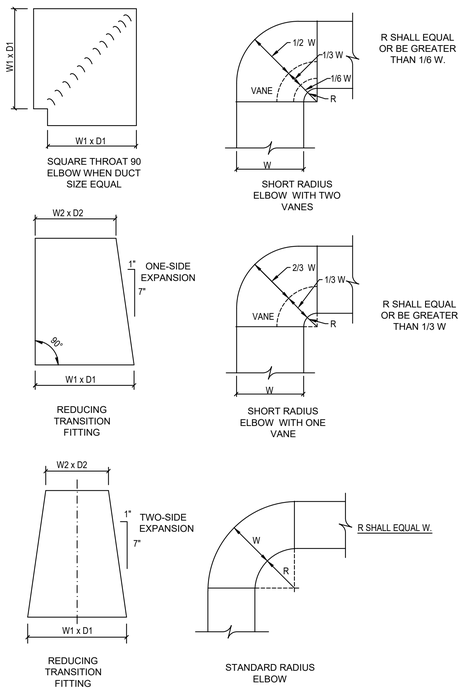
9 M2.1 EXHAST AIR DETAIL

SCALE: NONE



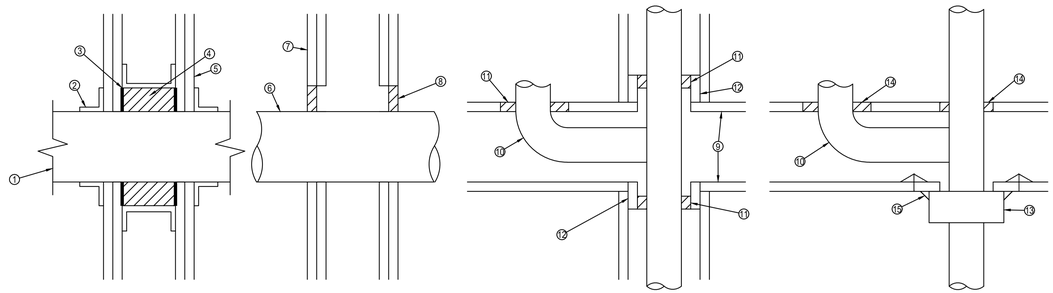
10 M2.1 TYPICAL DRYER BOX DETAIL

SCALE: NONE



11 M2.1 SHEET METAL FITTING DETAIL

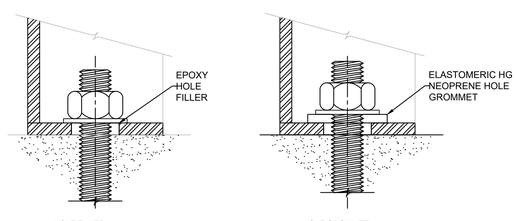
SCALE: NONE



12 M2.1 MECHANICAL PENETRATION THROUGH RATED ASSEMBLY DETAIL

SCALE: NONE

1. STEEL DUCT MAX 100" X 100" INSTALLED IN FRAMED OPENING.
2. STEEL MINIMUM #16 GAUGE GALVANIZED STEEL ANGLES SIZED TO LAP STEEL DUCT A MINIMUM 1" AND WALL A MINIMUM OF 2", ANGLES ATTACHED TO TO STEEL DUCT ON BOTH SIDES OF WALL WITH MINIMUM #10 STEEL SHEET METAL SCREWS SPACED A MAX OF 1" FROM EACH END OF STEEL DUCT AND SPACED A MAXIMUM OF 6" ON CENTER.
3. 3M FB-3000 WT MINIMUM OF 5/8" THICKNESS APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.
4. MINIMUM 4-7/8" THICKNESS OF MINIMUM 4PCF MINERAL WOOD BATT INSULATION FIRMLY PACKED IN TO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
5. RATED WALL ASSEMBLY.
6. 2" MAX SDR 9 CROSSLINK POLYETHYLENE TUBING.
7. RATED WALL ASSEMBLY.
8. 3M FB-3000 WT MINIMUM OF 5/8" THICKNESS APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AN ADDITIONAL 1/2" BEAD OF FILL MATERIAL APPLIED AT THE TUBING / GYPSUM BOARD INTERFACE AT POINT OF CONTACT LOCATION ON BOTH SURFACES OF WALL ASSEMBLY.
9. RATED ASSEMBLY.
10. MAXIMUM 3" PVC PIPING.
11. 3M FB-3000 WT MINIMUM OF 3/4" THICKNESS APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR SOLE PLATE AND FLUSH WITH BOTTOM SURFACE OF OF TOP PLATE. 3M FB-3000 WT MINIMUM OF 3/4" THICKNESS APPLIED AROUND PERIMETER OF BRANCH PIPING FLUSH WITH TOP SURFACE OF FLOOR. 3M FB-3000 WT MINIMUM OF 1/2" THICKNESS APPLIED AT THE PIPE/FLOOR INTERFACE AND THE PIPE/PLATE INTERFACE.
12. NOMINAL 2 BY 4 OR 2 BY 6 LUMBER PLATES. DIAMETER OR OPENING OR LENGTH OF NOTCH OUT IN PLATE TO BE 1/2" TO 1" LARGER THAN OUTSIDE PIPE DIAMETER.
13. NOMINAL 1/8" THICK INTUMESCENT MATERIAL SUPPLIED IN 2" WIDE STRIPS. WRAP STRIP TIGHTLY AROUND NONMETALLIC PIPE WITH CONTINUOUS LAYERS AND BUTTED TIGHTLY AGAINST THE BOTTOM SURFACE OF THE THE GYPSUM WALLBOARD CEILING OR TOP PLATE. THE MINIMUM NUMBER OF STRIPS IS DEPENDENT UPON THE NOMINAL SIZE OF THE PIPE.
14. 3M FB-3000 WT MINIMUM OF 3/4" THICKNESS APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR. 3M FB-3000 WT MINIMUM OF 1/2" THICKNESS APPLIED AT THE PIPE/FLOOR INTERFACE AND THE PIPE/PLATE OR WALLBOARD INTERFACE AND AT THE SEAMS OF THE WALLBOARD PLATE.
15. NOMINAL 2" DEEP COLLAR WITH 1-1/4" WIDE BY 2" LONG ANCHOR TABS AND MINIMUM 3/4" LONG TABS TO RETAIN WRAP STRIP LAYERS.



HOLE FILLER

HOLE GROMMET

13 M2.1 FLOOR MOUNTED EQUIPMENT ANCHOR DETAIL

SCALE: NONE

NOT DISCLOSED

MECHANICAL DETAILS (CONT.)

RDH Engineering, Inc.
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Omaha, NE 68137 Phone: 402.333.9009

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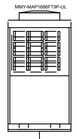
NAME	CAPACITY (MBH)	QUANTITY		DIV. (%)	ADD'L REFRI (lbs)	ACTUAL PIPE LENGTH (ft)						
VRF		OUTDOOR	INDOOR			Ø1/4"	Ø3/8"	Ø1/2"	Ø5/8"	Ø3/4"	Ø7/8"	Ø1-1/8"
MMY-MAP1686FT9P-UL	14	1	11	134%	41.937	119 : 0/0/119	170 : 0/84/86	70 : 20/35/15	91 : 0/86/5	20 : 10/0/10	30 : 15/15/0	15 : 0/15/0

Outdoor Key/Legend
Outdoor Model Name
Outdoor Cooling Rated /Corrected Cap.
Heating Rated /Corrected Cap.
Indoor Cooling Rated/Capability (Corrected)/Required Cap.
Total Heating Rated/Capability (Corrected)/Required Cap.

Piping Legend
Gas pipe diameters
Liquid pipe diameters
Actual length
Equivalent length

Indoor Key/Legend
Indoor Unit Name
Type
Model
Capacity Rank
Cooling Rated/Capability (Corrected)/Required Cap.
Heating Rated/Capability (Corrected)/Required Cap.
Floor Name
Room Name

Piping Legend (3-pipe)
Suction Gas Pipe diameters
Discharge Gas Pipe diameters
Liquid Pipe diameters
Actual Length
Equivalent Length



MMY-MAP1686FT9P-UL(14ton)
168.00/178.02[kBtu]
189.00/194.75[kBtu]
224.30/224.30 (224.30)/145.10[kBtu]
251.00/251.00 (251.00)/113.70[kBtu]
CU-1

Ø1 1/8"
Ø7/8"
Ø3/4"
10.0ft
12.0ft

7

Ø1 1/8"
Ø7/8"
Ø5/8"
5.0ft
6.0ft

7

Ø7/8"
Ø3/4"
Ø1/2"
5.0ft
6.0ft

RBM-Y0611F6P-UL

Ø1/2"
Ø1/4"
30.0ft
36.0ft

FCU-1
High Wall
MMK-AP0153H2UL
1.25ton
15.40/15.40 (15.40)/14.00[kBtu]
17.00/17.00 (17.00)/1.90[kBtu]

LAUNDRY 109

Ø5/8"
Ø3/8"
36.0ft
43.2ft

1

Ø1/2"
Ø1/4"
5.0ft
6.0ft

FCU-2
Compact 4-way
MMU-AP0151MH2UL
1.25ton
15.40/15.40 (15.40)/13.70[kBtu]
17.00/17.00 (17.00)/1.70[kBtu]

PANTRY 110

Ø3/8"
Ø1/4"
10.0ft
12.0ft

FCU-3
Compact 4-way
MMU-AP0071MH2UL
0.6ton
7.50/7.50 (7.50)/0.80[kBtu]
8.50/8.50 (8.50)/0.90[kBtu]

BREAKFAST 111

Ø3/8"
Ø1/4"
15.0ft
18.0ft

FCU-4
Compact 4-way
MMU-AP0071MH2UL
0.6ton
7.50/7.50 (7.50)/1.10[kBtu]
8.50/8.50 (8.50)/1.20[kBtu]

SALES 106

Ø3/8"
Ø1/4"
24.0ft
28.8ft

FCU-5
Compact 4-way
MMU-AP0071MH2UL
0.6ton
7.50/7.50 (7.50)/1.10[kBtu]
8.50/8.50 (8.50)/1.20[kBtu]

WORK AREA 103

Ø3/8"
Ø1/4"
15.0ft
18.0ft

FCU-7
Compact 4-way
MMU-AP0121MH2UL
1ton
12.00/12.00 (12.00)/9.20[kBtu]
13.50/13.50 (13.50)/13.10[kBtu]

GEN MANAGER 105

Ø5/8"
Ø3/8"
10.0ft
12.0ft

FCU-12
High Static Duct
MMD-AP0364H2UL
3ton
36.00/36.00 (36.00)/32.00[kBtu]
40.00/40.00 (40.00)/23.00[kBtu]

FRESH AIR

Ø5/8"
Ø1/2"
Ø3/8"
0.0ft
0.0ft

5

Ø5/8"
Ø1/2"
Ø3/8"
10.0ft
12.0ft

RBM-Y0383FUL

Ø5/8"
Ø3/8"
10.0ft
12.0ft

FCU-8
High Static Duct
MMD-AP0364H2UL
3ton
36.00/36.00 (36.00)/24.00[kBtu]
40.00/40.00 (40.00)/15.00[kBtu]

FITNESS 114

Ø5/8"
Ø1/2"
Ø3/8"
10.0ft
12.0ft

RBM-Y0383FUL

Ø5/8"
Ø3/8"
10.0ft
12.0ft

1

Ø3/8"
Ø1/4"
10.0ft
12.0ft

FCU-9
Compact 4-way
MMU-AP0071MH2UL
0.6ton
7.50/7.50 (7.50)/6.00[kBtu]
8.50/8.50 (8.50)/6.00[kBtu]

CONF ROOM 112

Ø3/8"
Ø1/4"
10.0ft
12.0ft

Compact 4-way
MMU-AP0071MH2UL
0.6ton
FCU-10
7.50/7.50 (7.50)/6.00[kBtu]
8.50/8.50 (8.50)/6.00[kBtu]

CONF ROOM 112

Ø7/8"
Ø3/4"
Ø1/2"
5.0ft
6.0ft

RBM-Y0963FUL

Ø7/8"
Ø1/2"
5.0ft
6.0ft

FCU-11
High Static Duct
MMD-AP0726HP-UL
6ton
72.00/72.00 (72.00)/37.20[kBtu]
81.00/81.00 (81.00)/43.70[kBtu]

LOBBY 101

	RBM-BY55UL
	RBM-BY105UL
	RBM-BY205UL
	RBM-BY305UL
	RBM-BY55FUL
	RBM-BY105FUL
	RBM-BY205FUL
	RBM-BY305FUL

MCF CALCULATION						
RM Nu#	Description	AREA (SF)	CEILING HT (FT)	CALC VOLUME (CU FT)	TARGET VOLUME (CU FT)	COMMENTS
101	LOBBY	2551	12.5	31887		
103	WORK AREA	172	9.0	1548		LTD TO CONNECT SPACES TOGETHER
104	SERVER	48	9.0	432		
105	GEN MANAGER	177	9.0	1593		
106	SALES	106	9.0	954		
107	ENG/MAINT	334	16.0	5344		
108	MECH/ELEC	323	16.0	5168		
109	LAUNDRY	370	9.0	3330	2384.6154	
110	PANTRY	278	9.0	2502		
111	BREAKFAST	299	9.0	2691		
112	CONF ROOM	713	12.75	9090		
C101	CORR-BOH	258	11.0	2838		
C103	CORR-FIT	879	11.0	9669		
MECH	MECH MEZZ	287	7.0	2009		LTD TO FITNESS

PRODUCT NAME	MODEL NAME	QTY
OUTDOOR UNIT	MMY-MAP1686FT9P-UL	1
INDOOR UNIT(S)	MMU-AP0071MH2UL	5
INDOOR UNIT(S)	MMU-AP0121MH2UL	1
INDOOR UNIT(S)	MMU-AP0151MH2UL	1
INDOOR UNIT(S)	MMK-AP0153H2UL	1
INDOOR UNIT(S)	MMD-AP0364H2UL	2
INDOOR UNIT(S)	MMD-AP0726HP-UL	1
ACCESSORIES	RBC-UM11PG(W)-UL	7
Y-JOINT(S)	RBM-BY55FUL	1
Y-JOINT(S)	RBM-BY205FUL	2
Y-JOINT(S)	RBM-BY55UL	2
FS-UNIT	RBM-Y0383FUL	2
FS-UNIT	RBM-Y0963FUL	1
FS-UNIT	RBM-Y0611F6P-UL	1
R/C	RBC-AMS54E-UL	8
R/C	RBC-AMS51E-ES	1
R/C	RBC-AS41UL	1

NOT DISCLOSED

FOR REFERENCE ONLY

VRF PIPING DIAGRAM

RDH Engineering, Inc.
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Omaha, NE 68137 Phone: 402.333.9009

Sheet No. | M4.0

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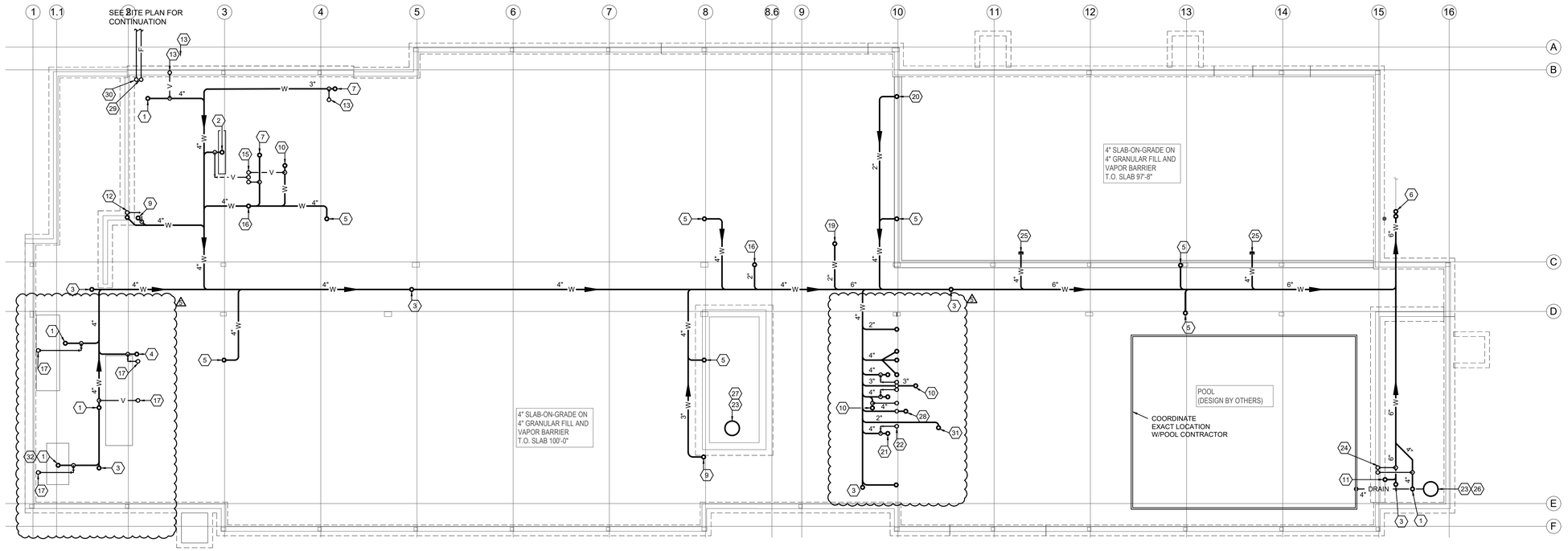

KEYED PLUMBING NOTES: ⓧ

1. 4" W UP TO FD-2.
2. 4" W UP TO TD-2.
3. 4" W UP TO CO.
4. 4" W UP TO HD.
5. 4" W STACK UP.
6. 4" W UP TO DOUBLE CO.
7. 3" W UP TO FSK.
8. NOT USED.
9. 3" W STACK UP.
10. 3" W UP TO FD-1.
11. 6" W UP TO SWIMMING POOL DRAIN STANDPIPE. COORDINATE THE EXACT LOCATION WITH THE SWIMMING POOL CONTRACTOR.
12. 2" V UP, 4" W STACK UP.
13. 1 1/2" V UP.
14. NOT USED. ⚠1
15. 1 1/2" V UP, 1 1/2" V UP, 1 1/2" V UP.
16. 2" W UP TO SK.
17. 2" V UP.
18. NOT USED.
19. 2" W UP TO EWC-1.
20. 2" W UP TO DRAIN BOX.
21. 4" W UP TO WC, 4" W UP TO WC, 4" W UP TO WC.
22. 2" W UP TO LAV, 2" W UP TO LAV, 4" W STACK UP, 2" W UP TO UR, 2" V UP, 1 1/2" V UP, 2" V UP, 1 1/2" V UP, 2" V UP, 2" V UP.
23. 24" X 48" FIBER SUMP BASIN.
24. 2" V UP, 2" V UP.
25. CAPPED 4" WASTE LINES FOR FUTURE.
26. SUMP PUMP FOR POOL EQUIPMENT PROVIDED BY OTHER.
27. PROVIDE WITH STEEL GRATE SUITABLE FOR 150# LOAD AND 100 GPM FLOW RATE. SEE ELEVATOR SUMP PUMP DETAIL.
28. 4" W UP TO WC.
29. 6" FIRE SPRINKLER MAIN UP TO FLANGE.
30. 3" CW UP.
31. 2" WASTE UP TO EWC-2.
32. ⚠A ROUTE FD UP THROUGH EQUIPMENT PAD. SLOPE CONCRETE PAD TO FD.

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

NORTH

NOT DISCLOSED

UNDERGROUND PLUMBING PLAN

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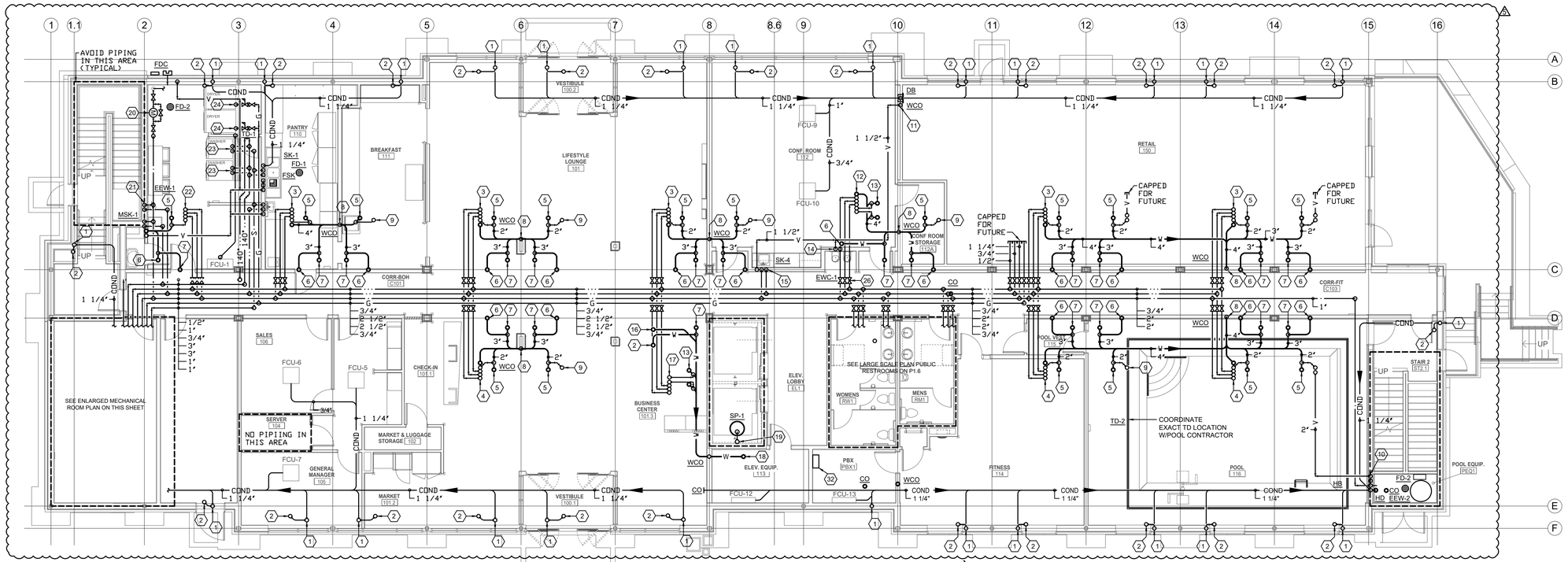
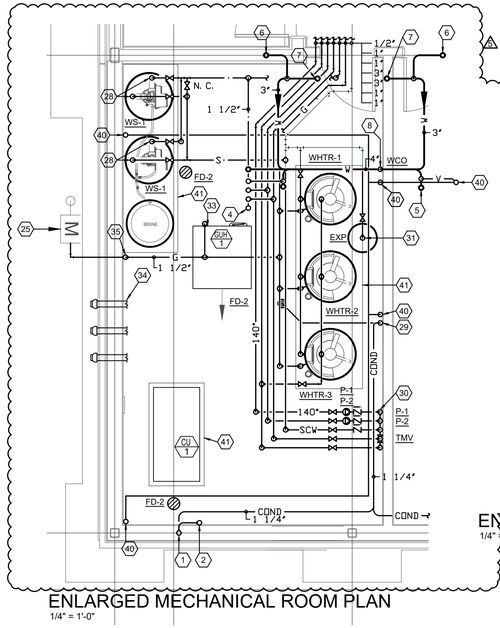
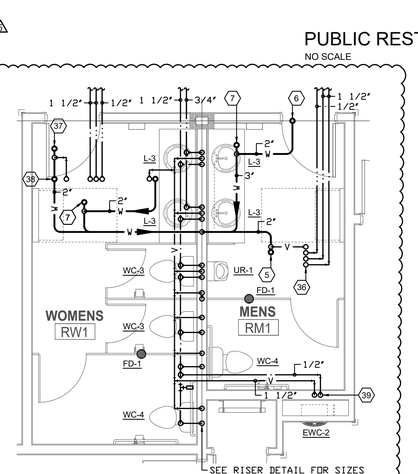
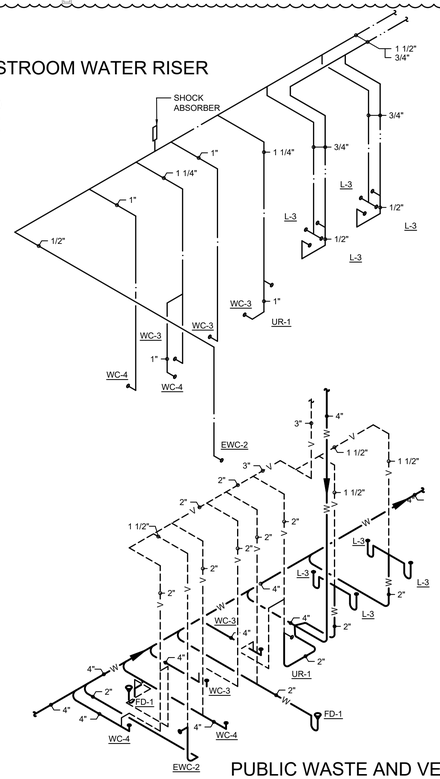






PUBLIC RESTROOM WATER RISER
NO SCALE



GENERAL PLUMBING NOTES:

1. CONDENSATE VENT AND DRAIN PIPING SHALL BE COPPER TO MAINTAIN THE FIRE RATING. TRAPS BELOW UNIT SHALL EB INSTALLED TO PREVENT ROOM TO ROOM SMOKE TRANSFER. FIRE CAULK PENETRATIONS.

KEYED PLUMBING NOTES: (X)

1. 1 1/4" COND. STACK UP.
2. 3/4" COND UP TO HVAC UNIT.
3. 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 1 1/2" V UP, 4" W UP.
4. 4" W UP, 1 1/2" V UP, 1/2" RHW UP, 1 1/2" HW UP, 1 1/2" CW UP.
5. 2" W UP TO SH.
6. 2" W UP TO LAV. (ROUTE THROUGH STUB WALL ABOVE.) (A)
7. 3" W UP TO WC.
8. 4" W DN W/CO 18" A.F.F.
9. 1 1/2" V UP.
10. 2" V DN, 2" V DN, 1" CW DN, 1 1/4" COND DN.
11. 1 1/4" COND. DN TO DRAIN BOX.
12. 4" W UP, 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 1 1/2" V UP, 1 1/2' V UP.
13. 2" W UP TO SH, 2" W UP TO TD-3.
14. 1 1/2" V/2" W DN, 1/2" CW DN.
15. 1 1/2" V UP/DN/2" W DN, 1/2" CW DN, 1/2" HW DN.
16. 4" W STACK UP.
17. 1 1/2" V UP, 1 1/2" V UP, 1/2" RHW UP, 1 1/2" HW UP, 1 1/2" CW UP.
18. 2" V UP/4" W DN, 3" W UP TO MSK.
19. 2" PUMP DISCH. UP.
20. 3" WATER METER W/ LOCKING BYPASS PER MUD REQUIREMENTS. SEE WATER METER DETAIL.
21. 1/2" CW DN, 1/2" HW DN, 1/2" CW DN, 1/2" 140° HW DN, 4" W UP/DN W/CO 18" A.F.F., 2" V UP/DN.
22. 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 1 1/2" V UP.
23. 3/4" 140° HW DN, 3/4" CSW DN TO WASHER. PROVIDE ISOLATION VALVE 5' A.F.F.
24. 3/4" G DN TO DRYER. PROVIDE ISOLATION VALVE 5' A.F.F. ALONG WITH GAS PRESSURE REGULATOR, DIRT LEG AND UNION.
25. GAS METER SIZED AT 1830 MBH X 2 PSIG GAS/1PSIG PRESSURE DROP X 300'.
26. CIRCUIT SOLVER THERMOSTATIC RECIRCULATING VALVE. INSTALL AT PROPER SETBACK FROM MAINS TO ALLOW FOR PROPER FUNCTION. (TYPICAL)
27. ROUTE 1" CW INTO POOL EQUIPMENT AREA. COORDINATE CONNECTION REQUIREMENTS WITH POOL EQUIPMENT PROVIDER. POOL EQUIPMENT TO BE PROVIDED AND INSTALLED UNDER SEPARATE CONTRACT.
28. WATER SOFTENER INLET/OUTLET. VERIFY SIZE W/ MFG RECOMMENDED INSTALLATION REQUIRMENTS.
29. 1 1/4" COND DN TO FD.
30. 1/2" 140° RHW DN, 1" RHW DN, 2 1/2" CSW DN, 3" HW DN, 2 1/2" 140° HW DN.
31. 3/4" CSW DN TO THERMAL EXPANSION TANK (EXP).
32. OIL MINDER SUMP PUMP CONTROL PANEL. COORDINATE LOCATION WITH ELECTRICAL CONTRACTOR AND ELEVATOR EQUIPMENT.
33. 3/4" G DN TO GAS FIRED UNIT HEATER. UNIT HEATER AND ASSOCIATED VENTING BY OTHERS. COORDINATE LOCATION WITH HVAC CONTRACTOR
34. CONCENTRIC WATER HEATER SIDEWALL VENT KITS WITH FACTORY TERMINATION KIT PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR.
35. 1 1/2" G DN & OUT THROUGH WALL TO GAS METER.
36. 1 1/2" V UP, 1/2" RHW UP, 1 1/2" HW UP, 1 1/2" CW UP.
37. 2" W UP TO FSK.
38. 2" W UP, 1 1/2" V UP, 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 2" V UP, 2" W UP TO LAV.
39. 1 1/2" V/W DN, 1/2" CW DN.
40. 2" V UP. (A)
41. 4" EQUIPMENT PAD.

1 LEVEL ONE PLUMBING PLAN
1/8" = 1'-0"

NORTH

LEVEL ONE PLUMBING PLAN

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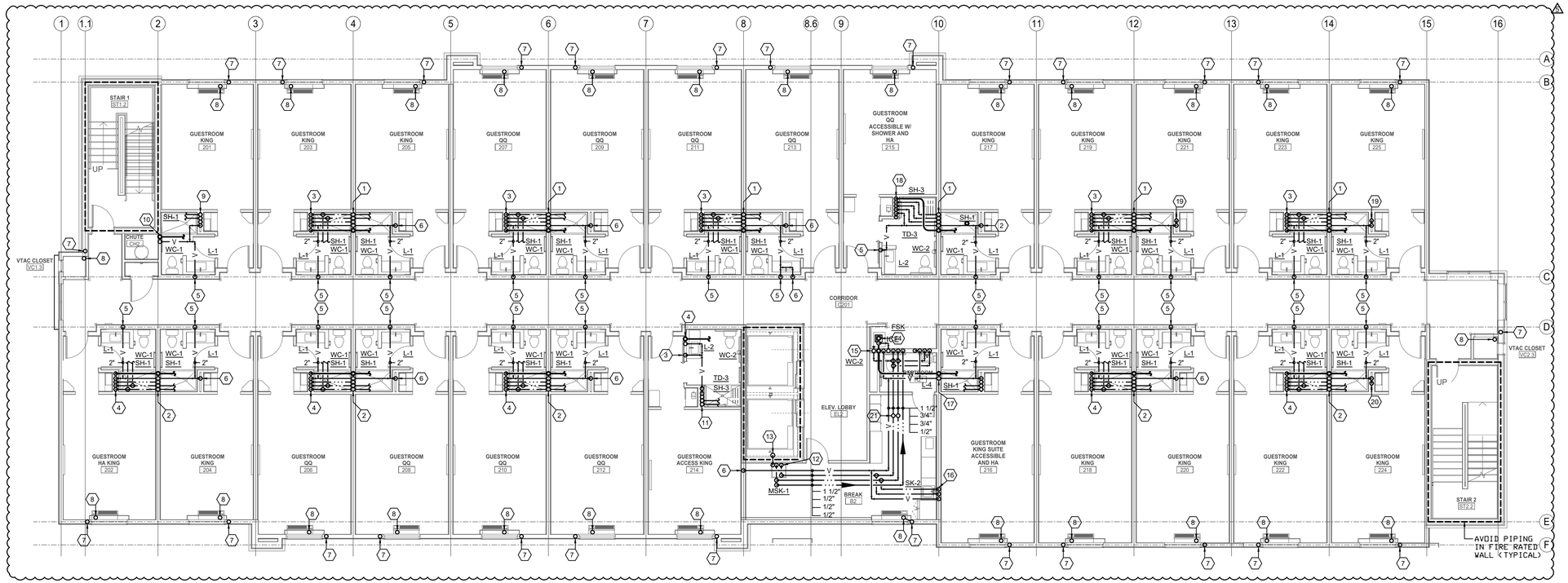

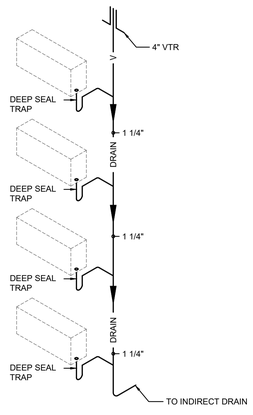

TYPICAL CONDENSATE DRAIN RISER

GENERAL PLUMBING NOTES:

1. CONDENSATE VENT AND DRAIN PIPING SHALL BE COPPER TO MAINTAIN THE FIRE RATING. TRAPS BELOW UNIT SHALL EB INSTALLED TO PREVENT ROOM TO ROOM SMOKE TRANSFER. FIRE CAULK PENETRATIONS.

KEYED PLUMBING NOTES: ⓧ

1. 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 3" V UP/2" V DN, 4" W UP.
2. 4" W UP, 3" V UP/2" V DN, 1/2" RHW UP, 1 1/2" HW UP, 1 1/2" CW UP.
3. 1 1/2" CW DN, 1 1/2" HW DN, 1/2" RHW DN, 1 1/2" V DN, 4" W DN.
4. 4" W DN, 1 1/2" V DN, 1/2" RHW DN, 1 1/2" HW DN, 1 1/2" CW DN.
5. 2" V/W DN.
6. 1 1/2" V DN.
7. 1 1/4" COND UP/DN.
8. 1 1/4" COND UP TO HD.
9. 1 1/4" CW UP, 1 1/4" HW UP, 1/2" RHW UP, 1 1/2" V DN.
10. 4" W UP/DN, 2" V UP/DN.
11. 1 1/2" V DN, 1 1/2" V DN, 1 1/2" CW UP/DN, 1 1/2" HW UP/DN, 1/2" RHW UP/DN.
12. 2" PUMP DISCH. DN TO MSK, 1/2" HW DN, 1/2" CW DN.
13. 2" PUMP DISCH. DN TO SP-1.
14. 2" W UP TO FSK.
15. 3/4" CW UP/1/2" DN, 2" W UP/DN, 1 1/2" V DN, 1 1/2" V UP, 1/2" CW DN, 3/4" HW DN, 1/2" RHW DN, 2" V DN, 2" V/W DN, DN, 1/2" HW DN, 1/2" CW DN.
16. 1/2" HW DN, 1/2" CW DN, 1 1/2" V/2" W DN.
17. 4" W UP, 2" V UP.
18. 4" W DN, 1 1/2" CW DN, 1 1/2" HW DN, 1/2" RHW DN, 1 1/2" V DN, 1 1/2" V DN.
19. 2" V DN, 2"/1 1/2" V DN.
20. 2"/1 1/2" V DN, 2" V DN.
21. 3/4" HW & CW UP.

1 LEVEL TWO PLUMBING PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL TWO PLUMBING PLAN

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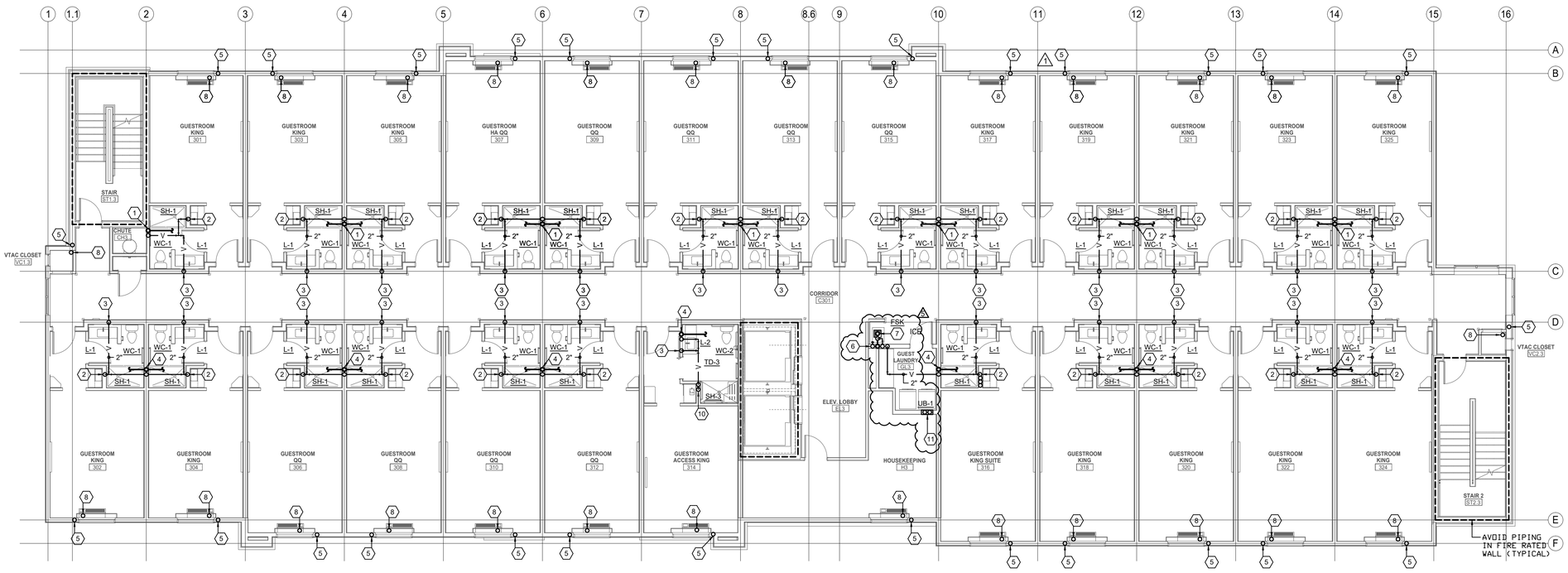

GENERAL PLUMBING NOTES:

1. CONDENSATE VENT AND DRAIN PIPING SHALL BE COPPER TO MAINTAIN THE FIRE RATING. TRAPS BELOW UNIT SHALL EB INSTALLED TO PREVENT ROOM TO ROOM SMOKE TRANSFER. FIRE CAULK PENETRATIONS.

KEYED PLUMBING NOTES: ⓧ

1. 3" V UP/DN, 4" W UP/DN.
2. 1 1/2" V DN.
3. 2" V/W DN.
4. 4" W UP/DN, 3" V UP/DN.
5. 1 1/4" CONDENSATE DRAIN UP/DN.
6. 3/4" CW UP/DN, 2" W UP/DN, 1 1/2" V UP, 1 1/2" V DN.
7. 2" W UP TO FSK.
8. 1 1/4" CONDENSATE HUB DRAIN.
9. 2" V DN.
10. 10. 1 1/2" V DN, 1 1/2" V DN.
11. 3/4" HW UP, 3/4" CW UP TO WASHER. PROVIDE ISOLATION VALVE 5' A.F.F.

1 LEVEL THREE PLUMBING PLAN
1/8" = 1'-0"

NORTH

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LEVEL THREE PLUMBING PLAN

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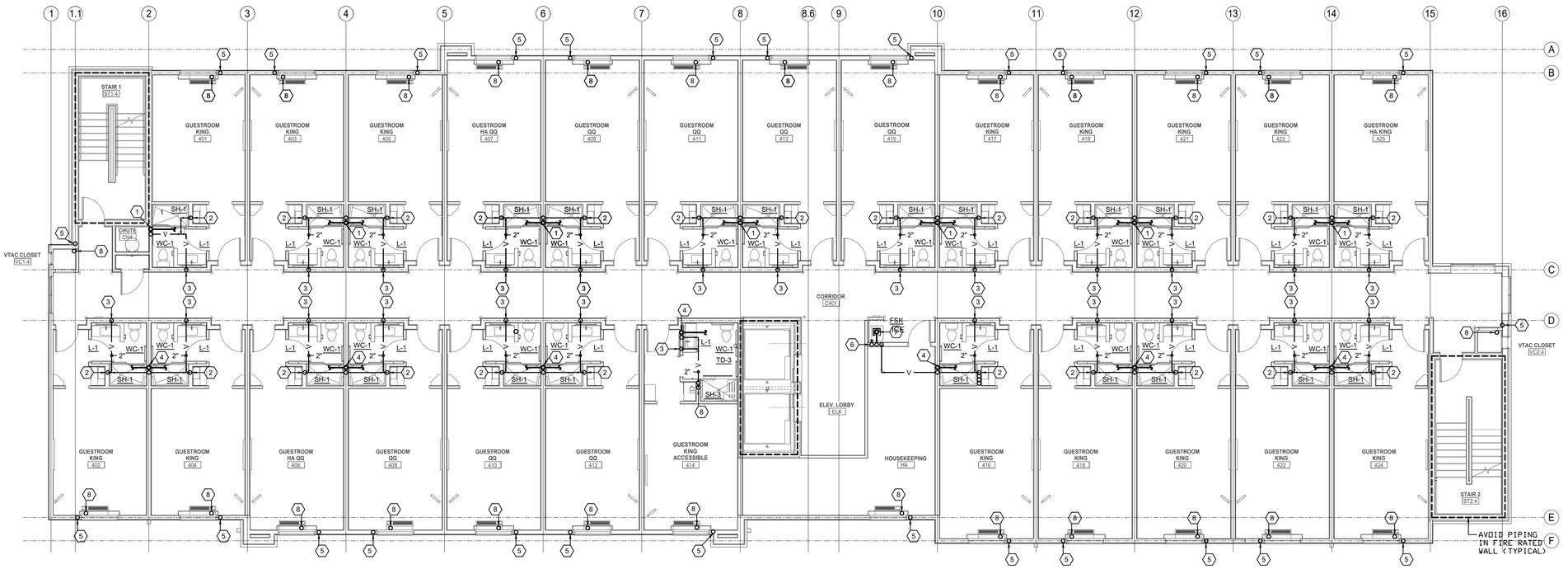

GENERAL PLUMBING NOTES:

1. CONDENSATE VENT AND DRAIN PIPING SHALL BE COPPER TO MAINTAIN THE FIRE RATING. TRAPS BELOW UNIT SHALL EB INSTALLED TO PREVENT ROOM TO ROOM SMOKE TRANSFER. FIRE CAULK PENETRATIONS.

KEYED PLUMBING NOTES: ⓧ

1. 3" V UP/DN, 3" W UP/DN. SEE TYPICAL ROOM RISERS.
2. 1 1/2" V DN.
3. 2" V/W DN.
4. 3" W DN, 3" V UP/DN.
5. 1 1/4" CONDENSATE DRAIN UP/DN.
6. 3/4" CW UP/DN, 1 1/2" W UP/2" W DN, 1 1 /2" V DN.
7. 2" W UP TO FSK.
8. 1 1/4" CONDENSATE HUB DRAIN.
9. 1 1/2" V DN, 1 1/2" V DN.

1 LEVEL FOUR PLUMBING PLAN
1/8" = 1'-0"

NORTH

NOT DISCLOSED

LEVEL FOUR PLUMBING PLAN

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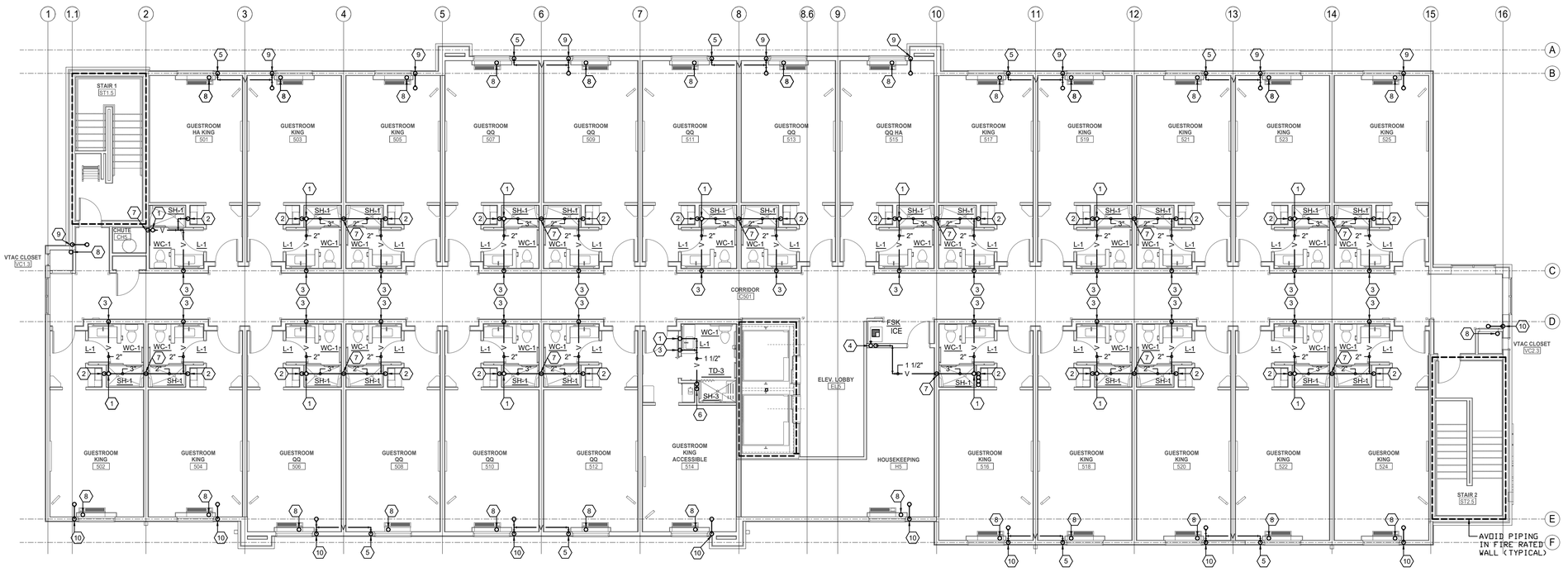

GENERAL PLUMBING NOTES: (X)

1. CONDENSATE VENT AND DRAIN PIPING SHALL BE COPPER TO MAINTAIN THE FIRE RATING. TRAPS BELOW UNIT SHALL EB INSTALLED TO PREVENT ROOM TO ROOM SMOKE TRANSFER. FIRE CAULK PENETRATIONS.

KEYED PLUMBING NOTES: (X)

1. 3" V UP (4" VTR).
2. 1 1/2" V DN.
3. 2" V/W DN.
4. 3/4" CW DN, 1 1/2" V DN.
5. 1 1/2" V DN.
6. 1 1/2" V DN, 1 1/2" V DN.
7. 3" V DN.
8. 1 1/4" HD FOR CONDENSATE.
9. 1 1/2" V DN, 1 1/2" V UP (4" VTR).
10. 1 1/2" V UP (4" VTR), 1 1/2" V DN.

1 LEVEL FIVE PLUMBING PLAN
1/8" = 1'-0"

NORTH

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LEVEL FIVE PLUMBING PLAN

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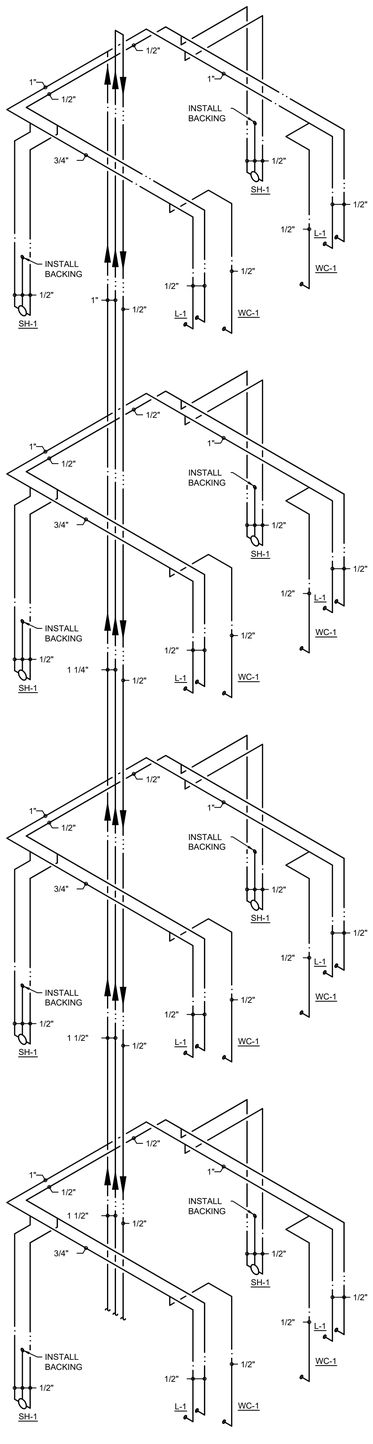
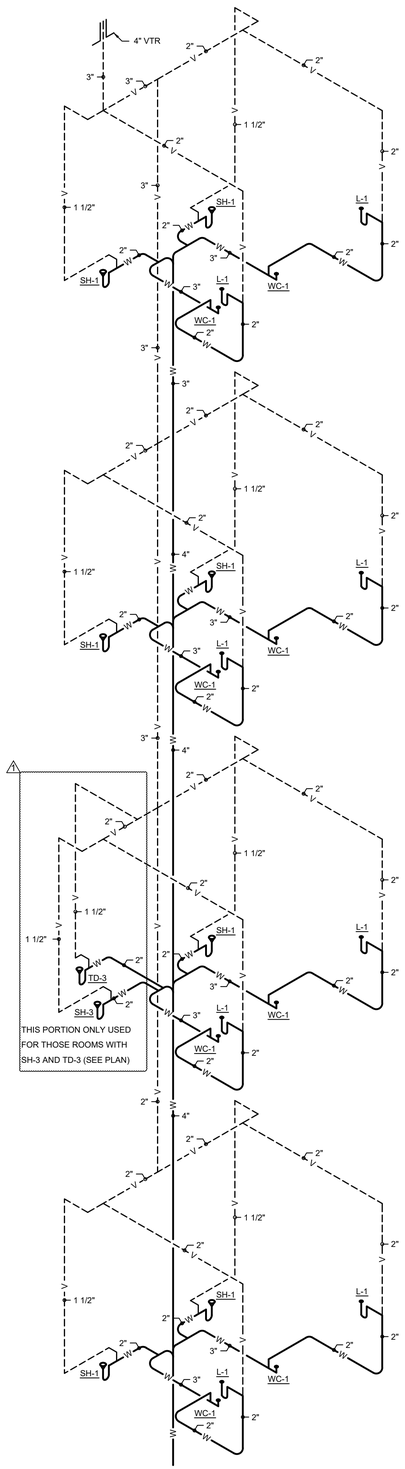


TYPICAL WATER RISER



TYPICAL WASTE & VENT RISER

PLUMBING FIXTURE SCHEDULE

FIXTURE SYMBOL	TYPE	MANUFACTURER	MODEL NO.	TRIM	SUPPLIES	WASTE	REMARKS
WC-1	WATER CLOSET FLOOR MOUNT FLUSH TANK	KOHLER	K-3505 1.6 GPM FLUSH	---	BRASSCRAFT KTCR19 STOP SI-12 SUPPLY TUBES 649 CHROME ESCUTCHEON	---	KOHLER K-4713 TOILET SEAT - EB, CLOSED FRONT WATER CLOSET FLANGES SHALL BE STAINLESS STEEL COORDINATE FLANGE HEIGHT W/FLOORING
WC-2	WATER CLOSET FLOOR MOUNT FLUSH TANK - ADA	KOHLER	K-3493 1.6 GPM FLUSH	---	BRASSCRAFT KTCR19 STOP SI-12 SUPPLY TUBES 649 CHROME ESCUTCHEON	---	KOHLER K-4713 TOILET SEAT - EB, CLOSET FRONT TRIP LEVER TO WIDE SIDE OF STALL WATER CLOSET FLANGES SHALL BE STAINLESS STEEL COORDINATE FLANGE HEIGHT W/FLOORING
WC-3	WATER CLOSET FLOOR MOUNT FLUSH TANK	KOHLER	K-3505 1.6 GPM FLUSH	---	BRASSCRAFT KTCR19 STOP SI-12 SUPPLY TUBES 649 CHROME ESCUTCHEON	---	KOHLER K-4666-SC-0 TOILET SEAT - EB, OPEN FRONT WATER CLOSET FLANGES SHALL BE STAINLESS STEEL COORDINATE FLANGE HEIGHT W/FLOORING
WC-4	WATER CLOSET FLOOR MOUNT FLUSH TANK - ADA	KOHLER	K-3493 1.6 GPM FLUSH	---	BRASSCRAFT KTCR19 STOP SI-12 SUPPLY TUBES 649 CHROME ESCUTCHEON	---	KOHLER K-4666-SC-0 TOILET SEAT - EB, OPEN FRONT TRIP LEVER TO WIDE SIDE OF STALL WATER CLOSET FLANGES SHALL BE STAINLESS STEEL COORDINATE FLANGE HEIGHT W/FLOORING
UR-1	URINAL - ADA	KOHLER	K-4991 .125 GPM FLUSH	K-10949 FLUSH VALVE	---	---	MOUNT TOP OF RIM 17" A.F.F. FOR ADA COMPLIANCE
L-1	LAVATORY DROP IN CHINA	KOHLER	K-2196-4	K-15583 FAUCET	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	POP UP WASTE ASSEMBLY 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	---
L-2	LAVATORY DROP IN CHINA - ADA	KOHLER	K-2196-4	K-15583 FAUCET	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	POP UP WASTE ASSEMBLY 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	TRUBRO TRAP AND SUPPLY TUBE COVERS
L-3	LAVATORY DROP IN CHINA - ADA	KOHLER	K-2196-4	K-15583 FAUCET	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	GRID WASTE ASSMBLY 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	TRUBRO TRAP AND SUPPLY TUBE COVERS
L-4	LAVATORY WALL HUNG - ADA	KOHLER	K-12643	K-15583 FAUCET	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	GRID WASTE ASSMBLY 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	TRUBRO TRAP AND SUPPLY TUBE COVERS
SK-1	SINK - STAINLESS STEEL, THREE COMPARTMENT	ADVANCE TABCO	T9-3-54-18RL	K-119 FAUCET	1/2" FULL PORT BALL VALVE 649 CHROME ESCUTCHEONS	(3) STAINERS PVC CONTINUOUS WASTE ASSY PIPED TO FSK W/ AIR GAP	--
SK-2	NOT USED						
SK-3	SINK - STAINLESS STEEL, WALL HUNG HAND SINK	ADVANCE TABCO	7-PS-54	--	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	(1) CUP STYLE BASKET STRAINER 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	---
SK-4	SINK - STAINLESS STEEL, SINGLE COMPARTMENT	ADVANCE TABCO	DI-1-168	K-52 FAUCET	BRASSCRAFT KTCR19 STOPS SI-20 SUPPLY TUBES 649 CHROME ESCUTCHEONS	(1) CUP STYLE BASKET STRAINER 17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	---
SH-1	SHOWER	COMFORT DESIGN 60" X 35" X 73"	SSS-6096 SH	K-304K VALVE K-T6910-4A TRIM KIT	---	GLUE TYPE PVC SHOWER DRAIN	CAULK ALL FAUCET TRIM WITH 100% SILICONE. INSTALL PER MANUFACTURERS RECOMMENDATIONS. SECURE SHOWER HEAD ELBOW TO BACKING
SH-2	NOT USED						
SH-3	SHOWER - ADA	COMFORT DESIGN 62" X 37" X 78"	SSS-6237 BF	K-304K VALVE K-T6910-4A TRIM KIT	---	GLUE TYPE PVC SHOWER DRAIN	CAULK ALL FAUCET TRIM WITH 100% SILICONE. INSTALL PER MANUFACTURERS RECOMMENDATIONS. SECURE SHOWER HEAD ELBOW TO BACKING. FULL WOOD BACKING. U-SHAPED GRAB BAR. FOLD DOWN SEAT
EWC-1	ELECTRIC WATER COOLER - DUAL HEIGHT - ADA	ELKAY	LNTE8K	---	BRASSCRAFT KTCR19 STOP SI-20 SUPPLY TUBE 649 CHROME ESCUTCHEON	17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	---
EWC-2	ELECTRIC WATER COOLER - BOTTLE STATION - ADA	ELKAY	LZS7WSSK	---	BRASSCRAFT KTCR19 STOP SI-20 SUPPLY TUBE 649 CHROME ESCUTCHEON	17 GA. CHROME P-TRAP ASSEMBLY W/BOX ESCUTCHEON	---
MSK-1	MOP SINK	MUSTEE	63M	63.600A MOP SINK FAUCET WITH INTEGRAL VACUUM BREAKER	---	STAINLESS STEEL GRID DRAIN	HOSE AND HOSE HOLDER MOP HANGER BRACKET
UB-1	WASHER BOX	GUY GRAY	SSWB-3	---	---	---	1/4 TURN VALVES INTEGRAL HAMMER ARRESTORS STAINLESS STEEL BOX
TMV	THERMOSTATIC MIXING VALVE	LAWLER	MODEL 805	---	---	---	---
FD-1	FLOOR DRAIN	SIOUX CHIEF	832 SERIES	NICKEL BRONZE GRATE	---	---	FINISH LINE SERIES
FD-2	FLOOR DRAIN	SIOUX CHIEF	860 SERIES	CAST IRON GRATE	---	---	FAT MAX SERIES
FSK	FLOOR SINK	SIOUX CHIEF	861 SERIES	NICKEL BRONZE GRATE	---	---	3/4 GRATE
TD-1	TRENCH DRAIN	ZURN	Z-893-12-72	--	---	---	STAINLESS STEEL 12" WIDE X 72" LONG
TD-2	TRENCH DRAIN	ZURN	Z-880-SOG	--	---	---	DECORATIVE STAINLESS STEEL GRATE
TD-3	TRENCH DRAIN	SCHLUTER	KERDI-LINE	--	---	---	STAINLESS STEEL BODY AND DECORATIVE GRATE
CO	FLOOR CLEANOUT	SIOUX CHIEF	834 SERIES	NICKEL BRONZE COVER	---	---	FINISH LINE SERIES
HB	HOSE BIBB	WOODFORD	24	---	---	---	INTEGRAL VACUUM BREAKER
WH	WALL HYDRANT	WOODFORD	65	---	---	---	INTEGRAL VACUUM BREAKER
DB	DRAIN BOX	GUY GRAY	81957	---	---	---	LESS VALVES, VALVE HOLES ALREADY PUNCHED OUT
EEW-1	EMERGENCY EYE WASH	BRADLEY	S19-220B	---	---	---	PROVIDE WITH THERMOSTATIC MIXING VALVE SIMILAR TO S19-2000
EEW-2	EMERGENCY EYE WASH	SPEAKMAN	SE-4000 GRAVITYFLO	---	---	---	21 GALLON PORTABLE EYEWASH

REMARKS:

1. ALL FIXTURES INCLUDING FAUCET TRIM SHALL BE CAULKED. TOILETS AND OTHER FIXTURES ON TILE SHALL BE CAULKED W/CLEAR CAULK.
2. FIXTURES SHALL BE INSTALLED AS RECOMMENDED BY MANUFACTURER, INCLUDING MORTOR BEDS FOR SHOWERS AND BATHBAYS IF RECOMMENDED.
3. COORDINATE FLOORING/THRESHOLD HEIGHT REQUIREMENTS FOR ADA SHOWERS WITH GENERAL CONTRACTOR PRIOR TO ORDERING/ASSOCIATED WORK.
4. SHOWER DRAINS (IF APPLICABLE) SHALL BE INSTALLED WITH 100% SILICONE. COMPRESSION STYLE SHOWER DRAIN ASSEMBLIES ARE NOT ACCEPTABLE FOR THIS PROJECT.
5. TUB DRAIN ASSEMBLIES (IF APPLICABLE) SHALL BE FLEXIBLE GLUE TYPE. (WATCO FLEX 900 OR EQUAL) SLIP JOINT TUB DRAIN ASSEMBLIES ARE NOT ACCEPTABLE FOR THIS PROJECT.
6. THE FIXTURE STOPS AND SUPPLIES LISTED ABOVE SHALL BE CHROME 1/4 TURN BALL STYLE STOPS WITH CHROME METAL ESCUTCHEON TRIM RINGS (CAULKED TO WALL) AND FLEXIBLE BRAIDED STAINLESS STEEL SUPPLY TUBES.

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PLUMBING RISERS

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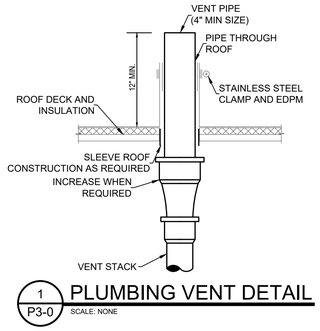
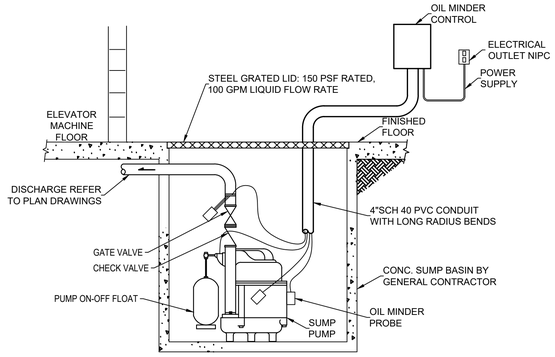


1 P3-0 **PLUMBING VENT DETAIL**
SCALE: NONE



2 P3-0 **ELEVATOR SUMP PUMP DETAIL**
SCALE: NONE

WATER HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL NO.	CAPACITY GALLONS	RECOVERY @ 90° GPH	INPUT (MBH)	THERMAL EFFICIENCY	ELECTRICAL V/PH	FLA	SHIPPPING WEIGHT (LBS)	OPERATING WEIGHT (LBS)	REMARKS
WHTR-1	A.O. SMITH	BTH-500A (ASME RATED)	119	640	499.9	95%	120/1	5.0	855	1807	1, 2, 3, 4, 5, 6, 7
WHTR-2	A.O. SMITH	BTH-500A (ASME RATED)	119	640	499.9	95%	120/1	5.0	855	1807	1, 2, 3, 4, 5, 6, 7
WHTR-3	A.O. SMITH	BTH-500A (ASME RATED)	119	640	499.9	95%	120/1	5.0	855	1807	1, 2, 3, 4, 5, 6, 7

REMARKS:
1. ASME T & P RELIEF VALVE PIPED TO 6" A.F.F.
2. REFER TO WATER HEATER PIPING DETAIL ON SHEET P-1.
3. WATER HEATER SYSTEM SHALL INCLUDE A SINGLE AMTROL ST-30V-C ASME RATED FREE STANDING THERMAL EXPANSION TANK.
4. WATER HEATER SHALL BE ASME RATED.
5. INSTALL DOMESTIC HOT WATER RECIRCULATING PUMP. SEE PUMP SCHEDULE ON THIS SHEET.
6. WATER HEATER SHALL INCLUDE A CONCENTRIC INTAKE/EXHAUST VENT KIT.
7. WATER HEATER SHALL INCLUDE A CONDENSATE NEUTRALIZATION KIT. ROUTE PIPING TO FLOOR DRAIN.

PUMP SCHEDULE

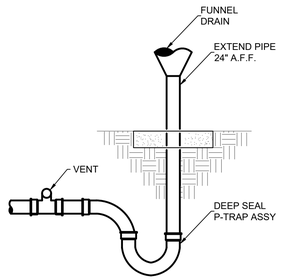
UNIT NO.	MANUFACTURER	MODEL NO.	DESCRIPTION	STYLE	SIZE	GPM	HEAD (FT)	MOTOR HP	RPM	ELECTRICAL VOLTS/PH	F.L.AMPS	REMARKS
P-1	B & G	PL-36B	DOMESTIC HW RECIRC	INLINE	1"	10	30	1/6	3300	115/1	2.1	1,2,3,4
P-2	B & G	PL-30B	140° DOMESTIC RHW	INLINE	3/4"	5	20	1/12	3300	115/1	2.1	1,2,3,4
SP-1	ZOLLER	F186	ELEVATOR SUMP PUMP	SUMP	2"	100	40	1-1/2 HP	-	208/1	16.8	5

REMARKS:
1. PUMP SHALL BE A BRONZE BODY PUMP.
2. PUMP SHALL INCLUDE B & G MODEL TC-1 AUTOMATIC TIMER KIT OR EQUAL.
3. PUMP SHALL INCLUDE B & G MODEL AQS-1/2 AQUASTAT OR EQUAL.
4. PUMP SHALL INCLUDE B & G SWEAT CHECK-TROL FLANGES WITH INTEGRAL CHECK VAVLES.
5. PROVIDE AS PREPACKAGED OIL MINDER SYSTEM COMPLETE WITH PUMP, FLOAT AND ALARM PANEL.

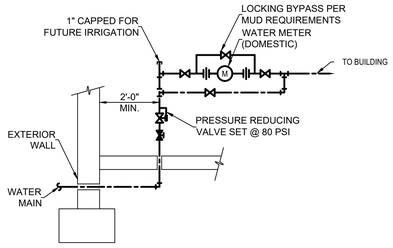
WATER SOFTENER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL NO.	DESCRIPTION	RESIN VOLUME	CONT. FLOW (GPM)	PEAK FLOW (GPM)	DRAIN FLOW (GPM)	OPEATING WEIGHT	SHIPPING WEIGHT	INLET SIZE	OUTLET SIZE	REMARKS
WS-1	CULLIGAN	HCE-600-3	DUPLEX SOFTENER ASSY	20 FT³	185	250	30	8571	3861	3"	3"	1,2,3,4

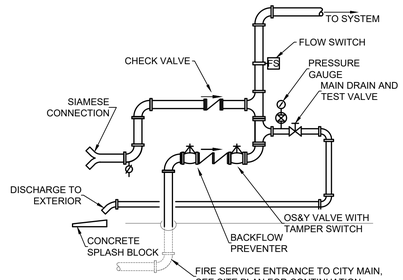
REMARKS:
1. WATER SOFTENER SHALL INCLUDE A BYPASS VALVE ASSEMBLY.
2. WATER SOFTENER SHALL INCLUDE ALL A VACUUM RELIEF VALVE.
3. WATER SOFTENER SHALL INCLUDE ALL PIPING/DRAINS/DISCHARGE TO FLOOR DRAINS VIA AN INDIRECT WASTE CONNECTION.
4. COORDINATE OUTLET LOCATION WITH ELECTRICAL CONTRACTOR PRIOR TO ASSOCIATED WORK.
5. INSTALL AS RECOMMENDED BY EQUIPMENT MANUFACTURER.



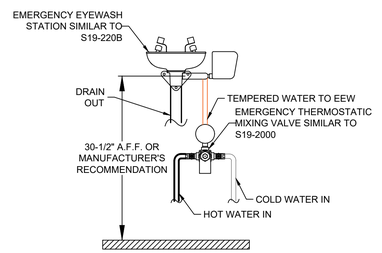
4 P3-0 **HUB DRAIN ASSEMBLY**
SCALE: NONE



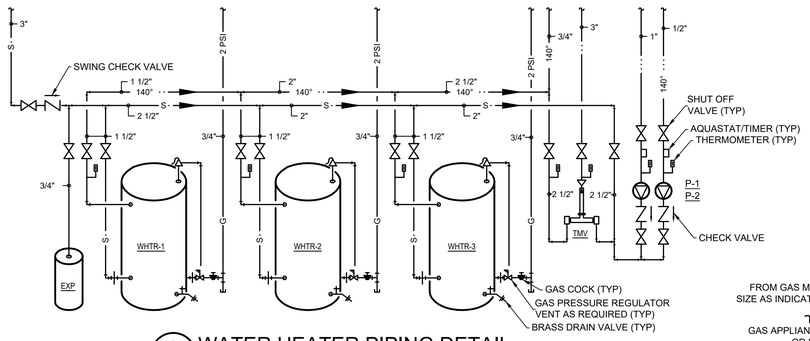
5 P3-0 **WATER SERVICE ENTRY DETAIL FOR BUILDING WITH IRRIGATION**
SCALE: NONE



6 P3-0 **FIRE SERVICE ENTRANCE DETAIL**
SCALE: NONE

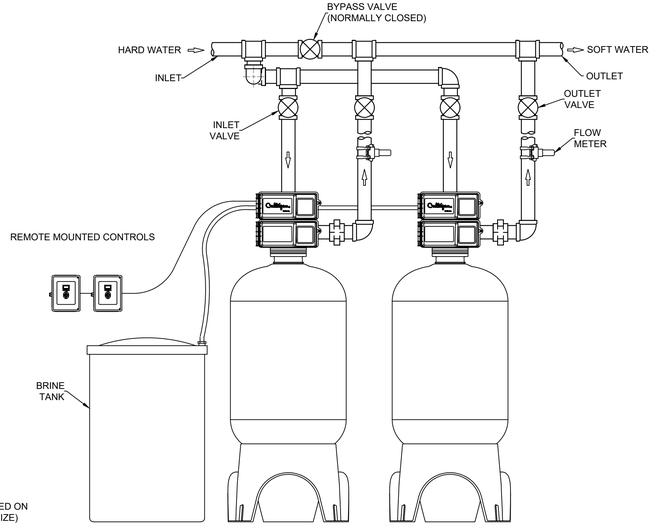


7 P3-0 **EMERGENCY EYEWASH STATION PIPING**
SCALE: NONE

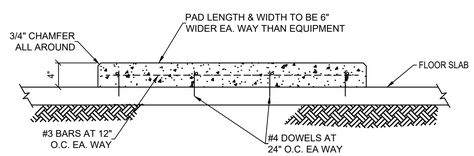


8 P3-0 **WATER HEATER PIPING DETAIL**
SCALE: NONE

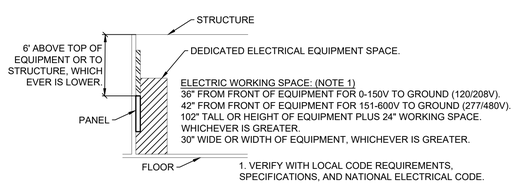
WATER HEATER INTAKE AND EXHAUST PIPING BY THE PLUMBING CONTRACTOR. PROVIDE AND INSTALL WITH CONCENTRIC VENT KIT THROUGH SIDE WALL OF BUILDING.



9 P3-0 **WATER SOFTENER DETAIL**
SCALE: NONE

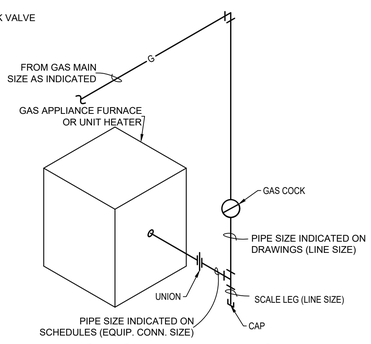


10 P3-0 **EQUIPMENT BASE DETAIL**
SCALE: NONE



1. VERIFY WITH LOCAL CODE REQUIREMENTS, SPECIFICATIONS, AND NATIONAL ELECTRICAL CODE.

11 P3-0 **ELECTRIC WORKING SPACE**
SCALE: NONE



12 P3-0 **GAS APPLIANCE PIPING DETAIL**
SCALE: NONE

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PLUMBING SCHEDULE AND DETAILS

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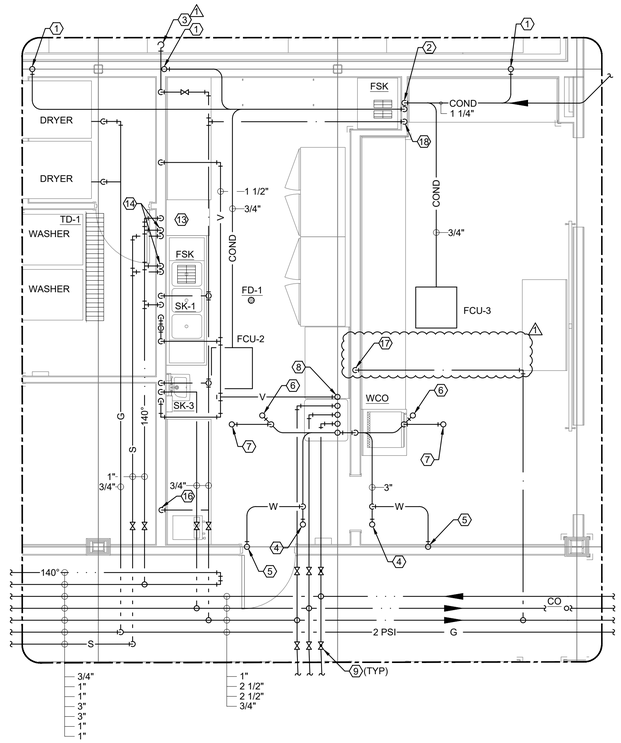
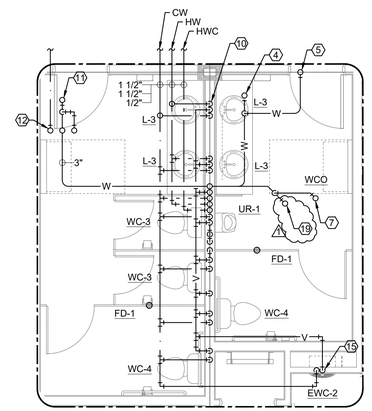


1 ENLARGED PLUMBING PLAN - PANTRY/BREAKFAST AREA
1/4" = 1'-0"

NORTH

KEYED PLUMBING NOTES: ⓧ

1. 1 1/4" COND UP.
2. 1 1/4" COND DN & OUT THROUGH WALL 6" A.F.F. TO FSK.
3. 3/4" CW DN TO WH MOUNTED 18" ABOVE FINISHED GRADE, 1 1/2" V DN, 3/4" 140° HW DN, 3/4" 140° HW DN, 3/4" CS DN, 3/4" 140° HW DN, 3/4" CS DN, 3/4" CW DN, 3/4" 140° HW DN, 1 1/2" V DN, 1 1/2" V DN 1 1/2" V DN, 1/2" CW DN, DN, 1/2" HW DN, 1 1/2" V/2" W DN.
4. 3" W UP TO WC.
5. 2" W UP TO LAV.
6. 2" W UP TO SH.
7. 1 1/2" V UP.
8. 3" V UP, 1 1/2" CW UP, 1 1/2" HW UP, 1/2" RHW UP, 4" W UP. SEE TYPICAL WATER, WASTE, & VENT RISER ON SHEET P2.0.
9. CIRCUIT SOLVER THERMOSTATIC RECIRCULATING VALVE. INSTALL AT PROPER SETBACK FROM DOMESTIC HOT WATER RECIRCULATING MAIN TO ALLOW FOR PROPER FUNCTION. REFER TO MFG. RECOMMENDATIONS FOR INSTALLATION.
10. 3/4" HW DN, 1 1/2" V/2" W DN, 3/4" CW DN, 3/4" HW DN, 1 1/2" V/2" W DN, 3/4" CW DN, 4" W UP/DN W/CO 18" A.F.F., 3" V UP, 1 1/4" CW UP, 1 1/4" HW UP, 1/2" RHW UP, 1 1/4" CW DN, 2" V DN, 2" V DN, 2" V DN, 2" V DN, 1" CW DN, 2" V DN, 2" V DN, 1 1/4" CW DN, 2" V DN, 1" CW DN.
11. 2" W UP TO FSK.
12. 3/4" CW UP, 3" W UP, 1 1/2" V UP.
13. ROUTE DISHWASHER WASTE TO FSK, TERMINATE 1" ABOVE GRATE.
14. PROVIDE HOSE BIBB AND AIR CUSHION AS RECOMMENDED BY WASHER MANUFACTURER. TYPICAL OF TWO (2) WASHERS.
15. 11/4" V DN, 1/2" CW DN.
16. 1/2" CW DN TO COFFEE BREWER. PROVIDE WITH ISOLATION VALVE, APPROVED BACKFLOW PREVENTER, AND FILTER SIMILAR TO AQUA PURE 3P782.
17. 1/2" CW DN TO JUICE MACHINE.PROVIDE WITH ISOLATION VALVE, APPROVED BACKFLOW PREVENTER, AND FILTER SIMILAR TO AQUA PURE 3P782.
18. 1/2" CW DN TO ICE MACHINE.PROVIDE WITH ISOLATION VALVE, APPROVED BACKFLOW PREVENTER, AND FILTER SIMILAR TO AQUA PURE 3P782.



2 ENLARGED PLUMBING PLAN - PUBLIC RESTROOMS
1/4" = 1'-0"

NORTH

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Revisions | 1 08.25.2017
5 03.19.2018
6 03.27.2018

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ENLARGED PLUMBING PLANS

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