

CONTROL SEQUENCE FOR FURNACE(S) AND CONDENSING UNIT(S)

THE FURNACE SHALL BE A HIGH EFFICIENT, GAS FIRED, DIRECT VENT, SEALED COMBUSTION UNIT EQUIPPED WITH ELECTRIC IGNITION. THE FURNACE SHALL BE CONTROLLED BY A PROGRAMMABLE THERMOSTAT LOCATED WHERE SHOWN ON THE PLAN. A FAN SWITCH WITHIN THE THERMOSTAT SHALL ACT AS AN OCCUPIED FAN(AUTO) SWITCH. A TIME CLOCK...

OCCUPIED: DURING OCCUPIED PERIODS THE TIME CLOCK SHALL PROVIDE POWER TO OPEN THE FRESH AIR CONTROL DAMPER. THE THERMOSTAT SHALL AUTOMATICALLY SET TO THE 'FAN ON' POSITION...

UPON A CALL FOR HEAT BY THE THERMOSTAT, THE UNITS INDUCED DRAFT BLOWER SHALL OPERATE. WHEN DRAFT FAN OPERATION IS PROVEN THE UNITS ELECTRIC IGNITION COMPONENTS SHALL BE ACTIVATED TO OPEN THE MAIN GAS VALVE AND PROVIDE HEAT TO THE AREA...

UPON A CALL FOR COOLING BY THE THERMOSTAT, THE COMPRESSOR IN THE CONDENSING UNIT SHALL OPERATE TO PROVIDE COOLING TO THE AREA. WHEN THE THERMOSTAT IS SATISFIED THE COMPRESSOR SHALL STOP. HOWEVER THE UNIT BLOWER SHALL CONTINUE TO OPERATE.

UNOCCUPIED: DURING UNOCCUPIED PERIODS THE THERMOSTAT SHALL SET TO THE 'FAN AUTO' POSITION. THE THERMOSTAT SHALL BE SET BACK TO A HIGHER POSITION FOR COOLING AND A LOWER POSITION FOR HEATING...

UPON A CALL FOR HEAT BY THE THERMOSTAT, THE UNITS INDUCED DRAFT BLOWER SHALL OPERATE. UPON A DRAFT FAN OPERATION THE UNITS ELECTRIC IGNITION COMPONENTS SHALL BE ACTIVATED TO OPEN MAIN GAS VALVE...

UPON A CALL FOR COOLING BY THE THERMOSTAT, THE COMPRESSOR IN THE CONDENSING UNIT SHALL BE ACTIVATED, AND THE BLOWER ON THE FURNACE SHALL START TO DELIVER COOLING TO THE AREA. WHEN THE THERMOSTAT IS SATISFIED, THE COMPRESSOR SHALL DEACTIVATE AND THE UNIT BLOWER SHALL STOP.

CONTROL SEQUENCE, DUCTLESS MINI-SPLIT

THE DUCTLESS MINI SPLIT SHALL COOL HEATING OR COOLING AS DIRECTED BY ASSOCIATED THERMOSTAT

GENERAL HVAC PLAN NOTES

- 1. ALL WORK SHALL CONFORM TO STATE AND LOCAL CODES WHETHER OR NOT SPECIFICALLY SHOWN ON THE PLAN.
2. THE HVAC DESIGNER SHALL BE RESPONSIBLE FOR HVAC PLAN SUBMITTAL. IT SHALL BE THE HVAC CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL STATE AND LOCAL CODES...

EQUIPMENT NOTES

- 1. HVAC CONTRACTOR SHALL FURNISH AND INSTALL HVAC EQUIPMENT AS SPECIFIED ON THE PLANS. EQUIPMENT SUBSTITUTIONS SHALL NOT BE ALLOWED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE HVAC DESIGNER.
2. EQUIPMENT SHALL BE ENCLOSED, SUSPENDED, OR GUARDED AS SHOWN ON THE PLANS...

RESIDENTIAL CLOTHES DRYER NOTES

- 1. IBC 504.1 INSTALLATION. CLOTHES DRYERS SHALL BE EXHAUSTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. DRYER EXHAUST SYSTEMS SHALL BE INDEPENDENT OF ALL OTHER SYSTEMS AND SHALL CONVEY THE MOISTURE AND ANY PRODUCTS OF COMBUSTION TO THE OUTSIDE OF THE BUILDING.
2. IBC 504.2 WHERE CLOTHES DRYER EXHAUST DUCT PENETRATES A WALL OR CEILING MEMBRANE...

504.7 PROTECTION REQUIRED. PROTECTIVE SHIELD PLATES SHALL BE PLACED WHERE NAILS AND SCREENS FROM FINISH OR OTHER WORK ARE LIKELY TO PENETRATE THE CLOTHES DRYER DUCT SHIELD PLATES SHALL BE PLACED ON THE FINISHED FACE OF ALL FRAMING MEMBERS WHERE LESS THAN 1-1/4" BETWEEN THE DUCT AND THE FINISHED FACE OF THE PROTECTIVE SHIELD...

FROM IMC 501.3.1, ENVIRONMENTAL AIR DUCT EXHAUST SHALL TERMINATE A MINIMUM OF 3' FROM PROPERTY LINES AND OPERABLE OPENINGS INTO BUILDINGS FOR ALL OCCUPANCIES OTHER THAN GROUP 'U'. ALSO, ENVIRONMENTAL EXHAUST SHALL TERMINATE A MINIMUM OF 1'0" FROM ANY MECHANICAL AIR INTAKE.

DUCTWORK, AIR DISTRIBUTION NOTES

- 1. ALL DUCTWORK SHALL BE INSTALLED STRAIGHT AND TRUE IN A QUALITY WORKMANLIKE FASHION. DUCTWORK DIMENSIONS AS LISTED ON THE PLAN INDICATE INSIDE FREE AREA SQUARE INCH DIMENSIONS. ALL DUCTS SHALL BE CONSTRUCTED TO ALLOW UNRESTRICTED AIR FLOW. ANY DUCT AS ILLUSTRATED FOR THE TRANSMISSION OF AIR SHALL BE DEDICATED FOR THAT PURPOSE AND SHALL NOT BE USED FOR ANY OTHER PURPOSE.
2. ALL DUCTWORK SHALL CONFORM TO ASHRAE AND SMACNA STANDARDS WITH REGARDS TO DUCT GAUGES, TURNING VANES, THE INSTALLATION OF THE TURNING VANES AND/OR EXTRACTORS, AND MOUNTED AND BRACING. SEE DUCT CONSTRUCTION SCHEDULE.

RECTANGULAR DUCT CONSTRUCTION SCHEDULE table with columns: LONGEST SIDE INCHES, U.S. STD. GAUGE, BRACING ANGLE SIZE, INCHES SPACING. Rows include 12" through 30", 36" through 48", 48" through 60", 60" through 72", 72" through 84", 84" through 108".

DUCT INSULATION SCHEDULE table with columns: LOCATION, SERVICE, SUPPLY, RETURN, EXHAUST, FRESH AIR. Rows include UNHEATED ABOVE CEILING, INTERIOR WALL CAVITY, WALL CAVITY OR CHASE ON SLAB, IN GROUND UNDER THE SLAB, EXPOSED IN OCCUPIED SPACE.

NOTE: 1. MINIMUM VALUES FOR INSTALLED INSULATION. PRE-APPLICATION VALUES MAY NEED TO BE HIGHER IN ORDER TO MEET THE INSULATION VALUE REQUIREMENTS.
2. CONTINUOUS VAPOR BARRIER IS REQUIRED ON ALL INSULATED DUCTWORK.
3. ALL DUCTWORK EXTERIOR OF THE BUILDING ENVELOPE MUST BE SEALED WEATHERTIGHT WITH AN APPROVED WEATHER COATING SUCH AS FULMAGUARD GP BY POLYWARD PRODUCTS.

- 4. ALL JOINTS, LONGITUDINAL (ORIENTED IN THE DIRECTION OF AIRFLOW) AND TRANSVERSE (ORIENTED PERPENDICULAR TO AIRFLOW) JOINTS AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES) MASTIC PLUS-EMBEDDED FABRIC SYSTEMS, OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL-181A OR UL-181B.
5. THE HVAC CONTRACTOR SHALL CONSULT WITH THE GENERAL CONTRACTOR AND/OR THE BUILDING OWNER(S) TO DETERMINE THE EXACT LOCATION OF REGISTERS, GRILLES, AND DIFFUSERS...

- 1. HVAC CONTRACTOR SHALL VERIFY NATURAL GAS METER LOCATION WITH LOCAL UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL LAYOUT, DESIGN, AND VERIFICATION OF GAS PIPE SIZING AND LOCATION BEFORE INSTALLATION OF GAS FIRED APPLIANCES.
2. ALL GAS PIPING SHALL BE RUN STRAIGHT AND TRUE AND BE INSTALLED IN A QUALITY WORKMANLIKE FASHION.
3. PIPING SHALL CONFORM TO ALL STATE AND LOCAL CODES, AS WELL AS NATIONAL FUEL GAS CODE RECOMMENDATIONS, NFPA 54.

VENTING NOTES

- 1. ALL GAS FIRED APPLIANCE VENTING SHALL COMPLY WITH STATE AND LOCAL CODES AND BE DONE IN A QUALITY WORKMANLIKE FASHION.
2. ALL VENTING SHALL STRICTLY COMPLY WITH MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. ALL FRESH AIR INTAKE OPENINGS SHALL BE A MINIMUM OF 1'0" AWAY FROM ANY HAZARDOUS OR NOXIOUS CONTAMINANTS SUCH AS EXHAUST VENTS, SOIL VENT PIPES, APPLIANCE VENTS, GAS METERS, STREETS, ALLEYS, PARKING LOTS, AND LOCATING DOORS PER IMC CODES.

FURNACE SCHEDULE table with columns: UNIT NO., FUEL TYPE, MBH INPUT, MBH OUTPUT, TOTAL CFM, OUTSIDE AIR CFM, RETURN AIR CFM, E.S.P., UNIT VOLTAGE, MFG'S NAME, MFG'S NUMBER, AFUE EFF., UNIT WEIGHT, AREA SERVED. Rows include F-1 NAT. GAS 98.0 95.0 1600 225 1375 5' 115/60/1 ph 1 15 20 RHEEM R95T11001521M 95.0% 152 LBS. and F-2 NAT. GAS 98.0 95.0 2000 NA 2000 5' 115/60/1 ph 1 15 20 RHEEM R95T11001521M 95.0% 152 LBS.

DIRECT VENT SEALED COMBUSTION APPLIANCE

REQUIRES THS221R1001 THERMOSTAT
F-2 REQUIRES 9" INCH FRESH AIR DAMPER WITH 24V ACTUATOR

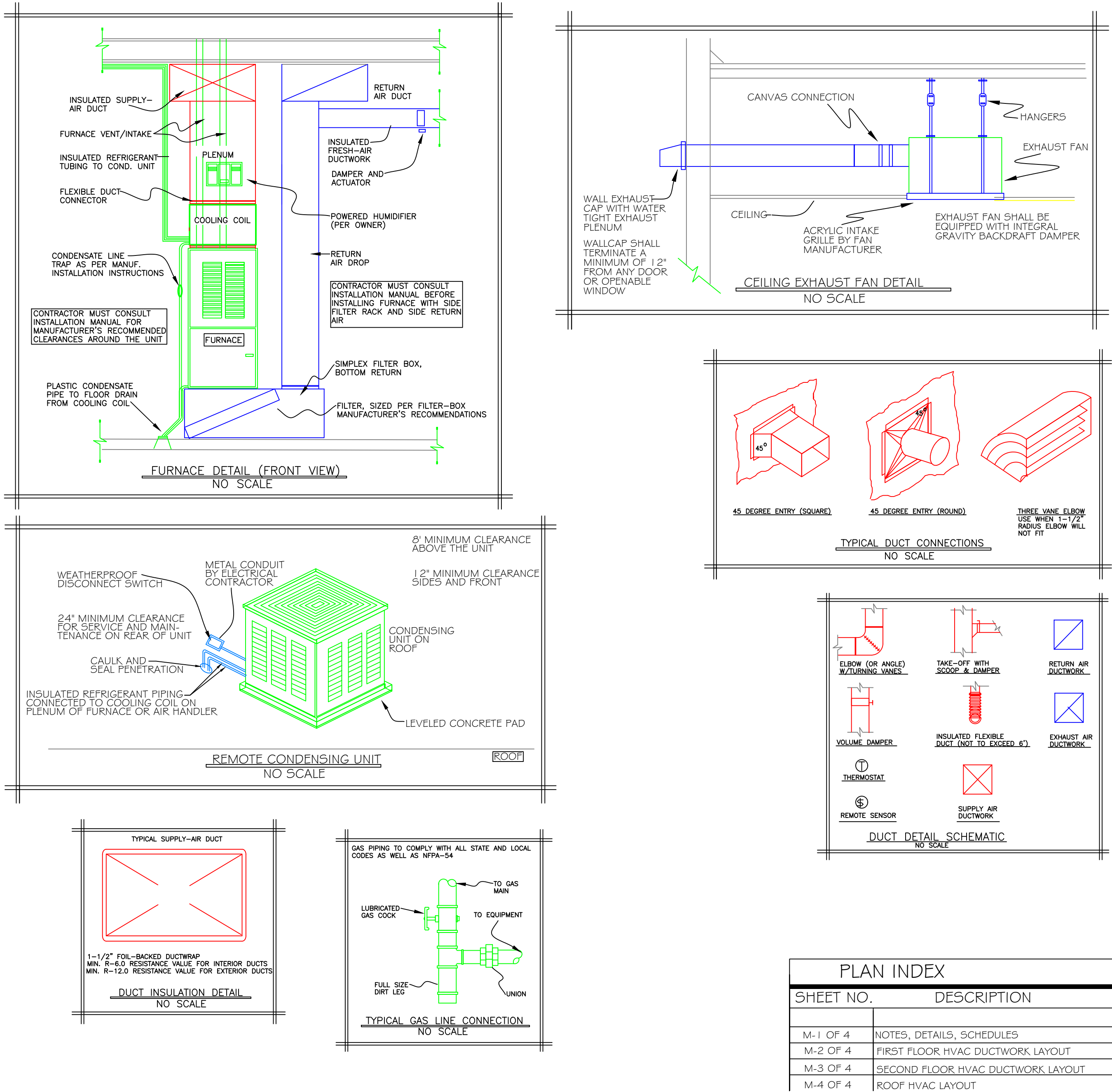
CONDENSING UNIT & COOLING COIL SCHEDULE table with columns: UNIT NO., COOLING CAPACITY, NOM. TONS, SEER, FUSE, MIN. CIRC. AMPACITY, UNIT VOLTAGE, MFG'S NAME, MFG'S NUMBER, COOLING COIL MODEL NO., WEIGHT LBS., REMARKS. Rows include C-1 48.0 4.0 13 30 19.0 208/230G/1 ph RHEEM RA134AAJNA R6529G021/0B 195 and C-2 60.0 5.0 13 35 22.0 208/230G/1 ph RHEEM RA136DAJNA R6529G021/0B 228.

MINI-SPLIT SCHEDULE table with columns: UNIT NO., UNIT VOLTAGE, TONS, CLG BTU @ 47 OAT, HTG BTU @ 17 OAT, HTG BTU @ 6800, MINIMUM AMPACITY, COOLING AMPS, HEATING AMPS, MFG. NAME, MFG'S NUMBER, REMARKS. Rows include DS-1 115-60-1 7.5 9000 9500 6800 17 10.87 10.36 FRIEDRICH FSHSRO9A1A and OUTDOOR UNIT # FSHSRO9A1A INDOOR UNIT # FSHSVO9A1A REQUIRES 5'0" CB 1/4" STR. CB 6'00" V WIRING KIT, 1/4" X 3/8" X 1/2" INS MINI-SPLIT FLARE LINE SET.

CEILING EXHAUST FAN SCHEDULE table with columns: UNIT NO., CFM, S.P., SONES, AMPS, VOLTAGE, CONNECTION DUCT SIZE, MFG'S NAME, MFG'S NUMBER, AREA SERVED, REMARKS. Rows include CEF 75 5' 1.5 3.0 1.5 120G/1 ph 4" DUCT BROAN AEB0B UPPER LEVEL RESTROOMS and IEF-1 225 375' N/A 65 WATTS 120G/1 ph 6" DUCT SFP TD-150 LOWER LEVEL RESTROOMS.

FROM IMC 501.3.1, FOR ENVIRONMENTAL AIR DUCT EXHAUST, LOCATE A MINIMUM OF 3' FROM PROPERTY LINES, AND 3' FROM OPERABLE OPENINGS INTO BUILDINGS FOR ALL OCCUPANCIES OTHER THAN GROUP 'U', AND 1'0" FROM ANY MECHANICAL AIR INTAKES. EXHAUST FAN(S) SHALL BE EQUIPPED WITH INTEGRAL BACKDRAFT DAMPER.

DIFFUSER AND GRILLE SCHEDULE table with columns: GRILLE NO., GRILLE SIZE, GRILLE CONFIGURATION, MFG'S NAME, MFG'S NUMBER, DAMPER, FINISH, REMARKS. Rows include S-1 16X3 SPIRAL DUCT SUPPLY SHOEMAKER USR52-16X3 INTEGRAL STEEL CEILING/SIDEWALL SUPPLY DIFFUSER, S-2 10X3 SPIRAL DUCT SUPPLY SHOEMAKER USR52-10X3 INTEGRAL STEEL CEILING/SIDEWALL SUPPLY DIFFUSER, S-3 6X4 SIDEWALL/CLG SUP. SHOEMAKER 850W 6X4 INTEGRAL STEEL CEILING/SIDEWALL SUPPLY DIFFUSER, R-1 30X30 SIDEWALL/CLG. RTN. SHOEMAKER #1050 NONE STEEL CEILING/SIDEWALL RETURN AIR GRILLE, R-2 36X14 SIDEWALL/CLG. RTN. SHOEMAKER #1050 NONE STEEL CEILING/SIDEWALL RETURN AIR GRILLE, E-1 8" ROUND CEILING EXHAUST LIFE BREATHR EAGBCPU INTERNAL PVC CEILING EXHAUST AIR GRILLE.



Revision table, Design Group: DESIGN AIR, LLC, 1619 S 101st STREET, WEST ALLIS, WI. 53214, 414-258-0300. Contractor: MASURELLI SORENSSEN HEATING & AC, 1615 BIRCH RD., KENOSHA, WISCONSIN 53140. Sheet Description: HVAC / VENTILATION PLAN, Project Information: BRADY & MARSHALL MIXED USE. Drawn By: RJF, Approved By: RJF, Scale: 1/4" = 1'-0", Date: 04-26-2021, Project #: 04262021. Includes Wisconsin Professional Engineer Seal for Ronald J. Frank, #23062, Milwaukee, WI.

Revision	Date

Design Group:
DESIGN AIR, LLC
 1619 S 101st STREET
 WEST ALLIS, WI. 53214
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Contractor:
MISURELLI SORENSEN HEATING & AC
 1615 BIRCH RD.
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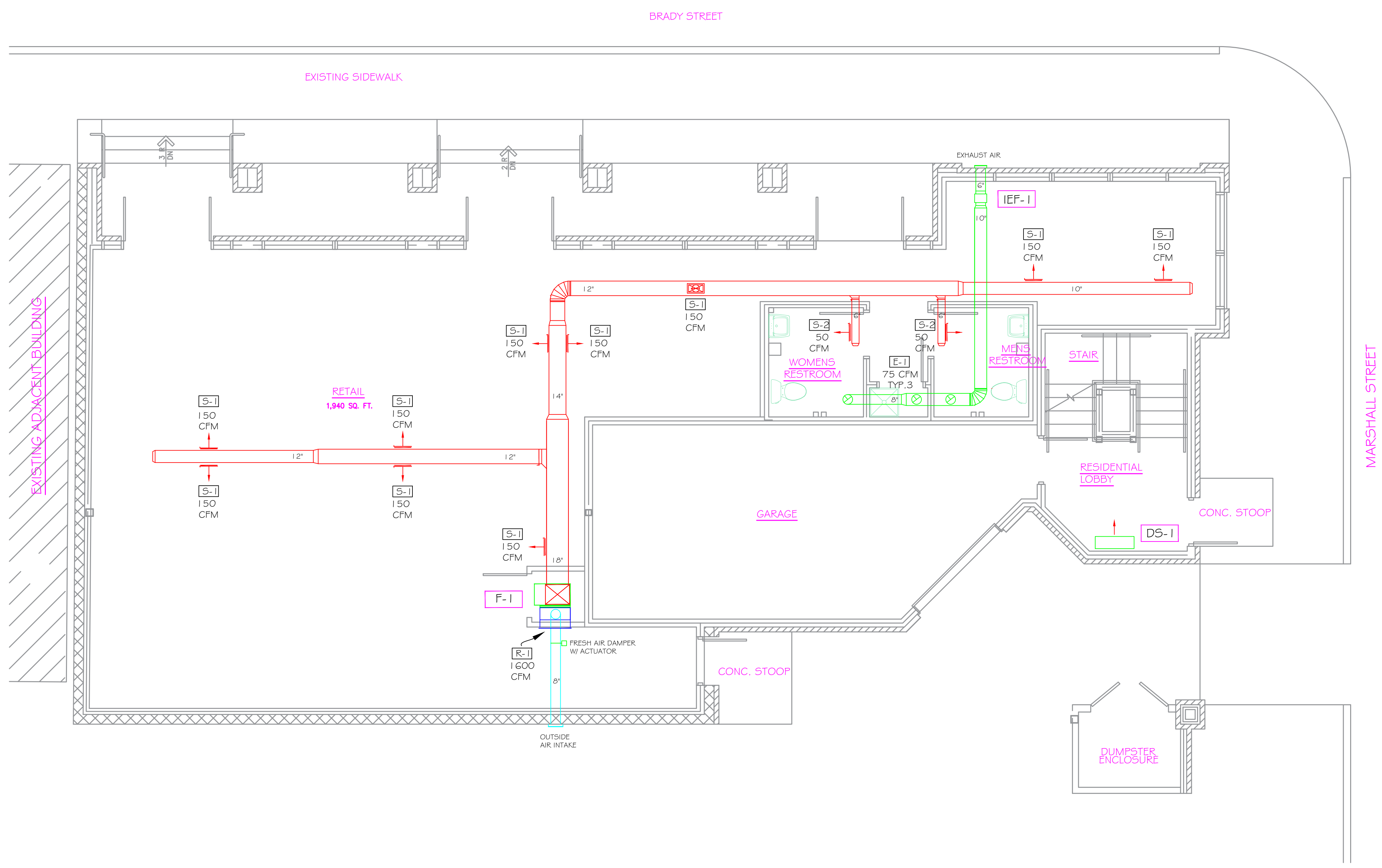
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 Project Information:
BRADY & MARSHALL MIXED USE

Drawn By: RJF
 Approved By: RJF
 Scale: 1/4" = 1'-0"
 Date: 04-26-2021
 Project # 04262021

This Drawing was Prepared Under My Supervision

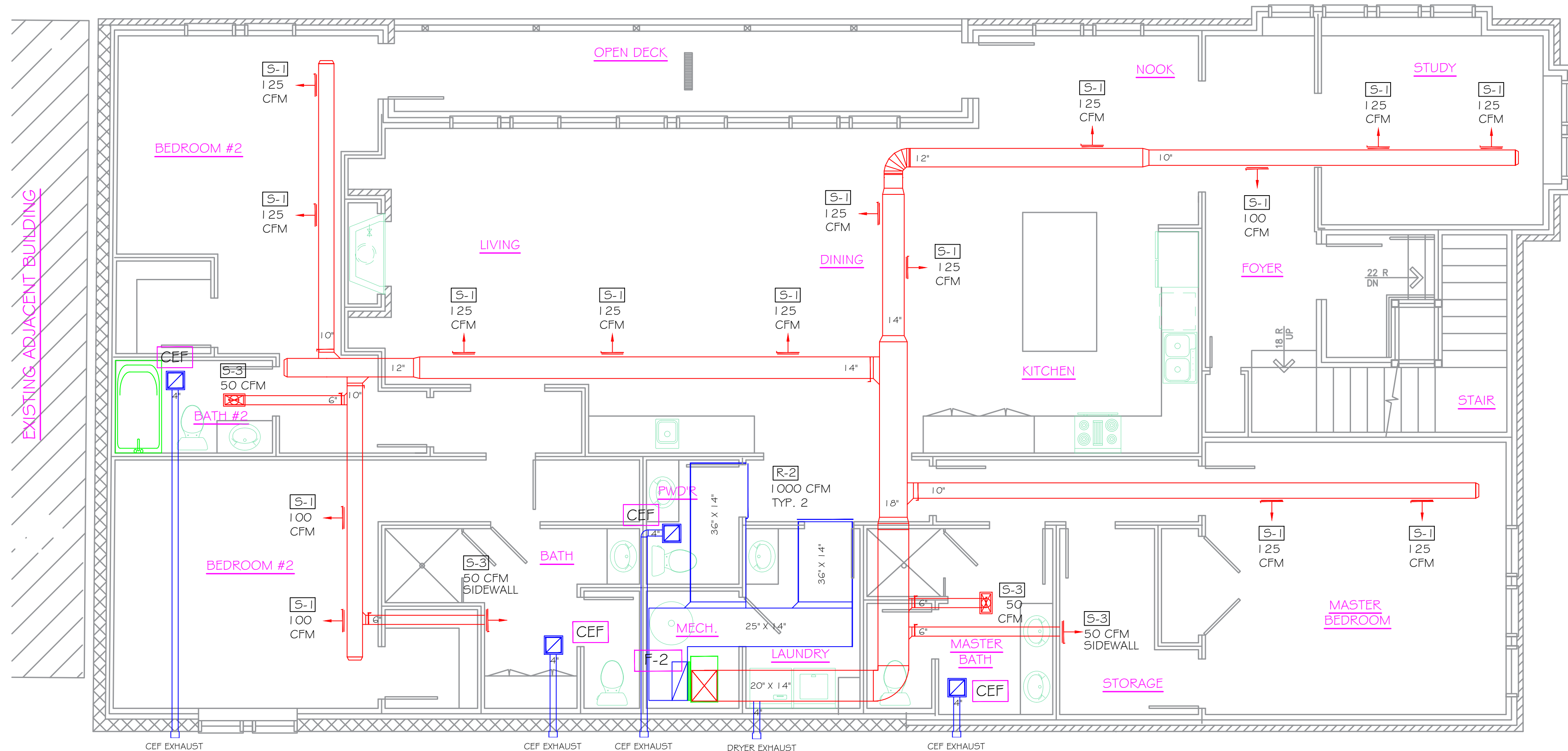
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SHEET NUMBER:
M-2
 SHEET: 2 OF 4



FURNACE F-1 BALANCE	
PEOPLE=20	
20 X 7.5= 150 CFM	
MIN. O.A. REQUIRED	150 CFM
IEF-1 E.A. = 225 CFM	
TOTAL EXHAUST AIR	225 CFM
OUTSIDE AIR	
F-1 O.A. = 225 CFM	
TOTAL O.A. = 225 CFM	
TOTAL O.A. = 225 CFM	
TOTAL E.A. - 225 CFM	
0 CFM	


HVAC DUCTWORK LAYOUT
 FIRST FLOOR 1/4" = 1'-0"



HVAC DUCTWORK LAYOUT
 SECOND FLOOR 1/4" = 1'-0"

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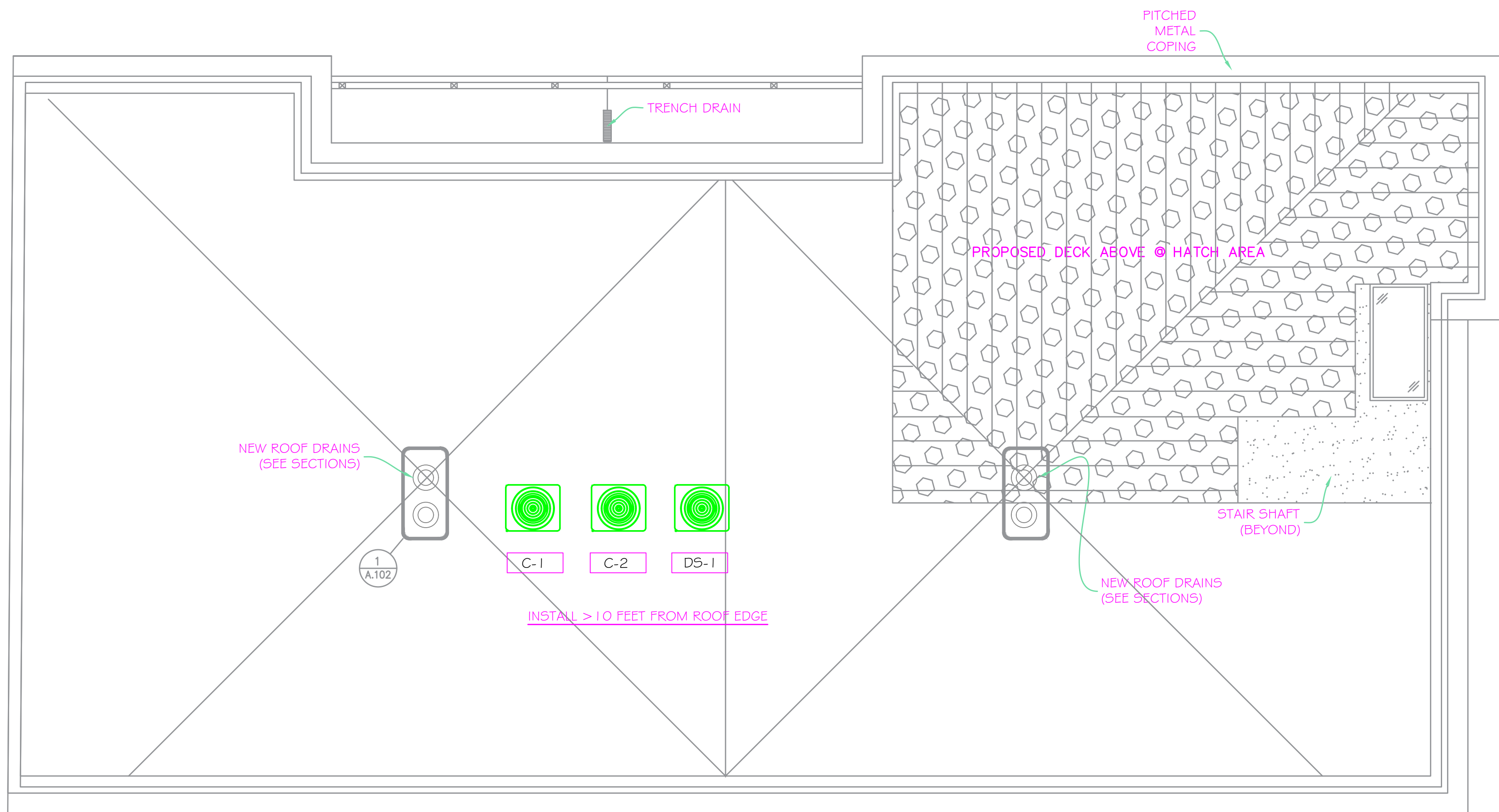
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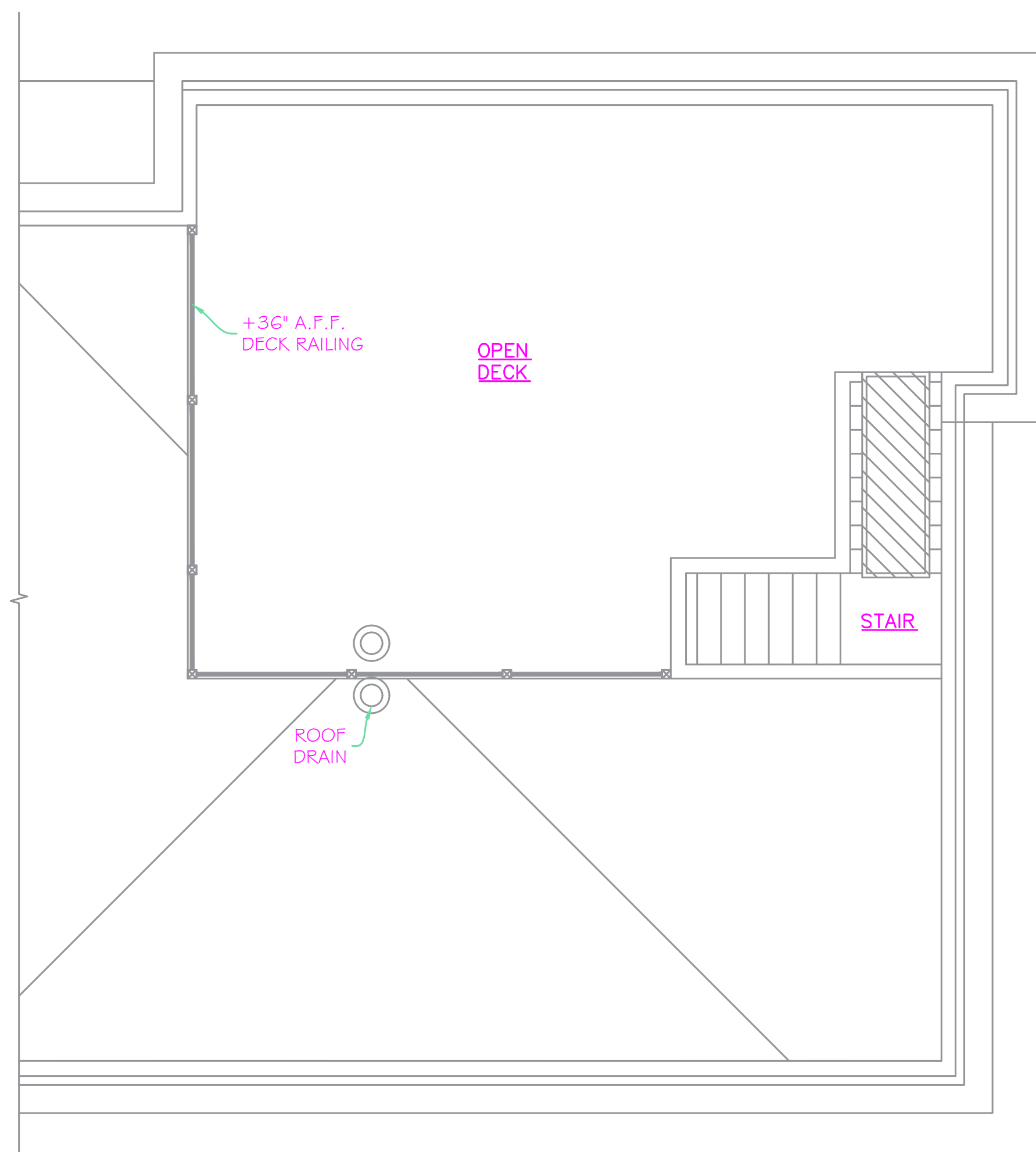
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 SHEET: 3 OF 4

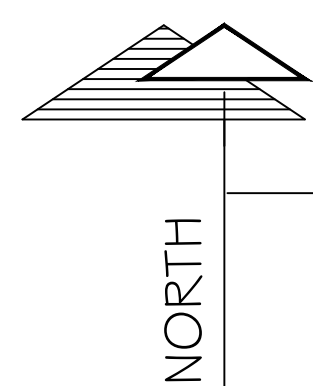


PROPOSED ROOF PLAN

APPROVED
 By Tim Askin - Milwaukee HPC at 2:34 pm, Nov 15, 2021



PROPOSED ROOF DECK



HVAC DUCTWORK LAYOUT

ROOF & ROOF DECK

1/4" = 1'-0"

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Drawn By: RJF
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 Scale: 1/4" = 1'-0"
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Stamp:

SHEET NUMBER:
M-4
 SHEET: 4 OF 4