Garland Patterson
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OUTSIDE AIR CALCULATIONS:

RESTAURANT DINING ROOM OCCUPANCY:
NET OCCUPIABLE SPACE = 1,835 SQ. FT.
TOTAL PERSONS X 7.5 + .18 X NET SQ. FT. = REQ'D CFM.
1,838 X .18 = 330.3 CFM
CUSTOMER SEATING: 86 PERSONS
STAFF: 12 PERSONS

TOTAL PERSONS X 7.5 + .18 X NET SQ. FT. = REQ'D CFM.
(98 X 7.5) + (.18 X 1,835) = 1,065.3 CFM REQUIRED.

OUTSIDE AIR PROVIDED:
RTU-1 - 1,900 CFM
TOTAL: 1,900 CFM - IN COMPLIANCE.

RESTAURANT KITCHEN OCCUPANCY:
NET OCCUPIABLE SPACE = 1,415 SQ. FT.
TOTAL PERSONS X 7.5 + .12 X NET SQ. FT. = REQ'D CFM.
1,415 X .12 = 169.8 CFM
KITCHEN STAFF: 20 PERSONS

TOTAL PERSONS X 7.5 + .12 X NET SQ. FT. = REQ'D CFM.
(20 X 7.5) + (.12 X 1,415) = 319.8 CFM REQUIRED.

OUTSIDE AIR PROVIDED:
RTU-2 - 1,950 CFM
TOTAL: 1,950 CFM - IN COMPLIANCE.

REGISTERED ENGINEER'S OUTSIDE AIR DESIGN NOTE:

TABLE 403.3 DEFAULT OCCUPANCY IS NOT USED BECAUSE THE OCCUPANCY IS A KNOWN FACTOR AND HENCE, USED IN THIS CALCULATION AS DEMONSTRATED ABOVE AND CERTIFIED HEREIN. SECTION 403.3.1.1 EXCEPTION STATES: "The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3.1.1 where approved statistical data document the accuracy of an alternate anticipated occupant density."

THIS OCCUPANCY IS DEMONSTRATED AND CERTIFIED BY THE REGISTERED ENGINEER IN THE BODY OF THIS CALCULATION.

ENGINEER'S ADDITIONAL NOTE:
THE DINING ROOM SEATING IS A KNOWN FACTOR THROUGH THE SEATING SHOWN WHICH JUSTIFIES THE OUTSIDE AIR CALCULATION AS SHOWN COMPLIES WITH CODE. THE DINING SQUARE FOOTAGE SHOWN IS THE TOTAL SQUARE FOOTAGE NOT THE NET OCCUPIABLE SPACE ALTHOUGH CODE ALLOWS "NET OCCUPIABLE SPACE". THE KITCHEN SQUARE FOOTAGE IS ALSO THE TOTAL SQUARE FOOTAGE. THE NUMBER OF STAFF SHOWN IN THE KITCHEN (20) IS ALMOST DOUBLE THE ACTUAL AND IS EXAGGERATED TO MORE CLEARLY DEMONSTRATE THAT THE OUTSIDE AIR REQUIREMENT IS BEING MET. FINALLY, THE DINING OUTSIDE AIR IS 1,900 CFM WHICH IS 834.16 CFM MORE THAN REQUIRED. THE KITCHEN OUTSIDE AIR IS 1,950 CFM WHICH IS 1,630.08 CFM MORE THAN REQUIRED. TOTAL OUTSIDE AIR FOR BOTH ZONES IS EXCEEDED.

PLAN NOTES

1. INSTALLATION SHALL COMPLY WITH 2012 IMC AND 2009 IECC AND ALL APPLICABLE LAWS, CODES AND ORDINANCES.
2. DUCTWORK HAS BEEN COORDINATED WITH THE PROPOSED TRUSS LAYOUT. ACTUAL INSTALLED CONFIGURATION MAY DIFFER FROM ORIGINAL PLANS. COORDINATE WITH THE GENERAL CONTRACTOR AS TRUSSES ARE INSTALLED TO CONFIRM DUCT LAYOUT AS DESIGNED WILL WORK WITH THE INSTALLED TRUSS CONFIGURATION. MINOR MODIFICATIONS IN LOCATIONS MAY BE REQUIRED.
3. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT TO THE OWNER AS REQUIRED PER 2009 IECC.
4. THE ENTIRE BUILDING IS CONDITIONED EXCEPT FOR THE COOLER AND FREEZER. TOTAL BUILDING SQUARE FOOTAGE IS 4232. AREA OF COOLER/FREEZER IS 278 SQ. FT. TOTAL CONDITIONED SQUARE FOOTAGE IS 3954 SQ. FT.

NOTE:
THE DESIGN, INSTALLATION, OPERATION, INSPECTION, AND MAINTENANCE OF ALL PUBLIC AND PRIVATE COMMERCIAL COOKING EQUIPMENT SHALL COMPLY WITH CHAPTER FFPC 1:50.1.1 AND NFPA 96, STANDARD FOR VENTILATION CONTROL AND FIRE PROTECTION OF COMMERCIAL COOKING OPERATIONS. KITCHEN HOOD PLANS, COMPLIANT WITH THE ABOVE, SHALL BE PERMITTED SEPARATELY.

NOTE:
A SEPARATE PERMIT HAS BEEN SUBMITTED FOR THE MECHANICAL EXHAUST HOODS AND ANSUL SYSTEM BY THE MECHANICAL CONTRACTOR.

KEYED NOTES:

1. RTU-OA 100% OUTSIDE AIR UNIT WITH 3250 TOTAL CFM, 1250 CFM BALANCE BYPASS TO BLEND WITH 2000 CFM OUTSIDE AIR. EXTEND DUCTS TO RTU-1 AND RTU-2 AS INDICATED.
2. EXHAUST DUCTS FROM CEILING EXHAUST FANS TO GREENHECK ROOF EXHAUST VENTILATOR. TRANSITION FROM THROAT TO 14x14 PLENUM DUCT AND EXTEND DOWN 12" BELOW JOISTS FOR CONNECTION OF EXHAUST DUCT(S).
3. PRV-2 ON ROOF. TRANSITION FROM FAN OPENING TO 12x12 WELDED STEEL EXHAUST DUCT AND EXTEND DOWN TO HOOD EXHAUST OPENING. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
4. PRV-3 ON ROOF. TRANSITION FROM FAN OPENING TO 12x12 WELDED STEEL EXHAUST DUCT AND EXTEND DOWN TO HOOD EXHAUST OPENING. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
5. EXTEND 4" GALVANIZED SNAP-LOK DRYER VENT FROM DRYER UP TO ABOVE CEILING AND UP TO ROOF. TOTAL DEVELOPED LENGTH IS LESS THAT 25 FEET AND WELL UNDER THE MANUFACTURER'S MAXIMUM VENTING DISTANCE.
6. PROVIDE SURFACE MOUNT FRAME FOR INSTALLATION IN GYP/HARD CEILING.
7. UNIT WEIGHTS ARE LISTED FOR COORDINATION. VERIFY EXACT LOCATION WITH GC.
8. INSTALL THERMOSTATS FOR RTU-1 & RTU-2 IN MANAGERS OFFICE WITH SENSORS AT INDIVIDUAL ZONES AS INDICATED.
9. FLEX CONNECTION FROM RETURN AIR DOWN DUCT THROUGH TRUSS WEBBING.
10. EXTEND 12"ϕ OUTSIDE AIR DUCTS TO EACH RETURN AIR DOWN DUCT FOR RTU-1 & RTU-2. DUE TO SMALL SCALE AND CLARITY OUTSIDE AIR DUCTS ARE NOT SHOWN IN THEIR ENTIRETY.
11. TRANSITION FROM RTU-2 RETURN AIR OPENING TO 38x20 AND EXTEND DOWN TO ELEVATION WHICH WILL ALLOW FOR EXTENDING THE CONNECTIONS WITH VOLUME DAMPERS TO RETURN GRILLES AS INDICATED. FIELD COORDINATE PRIOR TO INSTALLATION.
12. RIGID CONNECTIONS FOR TYPE 'F' DIFFUSERS ON COOK LINE AND DIFFUSER OVER ICE MACHINE. SEE DETAIL #5 ON SHEET M2.
13. STAINLESS STEEL WALL PANEL AT HOOD. FURNISHED AND INSTALLED BY GENERAL CONTRACTOR.
14. PRV-4 ON ROOF. TRANSITION FROM FAN OPENING TO 7x7 SHEET METAL EXHAUST DUCT AND EXTEND TO HOOD 3 EXHAUST OPENING. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
15. PROVIDE INDEPENDENT ON/OFF SWITCH FOR EF-2 ABOVE MOP BASIN.

HVAC GENERAL NOTES

1. DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. VERIFY ALL DIMENSIONS AND LOCATIONS PRIOR TO FABRICATION OR INSTALLATION. ALL RECTANGULAR/SQUARE DUCTWORK SHALL BE FINEST QUALITY GALVANIZED SHEET STEEL WITH 2" ¾ LB. DENSITY FOIL FACED EXTERNAL INSULATION WITH AN 'R'-VALUE OF 6.0. COORDINATE DUCTS WITH STRUCTURE PRIOR TO INSTALLATION. ALL DUCT SHALL BE CONSTRUCTED AND INSTALLED PER SMACNA REQUIREMENTS.
2. ALL FLEXIBLE DUCT CONNECTIONS SHALL BE CLASS ONE TYPE. PROVIDE TAB COLLARS AT MAIN DUCT WITH MANUAL VOLUME DAMPER WITH LOCKING QUADRANT.
3. AN IONIZATION PRINCIPLE SMOKE DETECTOR SHALL BE INSTALLED IN THE SUPPLY & RETURN DUCTWORK OF ALL RTU'S AND PROVIDED BY LENNOX WITHIN UNIT. THE DETECTOR SHALL BE WIRED TO APPLICABLE FIRE ALARM SYSTEM BY THE FIRE ALARM CONTRACTOR. PROVIDE L.E.D. AND HORN ALARM STATIONS (DUCT SMOKE DETECTOR'S REMOTE TEST SWITCH) LOCATED IN NORMALLY OCCUPIED AREA MOUNTED AT 48" A.F.F.
4. ALL ROOF AND WALL PENETRATIONS SHALL BE SEALED BY THE GENERAL CONTRACTOR.
5. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL PLANS PRIOR TO BID TO VERIFY EXISTING CLEARANCES FOR DUCT. COORDINATE WITH THE GENERAL CONTRACTOR PRIOR TO TRUSS ORDER AND AS STRUCTURE IS BEING CONSTRUCTED TO ASSURE ALL CLEARANCES FOR DUCTWORK ARE COORDINATED.
6. DEVIATION FROM MATERIALS, METHODS, OR PROCEDURES SET FORTH HEREIN MUST BE APPROVED, IN WRITING, BY ENGINEER PRIOR TO SUBMISSION OF BID, ORDER, FABRICATION OR INSTALLATION.
7. ANY AND ALL QUESTIONS AS TO THE INTENT OF OR PROCEDURES SET FORTH IN THESE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO SUBMISSION OF A BID. LACK OF KNOWLEDGE OR UNDERSTANDING OF THE PLANS SHALL NOT JUSTIFY ANY CLAIMS OR ADDITIONAL COMPENSATION.
8. INSTALLATION SHALL COMPLY WITH 2012 IMC AND 2009 IECC AND ALL APPLICABLE LAWS, CODES AND ORDINANCES.
9. THE HVAC CONTRACTOR SHALL COORDINATE ALL EQUIPMENT, DUCT, PIPING, LOUVERS, DIFFUSERS, ETC. INCLUDING LOCATIONS AND CLEARANCES, WITH ALL OTHER TRADES ON PROJECT IN PRE-CONSTRUCTION MEETING, PRIOR TO ANY ORDER, FABRICATION OR INSTALLATION.
10. COORDINATE WITH ELECTRICAL CONTRACTOR AND EQUIPMENT NATIONAL ACCOUNTS ON ALL ELECTRICAL DATA PRIOR TO ORDER.
11. SUPPLY DUCTWORK SHALL BE CONSTRUCTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA REQUIREMENTS FOR A 1" POSITIVE PRESSURE CLASSIFICATION.
12. RETURN AND EXHAUST DUCTWORK SHALL BE CONSTRUCTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA REQUIREMENTS FOR A 1" NEGATIVE STATIC PRESSURE.
13. ALL EXHAUST FAN DISCHARGES AND PLUMBING VENTS SHALL BE A MINIMUM OF 10'-0" FROM FRESH-AIR INTAKES. COORDINATE WITH PLUMBING PLANS PRIOR TO INSTALLATION.
14. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL SYSTEMS TO WITHIN TEN PERCENT OF DESIGN VALUES SPECIFIED HEREIN.
15. EXTEND CONDENSATE DRAIN LINES FROM RTU'S TO ROOF DRAINS AND/OR DOWNSPOUTS WHICH DRAIN TO STORM SEWER. REFER TO DETAILS ON SHEET M2.
16. HOOD EXHAUST DUCT SHALL BE MINIMUM 16 GAUGE GALVANIZED SHEET STEEL WITH ALL SEAMS WELDED LIQUID-TIGHT. PROVIDE 3M FIREMASTER DUCT WRAP FROM HOOD TO TOP OF ROOF CURB.
17. CONTROLS SHALL BE PER LENNOX NATIONAL ACCOUNTS. COORDINATE WITH LENNOX REPRESENTATIVE ON ALL NECESSARY CONTROLS PRIOR TO BID SUBMISSION.

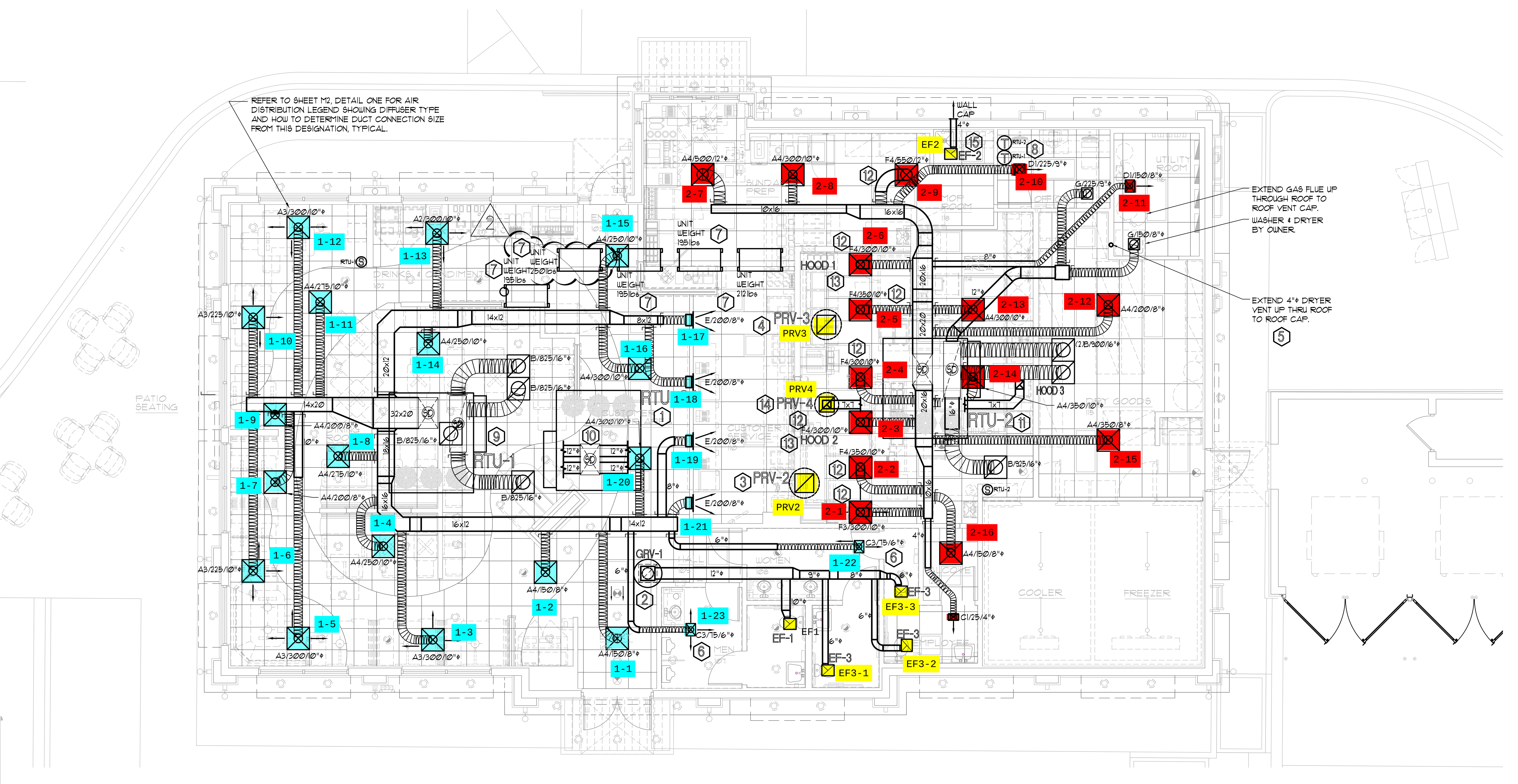
BUILDING AIR BALANCE SCHEDULE

POSITIVE SOURCES:		NEGATIVE SOURCES:	
RTU-1	1900 CFM	EF-1	220 CFM
RTU-2	1950 CFM	EF-2	50 CFM
		(3)EF-3 - 70 EA.	210 CFM
		PRV-2	1500 CFM
		PRV-3	1500 CFM
		PRV-4	350 CFM
TOTAL:	3850 CFM	TOTAL:	3830 CFM

RESULTING TOTAL AIR BALANCE: 20 CFM POSITIVE

HVAC LEGEND

CEILING SUPPLY DIFFUSER	⊠
CEILING RETURN	⌀
CEILING EXHAUST FAN	⍁
SENSOR	Ⓢ
SMOKE DETECTOR	SD
VOLUME DAMPER	
NEW RIGID DUCT	
CLASS I FLEXIBLE DUCT	



MECHANICAL PLAN

REVISIONS | BY
2 — 05. 31. 22 PROTOTYPE CHANGE — BMD

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Date:	11. 08. 21
Scale:	AS NOTED
Project Mgr:	DG
Drawn:	BMD
Job:	21-130
Sheet	M1