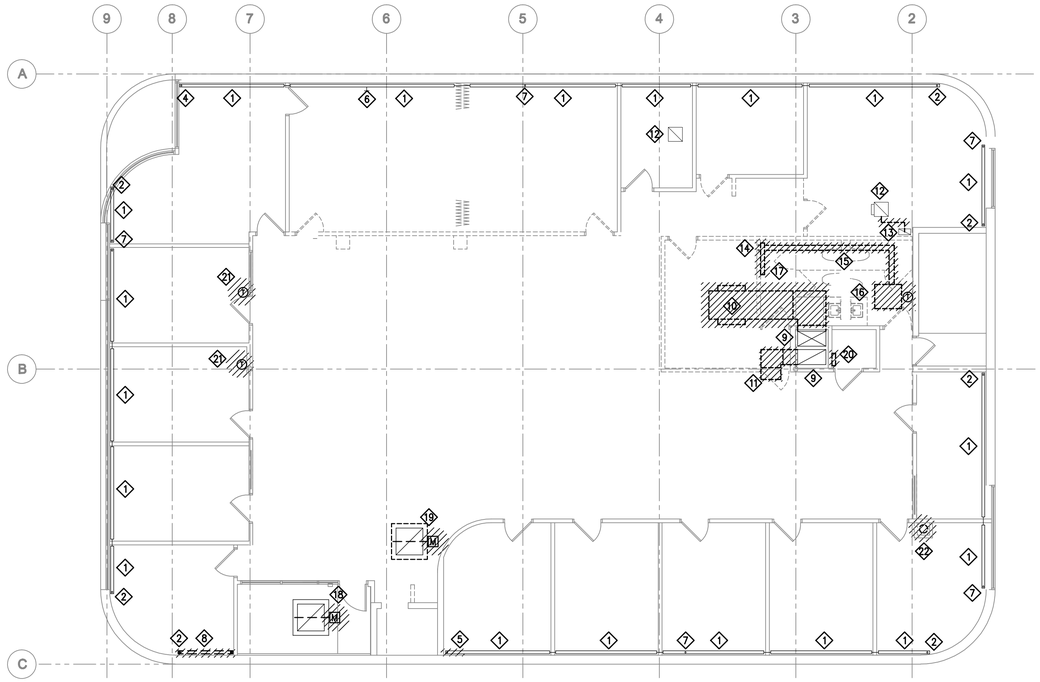
SECOND FLOOR PLAN GENERAL DEMOLITION NOTES

1. THE OWNER IS REMOVING EXISTING CEILING SUPPLY AND RETURN FIBERGLASS DUCTWORK, EXHAUST GRILLES, FLEXIBLE EXHAUST DUCTWORK, SUPPLY TERMINAL UNITS AND RETURN GRILLS, EXCEPT AS NOTED ON THIS DEMOLITION DRAWING, BEFORE THE START OF THIS PROJECTS CONSTRUCTION.
2. ALL EXISTING HOT WATER WALL FIN RADIATION TO REMAIN EXCEPT AS NOTED TO BE REMOVED OR REMOVED AND RETAINED FOR REINSTALLATION.
3. RETAIN ALL WALL FIN CABINET PARTS. ALL PARTS OF CABINET ARE TO BE REINSTALLED FOR A COMPLETE FIN TUBE ENCLOSURE.

SECOND FLOOR PLAN DEMOLITION KEY NOTES

1. EXISTING WALL FIN RADIATION TO REMAIN.
2. REMOVE SELF CONTAINED CONTROL VALVE IN SUPPLY PIPING. REMOVE PIPING FROM VALVE DOWN TO FIRST FLOOR.
3. REMOVE SELF CONTAINED CONTROL VALVE. REPLACE WITH STRAIGHT PIECE OF PIPING.
4. EXISTING SUPPLY PIPING TO FIRST FLOOR TO REMAIN.
5. REMOVE PORTION OF WALL FIN CABINET AND FIN TUBE BACK TO LOCATION OF NEW CHASE. REFER TO ARCHITECTURAL PLAN FOR DIMENSION OF NEW CHASE. REMOVE SELF CONTAINED CONTROL VALVE AND SUPPLY PIPING DOWN TO FIRST FLOOR. NEW CONNECTION WILL BE MADE TO REMAINING FIN TUBE.
6. REMOVE SELF CONTAINED CONTROL VALVE. REPLACE WITH STRAIGHT PIECE OF PIPING.
7. EXISTING RETURN PIPING TO FIRST FLOOR TO REMAIN.
8. REMOVE WALL FIN CABINET AND FIN TUBE INCLUDING CONTROL VALVE AND SUPPLY AND RETURN PIPING DOWN TO FIRST FLOOR. RETAIN FOR REINSTALLATION IN SAME ROOM.
9. EXISTING SUPPLY AND RETURN SHEET METAL DUCTWORK IN CHASE TO REMAIN.
10. REMOVE SHEET METAL SUPPLY DUCTWORK BACK TO RISER. NEW CONNECTIONS ARE TO BE MADE TO EXISTING SUPPLY DUCT RISER.
11. REMOVE SHEET METAL RETURN DUCTWORK BACK TO RISER. NEW CONNECTIONS ARE TO BE MADE TO EXISTING RETURN DUCT RISER.
12. REMOVE 19 X 19 DUCT RISER TO ROOF EXHAUST FAN. ROOF OPENING TO BE USED FOR NEW EXHAUST DUCT RISER.
13. 8 X 16 EXHAUST DUCT RISING FROM FIRST FLOOR TO REMAIN.
14. REMOVE HW S AND R PIPING FROM FIRST FLOOR.
15. REMOVE HW S AND R PIPING ABOVE CEILING.
16. REMOVE CEILING MOUNTED RECESSED CABINET UNIT HEATER AND REMOTE THERMOSTAT.
17. REMOVE WALL RECESSED CABINET UNIT HEATER.
18. REMOVE DAMPER FROM EXISTING RELIEF HOOD. EXISTING CEILING RELIEF GRILLES AND DUCTWORK TO ROOF HOOD TO REMAIN. NEW MOTOR OPERATED DAMPER TO BE INSTALLED.
19. REMOVE DAMPER FROM EXISTING RELIEF HOOD. REMOVE CEILING RELIEF GRILLES AND TRANSITION DUCTWORK TO DUCT RISER TO ROOF HOOD. DUCT UP TO HOOD TO REMAIN. NEW MOTOR OPERATED DAMPER TO BE INSTALLED.
20. EXISTING ROOFTOP AIR CONDITIONING UNIT CONTROLS TO BE REMOVED.
21. CONTROL FOR SUPPLY DUCT DAMPER TO BE REMOVED.
22. REMOVE EXISTING BOILER VENT STACK. NEW PVC BOILER AND WATER HEATER VENT STACKS TO BE INSTALLED AT THIS LOCATION.
23. SUPPLY PIPING TO FIRST FLOOR TO REMAIN.



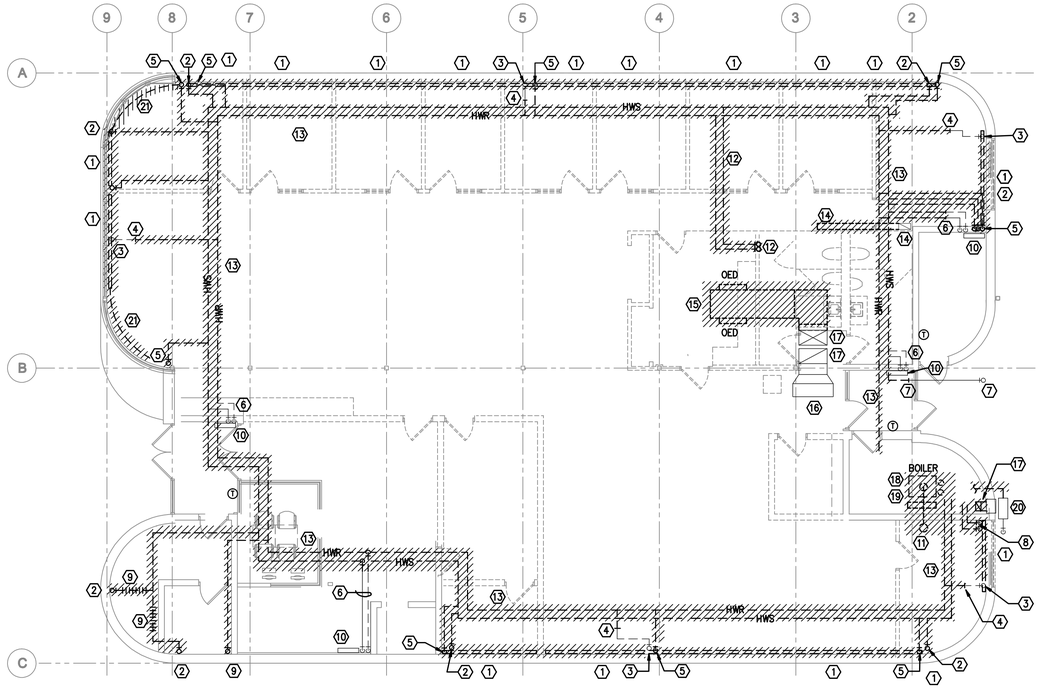
B M100 SECOND FLOOR HVAC FLOOR PLAN – DEMOLITION
SCALE: 1/8" = 1'-0"

FIRST FLOOR PLAN GENERAL DEMOLITION NOTES

1. THE OWNER IS REMOVING EXISTING CEILING SUPPLY AND RETURN FIBERGLASS DUCTWORK, EXHAUST GRILLES, FLEXIBLE EXHAUST DUCTWORK, SUPPLY TERMINAL UNITS AND RETURN GRILLS, EXCEPT AS NOTED ON THIS DEMOLITION DRAWING, BEFORE THE START OF THIS PROJECTS CONSTRUCTION.
2. ALL EXISTING HOT WATER WALL FIN RADIATION ON THE FIRST FLOOR TO BE REMOVED EXCEPT AS NOTED TO REMAIN.
3. RETAIN ALL WALL FIN CABINET END CAPS ON TRIM PARTS TO REPLACE CABINET PARTS MISSING ON EXISTING WALL FIN TO REMAIN ON THE SECOND FLOOR.
4. ALL PIPING LOCATIONS SHOWN ARE APPROXIMATE LOCATIONS.

FIRST FLOOR PLAN DEMOLITION KEY NOTES

1. EXISTING WALL FIN RADIATION CABINET AND FIN TUBE TO BE REMOVED INCLUDING CONTROL VALVES AND SUPPLY AND RETURN PIPING TO OVERHEAD MAINS.
2. REMOVE SUPPLY PIPING RISING TO WALL FIN ON SECOND FLOOR.
3. RETURN PIPING RISING TO WALL FIN ON SECOND FLOOR TO REMAIN.
4. REMOVE RETURN PIPING SERVING SECOND FLOOR FROM THIS POINT BACK TO MAIN. NEW CONNECTION TO BE MADE TO REMAINING RETURN TO SECOND FLOOR.
5. REMOVE SUPPLY AND RETURN PIPING TO FIRST FLOOR WALL FIN.
6. EXISTING SUPPLY AND RETURN PIPING SERVING CABINET UNIT HEATER OR CONVECTOR TO REMAIN FROM THE POINT TO UNIT. NEW CONNECTION TO BE MADE.
7. SUPPLY PIPING TO SECOND FLOOR TO REMAIN FROM VESTIBULE TO RISER TO SECOND FLOOR. NEW CONNECTION TO BE MADE AT VESTIBULE.
8. REMOVE SUPPLY AND RETURN PIPING TO WALL FIN BACK TO MECHANICAL ROOM.
9. REMOVE BARE ELEMENT WALL FIN AT CEILING AND SUPPLY AND RETURN PIPING BACK TO MAINS.
10. CABINET UNIT HEATERS AND CONVECTOR TO REMAIN
11. BOILER VENT STACK TO BE REMOVED.
12. REMOVE SUPPLY AND RETURN PIPING TO SECOND FLOOR.
13. ALL HOT WATER SUPPLY AND RETURN PIPING MAINS TO BE REMOVED.
14. REMOVE HORIZONTAL 8 X 16 HORIZONTAL DUCT. 8 X 16 RISER TO SECOND FLOOR TO REMAIN FOR NEW CONNECTION.
15. REMOVE HORIZONTAL SUPPLY DUCT BACK TO RISER. NEW CONNECTION TO BE MADE TO RISER.
16. EXISTING 54 X 14 OPEN END RETURN DUCT TO REMAIN FOR NEW CONNECTION.
17. REMOVE COMBUSTION AIR DUCT. AIR TAKE LOUVER TO REMAIN.
18. REMOVE BOILER, TWO PUMPS, AND EXPANSION TANK INCLUDING ALL ASSOCIATED HOT WATER PIPING CONTROLS AND ACCESSORIES WITHIN THE MECHANICAL ROOM.
19. COORDINATE WITH GENERAL CONTRACTOR FOR REMOVAL OF THE CONCRETE PAD UNDER THE BOILER.
20. UTILITY GAS METER. REMOVE GAS PIPING FROM METER INTO BUILDING AND REMOVE ALL GAS PIPING IN MECHANICAL ROOM.
21. UNDERFLOOR PIPING FROM RISER TO WALL FIN. REMOVE PIPING AT RISER WALL FIN AND CLOSE OPENINGS TO BELOW FLOOR TO PERMIT FLOOR PATCHING



A M100 FIRST FLOOR HVAC FLOOR PLAN – DEMOLITION
SCALE: 1/8" = 1'-0"

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MADISON WISCONSIN

DRAWING
FIRST AND SECOND FLOOR
HVAC – DEMOLITION PLANS

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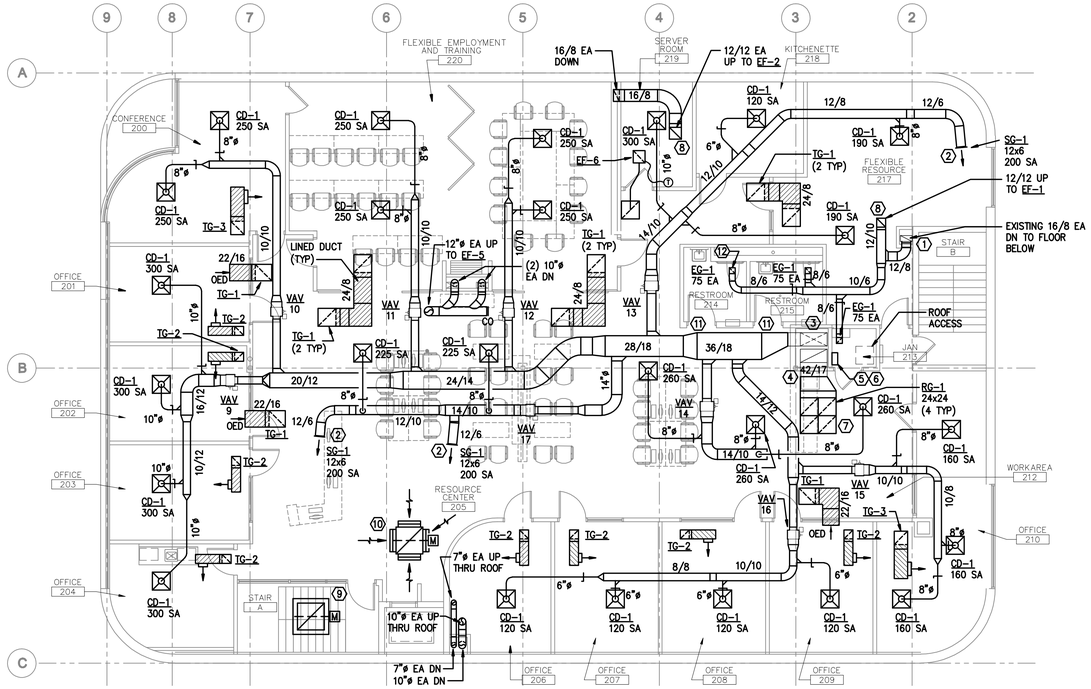
FIRST FLOOR AND SECOND FLOOR PLAN GENERAL VENTILATION NOTES

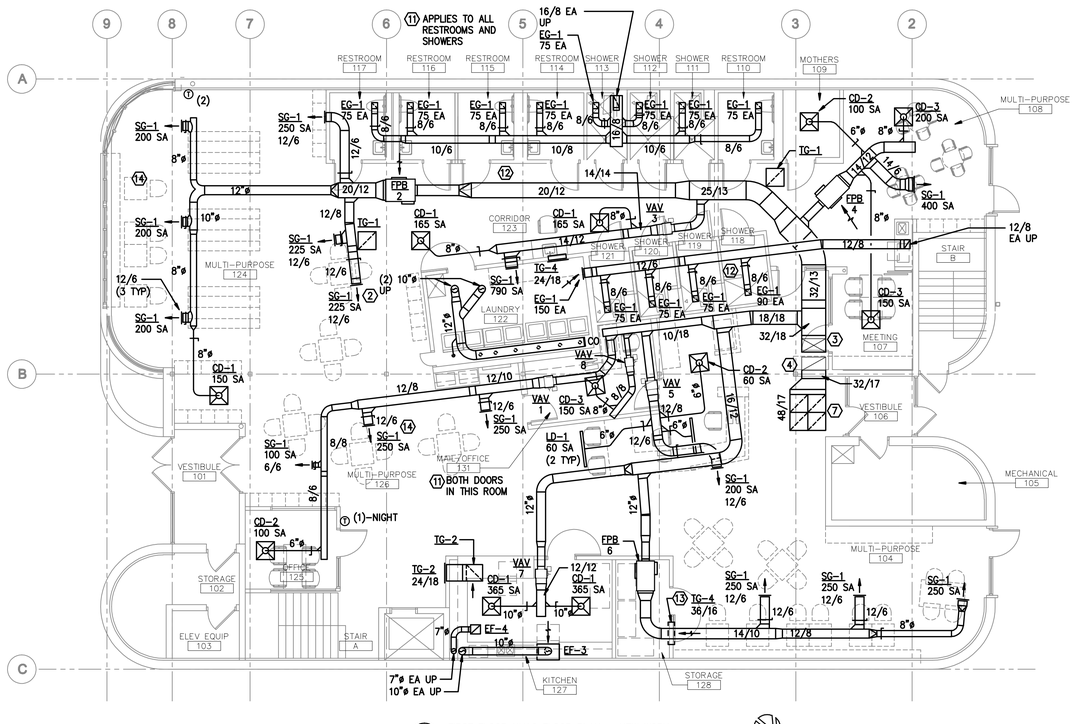
1. CEILING DIFFUSER INLET SIZE SHALL BE THE SAME SIZE AS THE BRANCH DUCT SIZE SHOWN ON THE DRAWING.
2. INLET DUCT TO VAV BOXES SHALL BE THE BOX INLET SIZE.

FIRST FLOOR AND SECOND FLOOR PLAN VENTILATION KEY NOTES

1. MAKE 12/8 CONNECTION TO EXISTING 16/8 RISER. CLOSE OPENINGS IN THE EXISTING DUCT.
2. GRILL TO BE INSTALLED IN GYPSUM WALL BOARD FASCIA.
3. MAKE NEW CONNECTION TO EXISTING SUPPLY RISER. PATCH AND REMAINING DUCT OPENING.
4. MAKE NEW CONNECTION TO EXISTING RETURN RISER. PATCH AND REMAINING DUCT OPENING.
5. CONTROL PANEL FOR SECOND FLOOR VAV'S AND RADIATION IF REQUIRED. E.C. IS PROVIDING A 120 VOLT CONNECTION FOR CONTROL USE.
6. RTU-1 CONTROLS.
7. INSTALL FOUR 24/24 RG-1 IN CEILING GRID. PROVIDE A 48, WIDE / 16, DEEP PLENUM OVER THE 4 RETURN GRILLES.
8. RISE DUCT THROUGH EXISTING ROOF OPENING AND FAN CURB TO NEW ROOF EXHAUST FAN.
9. EXISTING RELIEF HOOD, RELIEF GRILLES AND CONNECTING DUCTWORK TO REMAIN. NEW MOTOR OPERATED DAMPER TO BE INSTALLED AT THE RELIEF HOOD. REFER TO DETAIL DRAWING SHEET.
10. SECOND FLOOR RELIEF TO EXISTING ROOF RELIEF HOOD. REFER TO DETAIL THE DRAWING SHEET.
11. 1 INCH DOOR UNDERCUT.
12. ALL EG-1 EXHAUST GRILLES FIRST AND SECOND FLOOR ARE 8, X 8, . UNLESS OTHERWISE NOTED,
13. MOUNT TG JUST BELOW DUCT.
14. FOR GRILLES MOUNTED ON SIDE OF DUCT PROVIDE A 6, DEEP TAKE OFF THE OVERALL SIZE THE SAME DIMENSION AS THE OVERALL GRILLE BORDER SIZE WITH THE BOOT HAVING A RETURN ON THE FACE FOR MOUNTING THE GRILLE.



B M101 SECOND FLOOR HVAC FLOOR PLAN – NEW WORK
SCALE: 1/8" = 1'-0"



A M101 FIRST FLOOR HVAC FLOOR PLAN – NEW WORK
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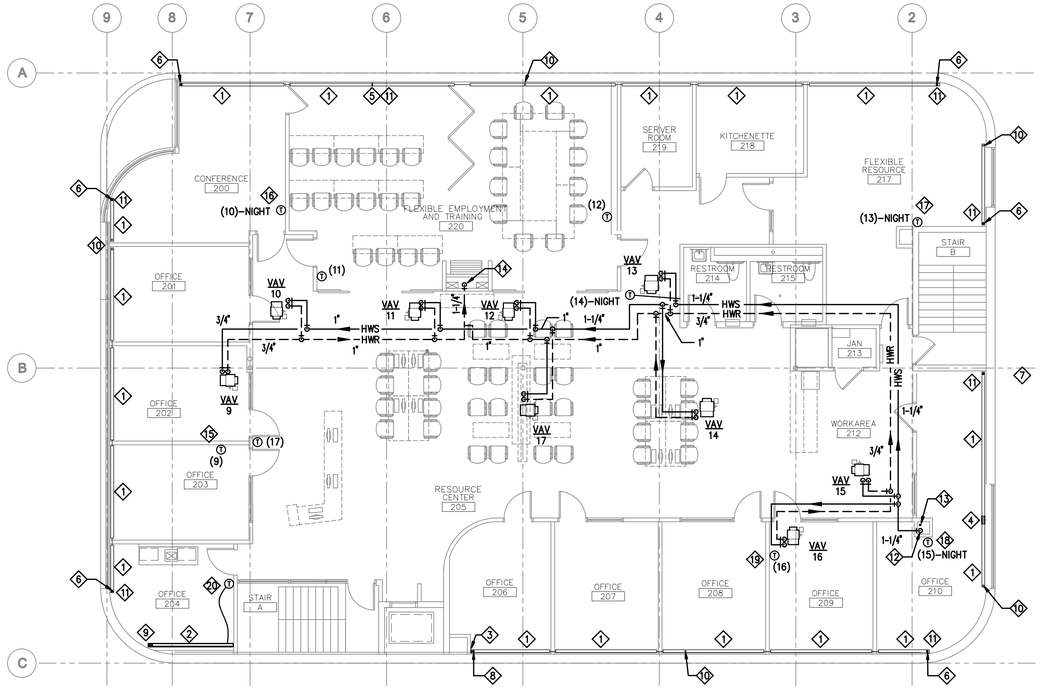
SECOND FLOOR PIPING PLAN GENERAL NOTES

1. EXISTING WALL FIN CABINET AND FIN TUBE IS TO REMAIN WITH MINOR REVISIONS TO THE CABINET AND PIPING AS NOTED.
2. REFER TO VAV BOXE SCHEDULE FOR HOT WATER GPM FOR EACH UNIT.
3. BRANCH PIPING SIZES TO ALL VAV'S IS ¾ INCH.
4. REFER TO DRAWING A300 FOR REFLECTED CEILING PLANS AND E300 FOR LIGHTING PLANS.
5. WHERE PIPING IS LOCATED IN AREAS OF EXPOSED STRUCTURE COORDINATE LOCATIONS OF PIPING WITH LIGHTING. REFER TO DRAWING.
6. ALL VALVES SHALL BE LOCATED IN EXPOSED PIPING OR ABOVE ACCESSIBLE CEILINGS.

SECOND FLOOR PIPING PLAN KEY NOTES

1. EXISTING WALL FIN RADIATION TO REMAIN.
2. EXISTING WALL FIN CABINET AND FIN TUBE TO BE REINSTALLED WITH ADDITIONAL CABINET REMOVED FROM FIRST FLOOR TO BE INSTALLED TO EXTEND CABINET TO PERMIT PIPING TO RISE FROM STORAGE ROOM BELOW.
3. WALL FIN REMOVED TO PERMIT CONSTRUCTION OF NEW CHASE. CUT FIN AND CABINET AND INSTALL END TRIM PIECE.
4. INSTALL CABINET SECTION AND TRIM PIECES REMOVER FROM FIRST FLOOR TO ENCLOSE PIPING WHERE WALL WAS REMOVED.
5. LOCATION OF REMOVED CONTROL VALVE. INSTALL SECTION OF PIPE TO CONNECT PIPES AT VALVE LOCATION.
6. NEW SUPPLY PIPE CONNECTION TO FIN TUBE WITH-IN CABINET. REFER TO WALL FIN PIPING DETAIL.
7. LOCATION OF REMOVED CONTROL VALVE. INSTALL SECTION OF PIPE TO CONNECT PIPES AT VALVE LOCATION. EXISTING SUPPLY PIPING IN SOFFIT BELOW TO REMAIN INTO VESTIBULE 106.
8. NEW LOCATION OF SUPPLY FROM BELOW. CONNECT TO SHORTENED FIN TUBE PIPING.
9. NEW SUPPLY PIPING RISING FROM STORAGE ROOM BELOW. RETURN PIPING TO RUN IN CABINET AND DROP TO STORAGE ROOM ADJACENT TO SUPPLY.
10. LOCATION OF EXISTING RETURN DROP. REFER TO WALL FIN PIPING DETAIL.
11. COVER OPENINGS WHERE SELF-CONTAINED CONTROL VALVES WERE REMOVED WITH TRIM PIECES REMOVED FROM FIRST FLOOR.
12. 1-1/4 INCH HOT WATER SUPPLY RISER FROM FIRST FLOOR.
13. 1-1/2 INCH NATURAL GAS PIPING FROM MECHANICAL ROOM RISING TO ROOF.
14. 1-1/4 INCH HOT WATER RETURN DROP TO FIRST FLOOR.
15. THERMOSTAT ALSO CONTROLS WALL FIN RADIATION IN ROOMS 201 THROUGH 204.
16. THERMOSTAT ALSO CONTROLS WALL FIN RADIATION IN ROOMS 200 AND 220
17. THERMOSTAT ALSO CONTROLS WALL FIN RADIATION IN ROOMS 217, 218 AND 219.
18. THERMOSTAT ALSO CONTROLS WALL FIN RADIATION IN ROOM 210.
19. THERMOSTAT ALSO CONTROLS WALL FIN RADIATION IN ROOMS 206 THROUGH 209.
20. THERMOSTAT CONTROLS RELOCATED WALL FIN RADIATION IN ROOM 204.



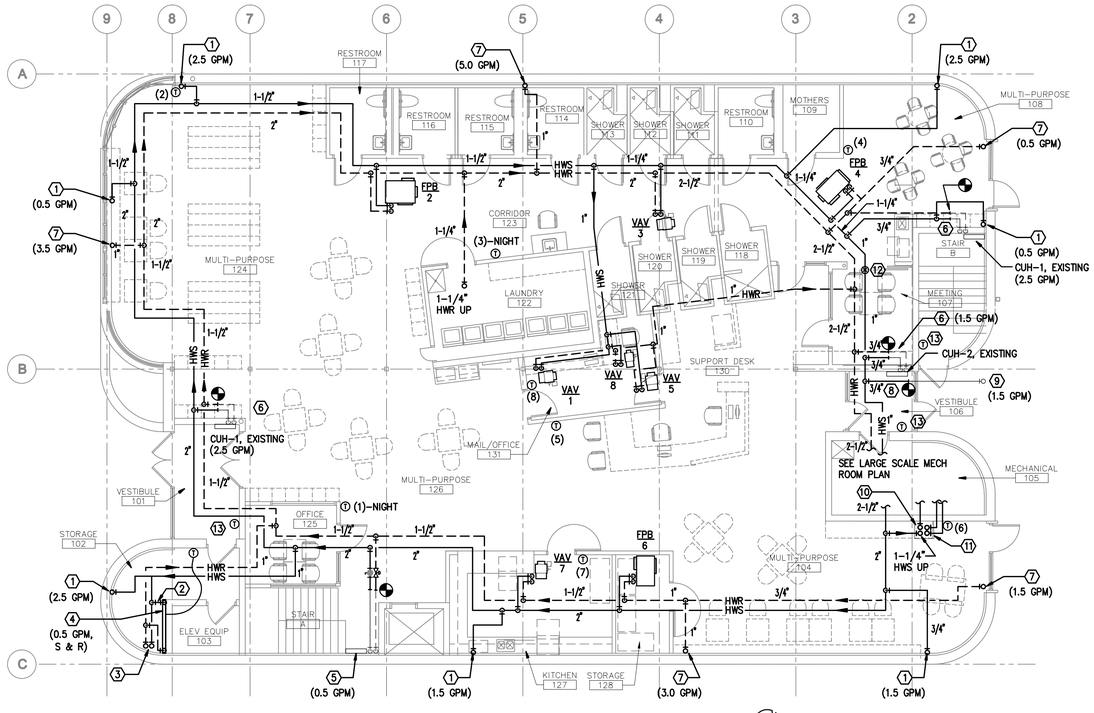
B M101 SECOND FLOOR FLOOR HVAC PIPING PLAN – NEW WORK
SCALE: 1/8" = 1'-0"

FIRST FLOOR PIPING PLAN GENERAL NOTES:

1. REFER TO VAV BOXES AND VAN POWERED VAV BOXES (FPB) FOR HOT WATER GPM FOR EACH UNIT.
2. BRANCH PIPING SIZES TO ALL VAV'S IS ¾ INCH.
3. BRANCH PIPING SIZES TO FPB-2 IS 1 INCH, FPB-4 IS ¾ INCH AND FPB-6 IS 1-1/4 INCH.
4. REFER TO DRAWING A300 FOR REFLECTED CEILING PLANS AND E300 FOR LIGHTING PLANS.
5. WHERE PIPING IS LOCATED IN AREAS OF EXPOSED STRUCTURE COORDINATE LOCATIONS OF PIPING WITH LIGHTING. REFER TO DRAWING.
6. ALL VALVES SHALL BE LOCATED IN EXPOSED PIPING OR ABOVE ACCESSIBLE CEILINGS.

FIRST FLOOR PIPING PLAN KEY NOTES:

1. SUPPLY PIPING UP TO EXISTING WALL FIN RADIATION. SEE WALL FIN PIPING DETAIL FOR ISOLATION/SHUT OFF VALVES AND CONTROL VALVE.
2. 3/4 INCH SUPPLY TO RELOCATED WALL FIN IN THIS ROOM. PROVIDE CONTROL VALVE WITH BALL VALVE ON INLET AND OUTLET. EXTEND PIPING AND DROP EXPOSED IN CORNER TO FIN TUBE.
3. ¾ INCH SUPPLY AND RETURN UP TO RELOCATED WALL FIN. SEE WALL FIN PIPING DETAIL.
4. RELOCATED SIX FOOT WALL FIN CABINET AND FIVE FEET OF FIN TUBE.
5. 3/4 INCH SUPPLY AND RETURN TO EXISTING CONVECTOR. PROVIDE CONTROL VALVE WITH BALL VALVE ON INLET AND OUTLET AND BALL VALVE ON RETURN CONNECT TO EXISTING PIPING AT CEILING.
6. CONNECT TO EXISTING ¾ INCH PIPING AT CEILING SERVING EXISTING CABINET UNIT HEATER.
7. RETURN PIPING FROM SECOND FLOOR WALL FIN. SEE WALL FIN PIPING DETAIL.
8. CONNECT TO EXISTING ¾ INCH SUPPLY WITH CONTROL AND ISOLATION VALVE LOCATED ABOVE VESTIBULE CEILING. SEE WALL FIN PIPING DETAIL.
9. EXISTING PIPING UP TO WALL FIN.
10. 1-1/2 INCH NATURAL GAS RISER TO ROOF. SEE GAS PIPING DETAIL.
11. TWO 3 INCH PVC BOILER VENTS RISE IN CHASE THROUGH SECOND FLOOR AND TERMINATE ON ROOF PER MANUFACTURERS REQUIREMENTS.
12. HOT WATER SUPPLY PRESSURE SENSOR.
13. REPLACE EXISTING THERMOSTAT CONTROLLING EXISTING CABINET UNIT HEATER.



A M101 FIRST FLOOR FLOOR HVAC PIPING PLAN – NEW WORK
SCALE: 1/8" = 1'-0"

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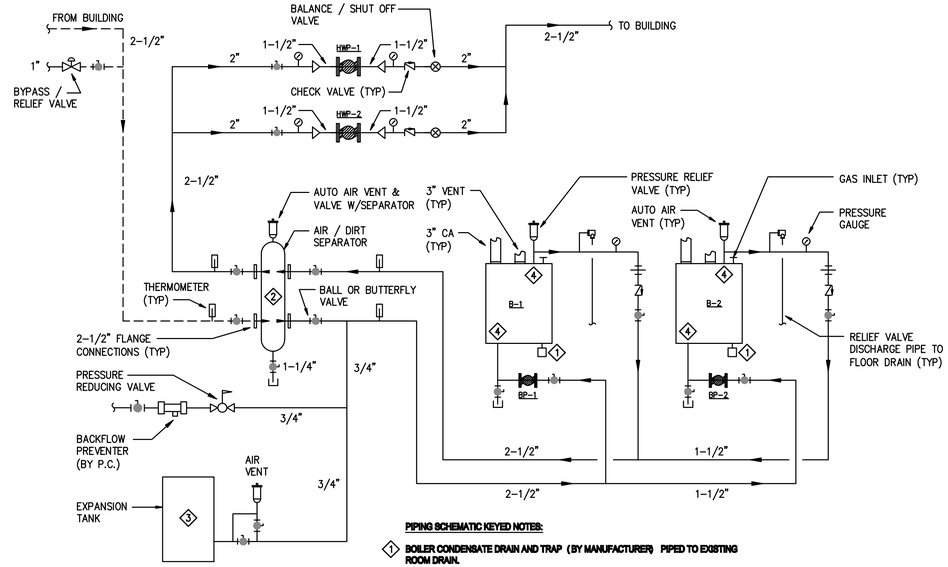


PIPING SCHEMATIC KEYED NOTES:

1. BOILER CONDENSATE DRAIN AND TRAP (BY MANUFACTURER) PIPED TO EXISTING ROOM DRAIN.
2. CALEFFI MODEL 549-546062 (45 GPM MINIMUM FLOW)
3. EXPANSION TANK: 22 GALLON VOLUME (11 GALLON ACCEPTANCE) B&G MODEL B-55-LA
4. BOILER PIPING CONNECTIONS ARE 1-1/4"

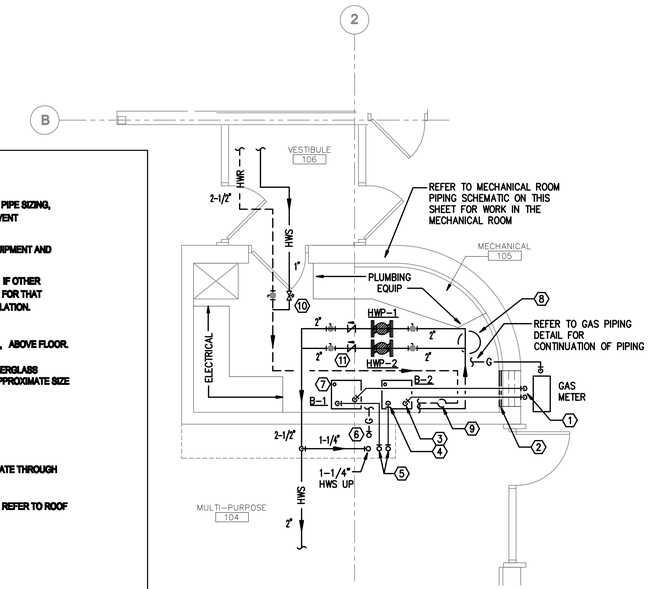
C M103 MECHANICAL ROOM PIPING SCHEMATIC
NOT TO SCALE

MECHANICAL ROOM PLAN GENERAL NOTES:

1. REFER TO MECHANICAL ROOM PIPING SCHEMATIC FOR PIPING ARRANGEMENT, PIPE SIZING, BOILER GAS CONNECTION, HOT WATER CONNECTIONS, COMBUSTION AIR AND VENT CONNECTIONS.
2. REFER TO MECHANICAL ROOM PIPING SCHEMATIC FOR REQUIRED SYSTEM EQUIPMENT AND ACCESSORIES.
3. THE BOILER CONNECTIONS DETAILED ARE FOR THE BASE SCHEDULED BOILER. IF OTHER APPROVED BOILERS ARE TO BE INSTALLED PROVIDE CONNECTIONS REQUIRED FOR THAT BOILER. PROVIDE THE A/E THE DETAILS OF ANY CHANGES BEFORE THE INSTALLATION.

MECHANICAL ROOM PLAN KEY NOTES:

1. TWO 3 INCH PVC BOILER COMBUSTION AIR INTAKES LOCATED APPROXIMATELY 9'6" ABOVE FLOOR.
2. INSTALL INSULATED SHEET METAL BLANK-OFF PANEL WITH 2 INCHES OF RIGID FIBERGLASS INSULATION WITH SHEET METAL ON EACH SIDE AT BACK OF EXISTING LOUVER. APPROXIMATE SIZE IS 24 X 24
3. 3 INCH COMBUSTION AIR INTAKE CONNECTION (TYPICAL EACH BOILER) .
4. MAKE 3 INCH VENT CONNECTION AS REQUIRED BY MANUFACTURER
5. BOILER B-1 AND B-2 VENT PIPING. RISE IN CHASE ON SECOND FLOOR AND TERMINATE THROUGH ROOF IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.
6. 1-1/2 NATURAL GAS PIPING. RISE IN SECOND FLOOR CHASE AND THROUGH ROOF, REFER TO ROOF PLAN M10.
7. GAS PIPING CONNECTION TO BOILERS. SEE GAS PIPING DETAIL.
8. EXPANSION TANK ON FLOOR
9. AIR AND DIRT SEPARATOR.
10. BYPASS VALVE TO PROVIDE MINIMUM FLOW (PRESSURE RELIEF)
11. PUMPS AND ASSOCIATED PIPING TO BE LOCATED OVERHEAD. MAINTAIN MINIMUM OF 6'-6" CLEAR.



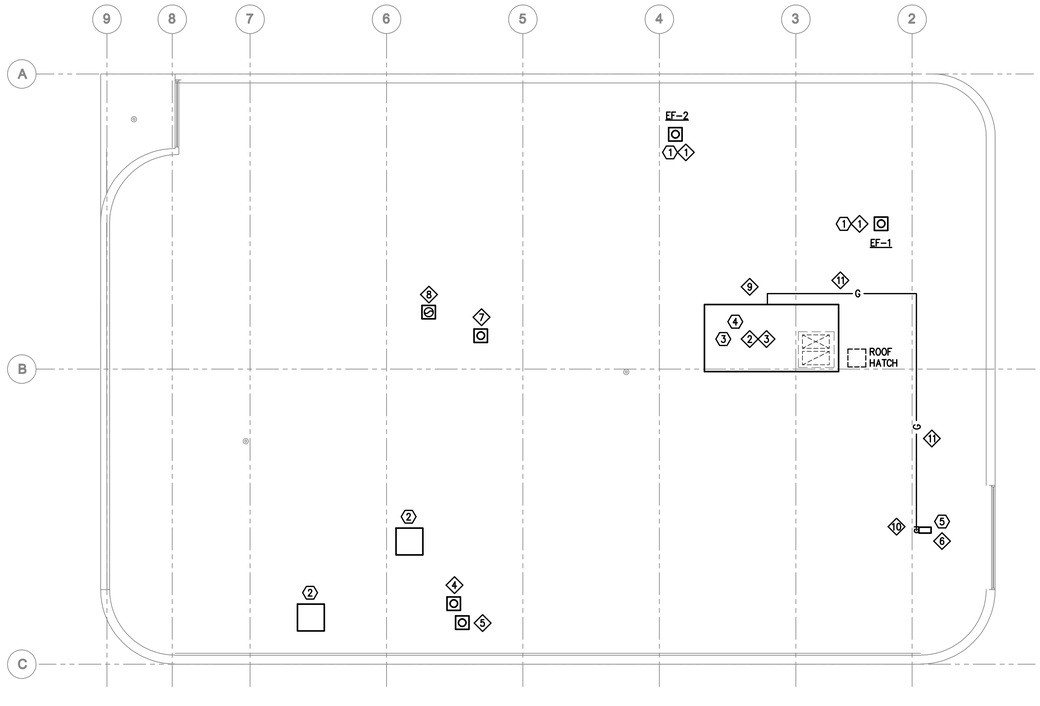
B M103 MECHANICAL ROOM NEW WORK PLAN
SCALE: 1/4" = 1'-0"

ROOF PLAN DEMOLITION NOTES

1. REMOVE EXISTING ROOF EXHAUST FAN. CURB TO REMAIN, SEE NEW ROOF WORK NOTES.
2. EXISTING ROOF RELIEF HOOD TO REMAIN. REFER TO SECOND FLOOR HVAC DEMOLITION AND HVAC NEW WORK PLANS FOR ADDITIONAL WORK REQUIRED.
3. REMOVE TRANE MODEL TCD030AE0C1A0BF3AC, 27.5 TON ROOFTOP UNIT, INCLUDING ASSOCIATED CONTROLS. EXISTING CURB TO REMAIN FOR MOUNTING NEW UNIT.
4. EXISTING SUPPLY AND RETURN DUCT RISERS TO FIRST AND SECOND FLOOR TO REMAIN. REMOVE PORTIONS OF EXISTING DUCTWORK WITHIN THE RAISED CURB NOW CONNECTING EXISTING UNIT SUPPLY AND RETURN TO DUCT RISERS AS REQUIRED TO CONNECT TO NEW UNIT.
5. REMOVE BOILER/WATER HEATER VENT STACK.

ROOF PLAN NEW WORK NOTES.

1. INSTALL NEW ROOF EXHAUST FAN ON EXISTING CURB. PROVIDE CURB ADAPTOR AS REQUIRED TO INSTALL NEW FAN EF-1 OR EF-2 ON EXISTING CURB.
2. INSTALL NEW ROOFTOP UNIT AND NEW UNIT CURB ON EXISTING CURB. REVISE EXISTING CURB AS REQUIRED TO ACCOMMODATE NEW ROOFTOP UNIT CURB.
3. PROVIDE NEW DUCTWORK WITHIN CURB FROM SUPPLY AND RETURN OF UNIT PROVIDED TO EXISTING RISERS. COORDINATE DUCT SIZING AND CONFIGURATION WITH DESIGN ENGINEER BASED ON CONNECTIONS TO UNIT PROVIDED.
4. INSTALL NEW CURB FOR INSTALLATION OF 7 INCH ROUND EXHAUST DUCT FROM EF-4. INSTALL 7 INCH ROUND DUCT THROUGH CURB TO 36 INCHES ABOVE ROOF AND TERMINATE WITH 180 DEGREE RETURN. REFER TO EXHAUST DUCT ROOF TERMINATION DETAIL.
5. INSTALL NEW CURB FOR INSTALLATION OF 10 INCH ROUND EXHAUST DUCT FROM EF-3. INSTALL 10 INCH ROUND DUCT THROUGH CURB TO 36 INCHES ABOVE ROOF AND TERMINATE WITH 180 DEGREE RETURN. REFER TO EXHAUST DUCT ROOF TERMINATION DETAIL.
6. INSTALL NEW ROOF CURB AT LOCATION OF REMOVED BOILER VENT STACK. CURB SHALL HAVE SPACE FOR 2 BOILER 3 INCH PVC VENTS, 2 WATER HEATER 3 OR 4 INCH PVC WATER HEATER VENTS. VERIFY SIZES OF VENTS WITH EQUIPMENT BEING INSTALLED. WATER HEATER VENTS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR, HVAC CONTRACTOR TO COORDINATE THE ROOFING AND PLUMBING CONTRACTORS.
7. INSTALL NEW CURB FOR INSTALLATION OF 7 INCH ROUND EXHAUST DUCT FROM EF-6. INSTALL 7 INCH ROUND DUCT THROUGH CURB TO 36 INCHES ABOVE ROOF AND TERMINATE WITH 180 DEGREE RETURN. REFER TO EXHAUST DUCT ROOF TERMINATION DETAIL.
8. INSTALL NEW CURB, 36 INCHES TO TOP OF CURB, FOR INSTALLATION OF DRYER EXHAUST FAN, EF-5. INSTALL FAN ON CURB.
9. NEW GAS PIPING CONNECTION TO RTU-1. 1-1/2 INCH AT 14 INCH W.C. PRESSURE
10. 1-1/2 NATURAL GAS PIPING UP IN CHASE FROM MECHANICAL ROOM.
11. SUPPORT GAS PIPING ON PIPE ROOF SUPPORTS, REFER TO SPECIFICATION.



A M103 ROOF PLAN – HVAC DEMOLITION AND NEW WORK
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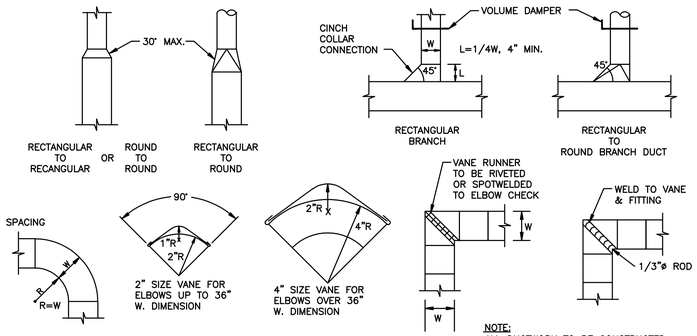
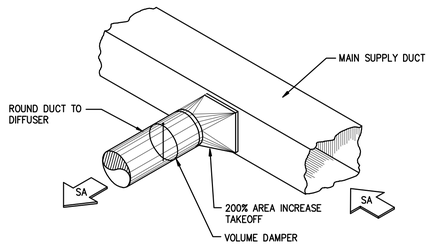
03.09.17

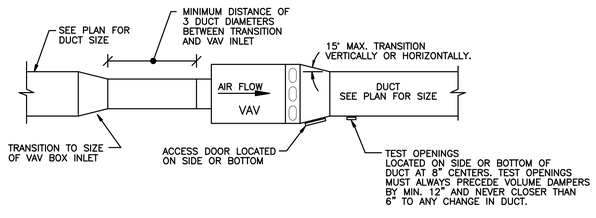
M103



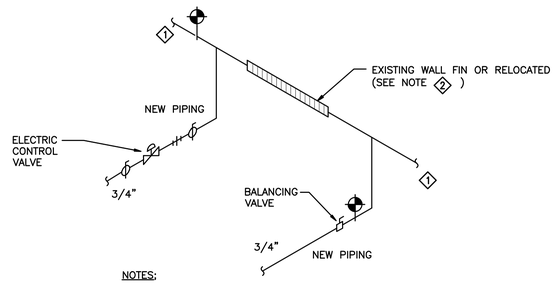
J M104 GENERAL DUCT DETAILS
NOT TO SCALE



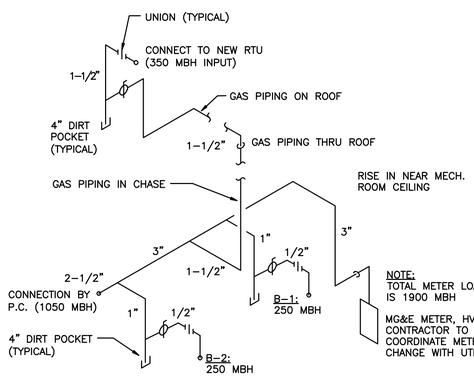
I M104 BRANCH DUCT TAKEOFF DETAIL
NOT TO SCALE



H M104 VARIABLE AIR VOLUME BOX DETAIL (VAV & FPB SIMILAR)
NOT TO SCALE

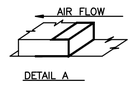


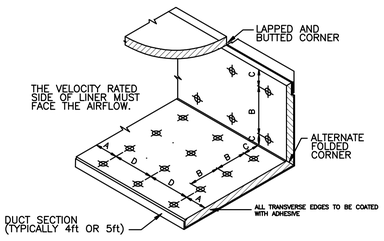
C M104 WALL FIN PIPING DETAIL
NOT TO SCALE



F M104 GAS PIPING DETAIL
NOT TO SCALE

NO. PINS	LINEAR INTERIOR WIDTH
0	8" dn.
2	9"–16"
3	17"–28"
4	29"–40"
5	41"–52"
6	53"–64"
7	65"–76"
8	77"–88"
9	89"–100"



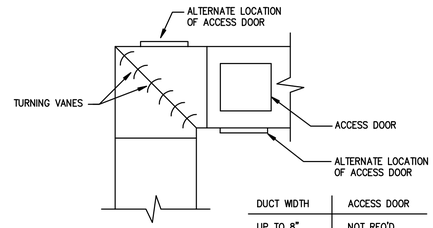


MAXIMUM SPACING FOR FASTENERS. ACTUAL INTERVALS ARE APPROXIMATE.

LINER ADHERED TO THE DUCT WITH 90% MIN. AREA COVERAGE OF ADHESIVE.

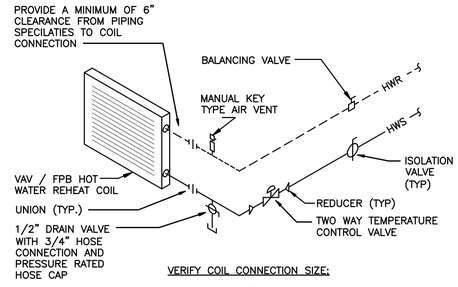
VELOCITY	DIMENSIONS			
	A	B	C	D
0–2500 FPM	3"	12"	4"	18"
2501–6000 FPM	3"	6"	4"	16"

E M104 DUCT LINER DETAIL
NOT TO SCALE



DUCT WIDTH	ACCESS DOOR
UP TO 8"	NOT REQ'D
8" TO 12"	6"x12"
13" TO 24"	12"x12"
25" TO 48"	18"x18"
49" AND UP	24"x24"

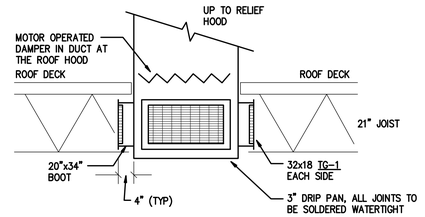
D M104 TURNING VANE ACCESS DETAIL
NOT TO SCALE



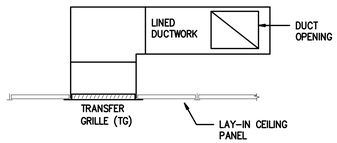
VERIFY COIL CONNECTION SIZE:

SUPPLY AND RETURN BRANCH PIPING SIZES ARE ALL 3/4" EXCEPT FPB-2 =1" , FPB-4 =3/4", AND FPB-6 =1-1/4".

C M104 HOT WATER REHEAT COIL PIPING DETAIL
NOT TO SCALE



B M104 SECOND FLOOR RELIEF HOOD DETAIL
NOT TO SCALE



GRILLE #	SIZE	DUCT SIZE	OPENING SIZE
TG-1	22x22	22x18	22w x 16h
TG-2	12x12	12x12	12w x 10h
TG-3	18x18	18x14	18w x 12h

NOTES:
TG-1 TO BE LAY-IN 24x24 CEILING GRID
TG-2 TO BE CENTERED IN 24x24 CEILING PANEL

A M104 TRANSFER GRILL AND DUCT DETAIL
NOT TO SCALE

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Project No. 16-0904

ISSUED

PROJECT
DANE COUNTY
DAY RESOURCE CENTER
615 E WASHINGTON AVE
MADISON WISCONSIN

DRAWING
HVAC DETAILS

DATE
03.09.17

M104

VARIABLE AIR VOLUME SINGLE DUCT TERMINAL UNITS SCHEDULE

RESULT TAGS	QUANTITY	BASE UNIT: UNIT MODEL	PRIMARY INLET	DESIGN COOLING AIRFLOW CFM	MIN COOLING AIRFLOW CFM	APD @ COOLING AIRFLOW IN H2O	COOLING INLET VELOCITY FT/MIN	VALVE HEATING AIRFLOW CFM	PRIMARY EDB F	UNIT LAT F	COIL HEATING CAPACITY MBH	HEATING FLOW RATE GPM	HEATING ENT FLUID TEMP F	HEATING DELTA F	COIL FLUID PD FT H2O	HEATING GV NUMBER	HOT WATER COIL	HOT WATER VALVES?	ROOM HEAT LOSS MBH	UNIT INSULATION	PROPORTIONAL WATER VALVE	GPM	PIPING PACKAGE	COOLING INLET DIAMETER	COMMENTS
VAV-1	1	VCWF	8" (203MM)	600	180	0.162	1719	300	55	88.18	10.8	0.5	180	43.18	0.65	0.94	ROW HOT WATER COI	NO	4.29	1" FOIL FACED	NONE	NONE	NONE	8"	
VAV-3	1	VCWF	10" (254MM	1100	330	0.437	2017	550	55	100	26.84	1.01	180	52.91	0.18	3.59	ROW HOT WATER COI	NO	14.92	1" FOIL FACED	NONE	NONE	NONE	10"	
VAV-5	1	VCWF	6" (152MM)	380	114	0.136	1935	190	55	92.88	7.81	0.5	180	31.2	0.49	1.09	ROW HOT WATER COI	NO	3.69	1" FOIL FACED	NONE	NONE	NONE	6"	
VAV-7	1	VCWF	8" (203MM)	630	189	0.176	1805	315	55	90	11.96	0.68	180	35.38	1.1	0.98	ROW HOT WATER COI	NO	5.13	1" FOIL FACED	NONE	NONE	NONE	8"	
VAV-8	1	VCWF	5" (127MM)	150	45	0.025	1100	85	55	115.4	5.56	0.5	180	22.23	0.48	1.09	ROW HOT WATER COI	NO	3.72	1" FOIL FACED	NONE	NONE	NONE	5"	
VAV-9	1	VCWF	10" (254MM	1200	360	0.506	2200	600	55	96.95	27.3	0.99	180	54.92	0.18	3.59	ROW HOT WATER COI	NO	14.29	1" FOIL FACED	NONE	NONE	NONE	10"	
VAV-10	1	VCWF	8" (203MM)	500	150	0.12	1432	250	55	103	13	2.27	180	11.43	9.1	1.14	ROW HOT WATER COI	NO	7.58	1" FOIL FACED	NONE	NONE	NONE	8"	
VAV-11	1	VCWF	6" (152MM)	500	150	0.231	2546	225	55	89.24	8.36	0.5	180	33.4	0.49	1.09	ROW HOT WATER COI	NO	3.48	1" FOIL FACED	NONE	NONE	NONE	6"	
VAV-12	1	VCWF	6" (152MM)	500	150	0.231	2546	225	55	89.24	8.36	0.5	180	33.4	0.49	1.09	ROW HOT WATER COI	NO	3.48	1" FOIL FACED	NONE	NONE	NONE	6"	
VAV-13	1	VCWF	10" (254MM	990	297	0.22	1815	400	55	91.88	10	0.71	180	45.15	1.05	0.84	ROW HOT WATER COI	NO	7.33	1" FOIL FACED	NONE	NONE	NONE	10"	
VAV-14	1	VCWF	6" (203MM)	780	234	0.252	2235	350	55	85.18	11.46	0.5	180	45.82	0.65	0.94	ROW HOT WATER COI	NO	3.87	1" FOIL FACED	NONE	NONE	NONE	8"	
VAV-15	1	VCWF	8" (203MM)	480	144	0.112	1375	240	55	99.57	11.6	1.03	180	22.39	2.29	1.04	ROW HOT WATER COI	NO	6.4	1" FOIL FACED	NONE	NONE	NONE	8"	
VAV-16	1	VCWF	6" (152MM)	480	144	0.213	2445	240	55	90.73	9.3	0.69	180	27.1	0.84	1.14	ROW HOT WATER COI	NO	4.1	1" FOIL FACED	NONE	NONE	NONE	6"	
VAV-17	1	VCWF	8" (203MM)	850	255	0.551	2435	425	55	105	23.05	1.64	180	28.13	0.21	5.38	ROW HOT WATER COI	NO	13.83	1" FOIL FACED	NONE	NONE	NONE	8"	

GAS - ELECTRIC ROOF TOP UNIT SCHEDULE

MARK	LOCATION	MANUFACTURER	MODEL NO.	CAPACITY: NOMINAL TONS	COOLING: TOTAL MBH	HEATING MBH: INPUT	HEATING MBH: OUTPUT	FAN: CFM	FAN: EXT SP IN. WC	FAN: HP	REFRIG TYPE	AMBIENT TEMP °F	NO. OF COMPRESS	NO. OF COND. FANS	EER / IEER	ELECTRICAL DATA: MCA	ELECTRICAL DATA: VOLTS / PHASE	REMARKS
RTU-1	SEE PLAN	TRANE	YCD330 E STAGE	27.5	347	350	280	11,000	1.5	7.5	410A	95	3	3	11 - 13.6	162.88	208/3	1, 2, 3, 4

REMARKS
1. 5 STAGES OF COOLING
2. MOP: 175 A; MIN DISCONNECT: 176 A
3. SYSTEM CONTROL vav (dtc) W/O BYPASS W/SGAFT GROUNDING
4. DOWNFLOW SUPPLY, UPFLOW RETURN
5. NO RELIEF (RELIEF IS THROUGH EXISTING BUILDING RELIEF
6. 14" N ATURAL GAS PRESSURE

CONDENSING BOILERS

TAG	MANUFACTURER	MODEL NUMBER	TYPE	FUEL	INPUT MBH MIN-MAX	OUTPUT MBH DOE HEATING	DOE AFUE	FLUE OUTLET SIZE	COMB AIR INLET SIZE	WATER FLOW GPM	RELIEF VALVE PSI	BOILER PRESSURE RATING PSI	GAS PRESSURE	TOTAL AMPS	VOLTS/ PHASE	REMARKS
B-1	INTI	TRINITY tlt 250	CONDENSING	NAT GAS	31-250	230	95	3 INCH	3 INCH	18	30	160	14" WC	< 12 AMPS	120/1	1
B-2	INTI	TRINITY tlt 250	CONDENSING	NAT GAS	31-250	230	95	3 INCH	3 INCH	18	30	160	14" WC	< 12 AMPS	120/1	1

REMARKS
1. PVC COMBUSTION AIR AND VENTING. INSTALLED PER MANUFACTURERS REQUIREMENTS

FAN SCHEDULE

MARK	LOCATION	MANUFACTUR	MODEL NO.	FAN PERFORMANCE: AIR FLOW (CFM)	FAN PERFORMANCE: EXT STATIC PRESS	FAN DATA: FAN TYPE	FAN DATA: DRIVE TYPE	FAN DATA: RPM	FAN DATA: TIP SPEED	FAN DATA: OUTLET VEL OCITY	MOTOR DATA: BHP	MOTOR DATA: HP	MOTOR DATA: VOLTS / PHASE	REMARKS
EF-1	ABOVE 217	GREENHECK	G-103-A	690	0.55	PRV	DIRECT	1349	3929		0.13	1/4	120/1	1
EF-2	ABOVE 219	GREENHECK	G-103-A	600	0.55	PRV	DIRECT	1304	3796		0.11	1/4	120/1	1
EF-3	127	BROAN	QP4 36 INCH	360 HIGH		RANGE HOOD	DIRECT				3.5 AMPS		120/1	2
EF-4	127	GREENHECK	SP-A-290	200	0.5	CEILING	DIRECT	1050			87 WATTS		120/1	3
EF-5	205	ENERVEX	EFV-315	1500		DRYER ROOF	DIRECT	1600				1/2	120/1	5
EF-6	21	GREENHECK	SP-A-510	425	0.25	CEILING	DIRECT	1050			224 WATTS		120/1	4

REMARKS
1. INCLUDE SOLID STATE SPEED CONTROL (FOR BALANCING, LINE VOLTAGE MOTOR OPERATED BACK DRAFT DAMPER.
2. EVOLUTION 4 SERIES, THREE SPEED CONTROL INTEGRAL TO FAN, TOP OUTLET, 4.5 SONES AT HIGH SPEED, STAINLESS STEEL FINISH, FILTERS BACKDRAFT DAMPER,
3. 3.5 SONES,
4. 4.5 SONES,
5. INCLUDE MEC MODULATING EXHAUST CONTROL WITH ALL NECESSSARY ACCESSORIES TO PROVIDE A MODULATING EXHAUST FOR EXHAUSTING 7 LAUNDRY DRYERS

GRILLE, REGISTER, DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL NO.	DESCRIPTION	MATERIAL	MOUNTING	AIR PATTERN	SIZE	DAMPER	APD MAX. " W.C.	ACCESSORIES	REMARKS
CD-1	CARNES	SFPA -24	PLAQUE	STEEL	T BAR	4 WAY	24 X 24	NO	0.05		1, 2
CD-2	CARNES	SFPA 11	PLAQUE	STEEL	T BAR	3 WAY	12 X 12	NO	0.05		1, 2
CD-3	CARNES	SFPA 24	PLAQUE	STEEL	T BAR	3 WAY	24 X 24	NO	0.05		1, 2
SG-1	CARNES	RSDBH	DOUBLE DEFLECTION	STEEL	WALL OR DUCT	22-1/2 DEGREE	SEE PLAN	YES	0.05		
RG-1	CARNES	RAPAC	1/2X1/2X1/2 EGG CRATE	ALUM	T BAR		24 X 24	NO	0.05		4
EG-1	CARNES	RNJMH	1/2" BLADE SPACING	ALUM	FLANGE CEILING	45 DEG SETTING	8 X 8	YES	0.05		3
EG-2	CARNES	RNJMH	1/2" BLADE SPACING	ALUM	FLANGE WALL	45 DEG SETTIING	SEE PLAN	YES	0.05		
TG-1	CARNES	RAPAF	1/2X1/2X1/2 EGG CRATE	ALUM	FLANGE IN T BAR		22 X 22	NO	0.05		5
TG-2	CARNES	RAPAF	1/2X1/2X1/2 EGG CRATE	ALUM	FLANGE		12 X 12	NO	0.05		5
TG-3	CARNES	RAPAF	1/2X1/2X1/2 EGG CRATE	ALUM	FLANGE		18 X 18	NO			5
TG-4	CARNES	RAJMH	1/2" BLADE SPACING	ALUM	FLANGE	45 DEG SETTING	SEE PLAN	NO	0.05		6
LD-1	CARNES	DASC-06-48-D-1-R-06-V	ONE 1-1/2" SLOT		WOOD CEILING		1-1/2 SLOT 48"	YES			7

REMARKS
1. ROUND NECK, SIZE AS INDICATED BY SIZE OF SUPPLY DUCT
2. OVER-ALL SIZE FOR 24 X 24 LAY-IN
3. DAMPER FOR ALL CEILING MOUNTED RESTROOM AND SHOWER ROOM EXHAUST GRILLES
4. CORE ONLY FOR T BAR MOUNTNG
5. REFER TO TRANSFER GRILLE AND DUCT DETAIL
6. MOUNT IN WALL WITH BLADES POSITIONED TO LIMIT SITE THROUGH GRILLE
7. TO BE CUT INTO A WOOD SLAT CEILING. COORDINATE WITH GENERAL CONTRACTOR

PUMPS

TAG	TYPE	SERVICE	MANUFACTURER	MODEL	IMPELLER	TYPE	CAPACITY GPM	HEAD (FT -H2O	RPM	BHP	HP	VOLT/PHASE	VFD	REMARKS
BP-1	INLINE	BOILER PRIMARY	BELL &GOSSETT	NRF-36		WET ROTOR	18	18	3300		270 W; 2.3 FLA	120/1		
BP-2	INLINE	BOILER PRIMARY	BELL & GOSSETT	NRF-36		WET ROTOR	18	18	3300		270 W; 2.3 FLA	120/1		
HWP-1	INLINE	BUILDING SECONDARY HOT WATER	BELL & GOSSETT	SERIES e-80 1.5x6.25	6.125	CENTRIFUGAL	22	38	1750	0.48	1	208/3	YES	
HWP-2	INLINE	BUILDING SECONDARY HOT WATER	BELL & GOSSETT			CENTRIFUGAL	22	38	1750	0.48	1	208/3	YES	

REMARKS

VAV FAN POWERED TERMINAL UNITS SCHEDULE

RESULT TAGS	QUANTITY	MODEL NUMBER	BASE UNIT: UNIT MODEL	PRIMARY INLET	DESIGN COOLING AIRFLOW CFM	MIN COOLING AIRFLOW CFM	COOLING INLET VELOCITY FT/MIN	APD @ COOLING AIRFLOW IN H2O	FAN SIZE	FAN ARRFLOW CFM	FAN TIP IN-H2O	%OF FAN RANGE %	MOTOR VOLTAGE	FAN POWER HP	UNIT HEATING AIRFLOW CFM	VALVE HEATING AIRFLOW CFM	UNIT LAT F	COIL HEATING CAPACITY MBH	HEATING FLOW RATE GPM	COIL FLUID PD FT H2O	HEATING ENT FLUID TEMP F	HEATING DELTA T F	HEATING CV NUMBER	HOT WATER COIL	COMMENTS
VAV-2	1	VSVF12	VSVF	12"	1450	435	1846	0.68	06SQ	1450	0.972	71	208	0.5	1450	450	95	41.21	176	1.01	180	46.95	2.86	ONE ROV HOT WATER COIL ON DISCHARGE - LH	
VAV-4	1	VSVF10	VSVF	10"	650	295	1650	0.61	06SQ	650	0.929	43	208	0.5	650	300	95	24.94	0.8	0.25	180	62.95	2.42	ONE ROV HOT WATER COIL ON DISCHARGE - LH	
VAV-6	1	VSVF15	VSVF	15"	750	225	1375	0.61	06SQ	750	0.524	23	208	0.5	750	750	110	44.74	7.15	12.56	180	12.43	3.06	ONE ROV HOT WATER COIL ON DISCHARGE - LH	

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M105