

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE:

Prescriptive Performance Energy Cost Budget

Thermal Zone: _____ "3A"

Exterior design conditions
 Winter dry bulb: _____ 21.0 °F
 Summer dry bulb: _____ 94.3 °F

Interior design conditions
 Winter dry bulb: _____ 70 °F
 Summer dry bulb: _____ 75 °F
 Relative humidity: _____ 50% (UN-CONTROLLED)

Building heating load: _____ 706 MBH
Building cooling load: _____ 788 MBH

Mechanical Spacing/Conditioning System
Unitary
 Description of unit: _____ PACKAGE ROOFTOP UNITS WITH GAS HEAT
 Heating efficiency: _____ REFER TO EQUIPMENT SCHEDULE
 Cooling efficiency: _____ REFER TO EQUIPMENT SCHEDULE
 Heat output of unit: _____ REFER TO EQUIPMENT SCHEDULE
 Cooling output of unit: _____ REFER TO EQUIPMENT SCHEDULE
Boiler
 Total boiler capacity, if oversized, state reason: _____ N/A
Chiller
 Total chiller capacity, if oversized, state reason: _____ N/A

List equipment efficiencies: _____ REFER TO EQUIPMENT SCHEDULE

Equipment schedules with motors (Mechanical systems)
 Motor horsepower: _____ REFER TO EQUIPMENT SCHEDULE
 Number of phases: _____ REFER TO EQUIPMENT SCHEDULE
 Minimum efficiency: _____ REFER TO EQUIPMENT SCHEDULE
 Motor type: _____ REFER TO EQUIPMENT SCHEDULE
 Number (#) of poles: _____ REFER TO EQUIPMENT SCHEDULE

DESIGNER STATEMENT:
 To the best of my knowledge and belief, the design of this building complies with the Mechanical Systems, Service Systems and Equipment Requirements 2018 North Carolina State Energy Codes.
 SIGNED: _____
 NAME: _____ SUI FAN TANG, P.E.
 TITLE: _____ MECHANICAL ENGINEER

MECHANICAL LEGEND

MARK	DESCRIPTION
AFB	ABOVE FINISHED FLOOR
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISHED CEILING
	DIFFUSER TYPE "S" BALANCED FOR 400 CFM
DB	DRY BULB (°F)
14"x12"	DUCT SIZE IN INCHES (RECTANGULAR)
8"Ø	DUCT SIZE IN INCHES (ROUND)
14"x12"Ø	DUCT SIZE IN INCHES (DOUBLE-WALL FLAT OVAL)
EH	ELECTRIC HEATER
EAT	ENTERING AIR TEMPERATURE (°F)
	EXHAUST AIR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE (IN W.C.)
FD	FIRE DAMPER
FD (X)	EXISTING FIRE DAMPER
FSD	COMBINATION FIRE / SMOKE DAMPER
N.W.C.	INCHES WATER COLUMN
LAT.	LEAVING AIR TEMPERATURE (°F)
MVD	MANUAL VOLUME DAMPER
ØBD	OPPOSED BLADE DAMPER
O.A.	OUTSIDE AIR (°F)
R.A.	RETURN AIR
	RETURN OR EXHAUST DUCT OR OUTLET
	EXISTING LOW-PRESSURE SUPPLY, RETURN OR EXHAUST DUCT
	NEW LOW-PRESSURE SUPPLY, RETURN OR EXHAUST DUCT
	EXISTING MEDIUM PRESSURE SUPPLY DUCT AT A VELOCITY OF 1800 FPM
	NEW MEDIUM PRESSURE SUPPLY DUCT AT A VELOCITY OF 1800 FPM
	DUCT TRANSITION
S.A.	SUPPLY AIR
S.F.	SUPPLY FAN
	SUPPLY OR OUTSIDE AIR DUCT OR OUTLET
	THERMOSTAT, HUMIDISTAT, SENSOR OR SMOKE DETECTOR
W.C.	WATER COLUMN
W.B.	WET BULB (°F)
M.C.	MECHANICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.P.C.	SPRINKLER CONTRACTOR
	CEILING DIFFUSER W/FLEX DUCT
	CEILING RETURN GRILLE W/FLEX DUCT
	MANUAL VOLUME DAMPER
	CEILING RADIATION DAMPER U.L. 555C LISTED
	FIRE DAMPER
	SMOKE DAMPER
	FIRE-SMOKE DAMPER
	MOTORIZED DAMPER
	HVAC EQUIPMENT
	EQUIPMENT DESIGNATION
	1" UNDERCUT DOOR
	CONNECT TO EXISTING AT THIS LOCATION

MECHANICAL GENERAL NOTES

1. ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2018 INTERNATIONAL MECHANICAL CODE, THE 2018 INTERNATIONAL BUILDING CODE, THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE, STATE AND LOCAL AMENDMENTS, NFPA 99A, 901, UNDERWRITERS LABORATORIES (OR ETL) AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
2. THE LOCATIONS, ARRANGEMENT AND EXTENT OF EQUIPMENT, PIPING, SUPPORTS, DEVICES, CONDUIT, AND OTHER APPURTENANCES RELATED TO THE INSTALLATION OF THE MECHANICAL AND ELECTRICAL WORK SHOWN ARE APPROXIMATE. THE DRAWINGS ARE DIAGRAMMATIC. DO NOT SCALE THE DRAWINGS, BUT REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS OF BUILDING COMPONENTS. SHOULD A CONFLICT EXIST BETWEEN THE ARCHITECTURAL AND ENGINEERING DRAWINGS REGARDING DIMENSIONS, SCALE, ETC., NOTIFY THE ARCHITECT IMMEDIATELY.
3. MATERIALS, EQUIPMENT OR LABOR NOT INDICATED, BUT WHICH CAN BE REASONABLY INFERRED TO BE NECESSARY FOR A COMPLETE INSTALLATION SHALL BE PROVIDED. THE DRAWINGS AND SPECIFICATIONS DO NOT UNDERTAKE TO INDICATE EVERY ITEM OF MATERIAL, EQUIPMENT OR LABOR REQUIRED TO PRODUCE A SAFE, COMPLETE AND PROPERLY OPERATING SYSTEM.
4. PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DUCTWORK SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ARCHITECT.
5. SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ARCHITECT PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE ALL EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS. DUCTWORK DRAWN TO 1/4" SCALE OR THE SCALE SHOWN ON THE DRAWINGS, REFRIGERANT PIPING AND CONTROL WIRING SCHEMATICS CERTIFIED BY THE AIR CONDITIONING EQUIPMENT MANUFACTURER. FAILURE TO SUBMIT REFRIGERANT PIPING DRAWINGS SHALL BE CAUSE FOR REJECTION OF THE ENTIRE SUBMITTAL. LONG LINE REFRIGERANT PIPING APPLICATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT SPLIT SYSTEM LONG-LINE APPLICATION GUIDELINE.
6. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
8. ALL HVAC COMPRESSORS SHALL HAVE EXTENDED 4 YEAR MANUFACTURER'S WARRANTY FOR A 5-YEAR TOTAL WARRANTY.
9. FOR EXACT LOCATION OF OUTDOOR AIR CONDITIONING UNITS, REFER TO SHEET M201.
10. INSTALL ROOF MOUNTED OUTDOOR AIR CONDITIONING EQUIPMENT LEVEL ON FACTORY FABRICATED EQUIPMENT SUPPORTS. MOUNT ALL EQUIPMENT ON 1/2" THICK NEOPRENE PADS (MINIMUM OF 4 PADS PER UNIT). ALL ROOFTOP MOUNTED EQUIPMENT SHALL BE INSTALLED PER DETAILS AND AS RECOMMENDED BY THE MANUFACTURER.
11. PORTIONS OF DUCTWORK AND PIPE INSULATION VISIBLE THROUGH AIR DISTRIBUTION DEVICES IN FINISHED AREAS SHALL BE PAINTED - REFER TO ARCHITECTURAL PLANS FOR FINISH COLOR.
12. MOUNT TOP OF THERMOSTATS 40" AFF UNLESS NOTED OTHERWISE. PROVIDE CLEAR LOCKING GUARD ASSEMBLIES FOR ALL PUBLIC AREA THERMOSTATS. COORDINATE THERMOSTAT LOCATIONS WITH OWNER AND OTHER TRADES. ALL THERMOSTATS SHALL BE A.D.A. COMPLIANT.
13. UNLESS OTHERWISE NOTED, ALL EXISTING EQUIPMENT, DUCTWORK, DIFFUSERS, ETC. SHOWN AS BEING REMOVED AS PART OF THIS CONTRACT SHALL BECOME THE PROPERTY OF THE HVAC CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE PRIOR TO PROJECT COMPLETION.
14. ANY EXISTING WALL, FLOOR, OR CEILING SURFACE THAT IS DISTURBED DURING THE COURSE OF THE HVAC WORK SHALL BE REPAIRED TO MATCH NEW AND/OR EXISTING CONDITIONS.
15. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
16. ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE LOCATED IN LOCKING COVER ADJACENT TO FIRE ALARM ANNUNCIATOR PANEL OR OTHER LOCATION APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION AND PER NFPA 90A.
17. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE TO ALLOW ADEQUATE ROOM FOR MAINTENANCE OF EQUIPMENT AND BALANCING OF SYSTEMS. ACCESS PANELS IN CEILING AND WALLS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS OR NECESSARY TO ACCESS DAMPERS, VALVES, ETC. COORDINATE EXACT LOCATION OF ALL ACCESS PANELS WITH THE ARCHITECT DURING THE SHOP DRAWING PROCESS.
18. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH A SEMI-RIGID PLASTIC LAMINATE NAMEPLATE WITH 2" HIGH WHITE LETTERS ON A BLACK BACKGROUND SECURELY AFFIXED TO THE EQUIPMENT. THE NAMEPLATE SHALL SHOW THE EQUIPMENT TAG USED ON THESE DRAWINGS.
20. REFER TO ARCHITECTURAL PLANS FOR FLOOR AND CEILING ASSEMBLY UL RATINGS AND DETAILS.
21. ALL MATERIALS EXPOSED WITHIN HVAC PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING INDEX OF NOT MORE THAN 50 UNLESS OTHERWISE ALLOWED BY CODE.
22. THE FIRE SPRINKLER CONTRACTOR SHALL INSTALL AND LOCATE ALL FIRE SPRINKLER PIPING TO PREVENT PIPING FROM THE POTENTIAL OF FREEZING. THE FIRE SPRINKLER CONTRACTOR IS REQUIRED TO NOTIFY THE ARCHITECT AND COORDINATE WITH THE MECHANICAL AND ELECTRICAL CONTRACTORS IF HEATING IS REQUIRED.
23. GENERAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF WOOD TRUSS SHOP DRAWINGS AND FIELD TRUSSES TO AVOID WOOD TRUSSES CONFLICTING WITH VERTICAL SHAFTS AND INDIVIDUAL AIR HANDLING UNIT DISCHARGE PLENUMS.
24. UNLESS NOTED OTHERWISE, THE ROOF CURB SHALL BE FURNISHED WITH THE EQUIPMENT IT SUPPORTS (SUBMIT WITH SHOP DRAWINGS).
25. DUCTWORK AND PIPING SHALL NOT BE INSTALLED IN ELECTRICAL ROOMS, TELECOMM ROOMS, OR ELEVATOR EQUIPMENT ROOMS EXCEPT FOR DUCTWORK AND PIPING SERVING THAT SPECIFIC ROOM. DUCTWORK AND PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL EQUIPMENT PER THE NATIONAL ELECTRICAL CODE ARTICLE 110.

MECHANICAL / ELECTRICAL COORDINATION:

1. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN. SHOP DRAWING SUBMITTALS SHALL CLEARLY STATE THAT THE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT HAS BEEN COORDINATED WITH THE ELECTRICAL CONTRACT DOCUMENTS AND THE ELECTRICAL CONTRACTOR.
 2. ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS AND THE ELECTRICAL DRAWINGS.
 3. PROVIDE ALL SYSTEM CONTROLS AND ASSOCIATED CONTROL AND INTERLOCK WIRING FOR COMPLETE AND OPERABLE SYSTEMS. 120 VOLT AND HIGHER WIRING SHALL BE MC CABLE OR IN CONDUIT IN ACCORDANCE WITH LOCAL CODES AND THE MATERIALS AND INSTALLATION REQUIREMENTS OF DIVISION 26 - ELECTRICAL.
 4. ALL REQUIRED CONTROL WIRING (INCLUDING POWER WIRING REQUIRED FOR CONTROL PANELS, DEVICES, ETC.) NOT INDICATED ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK. WIRING IN HVAC PLENUM SPACES SHALL BE INSTALLED ACCORDING TO CODE REQUIREMENTS.
 5. UNLESS NOTED OTHERWISE, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED WITH THE EQUIPMENT IT SERVES AND INSTALLED BY THE MECHANICAL CONTRACTOR. MOTOR STARTERS FOR HVAC EQUIPMENT SHALL BE FURNISHED WITH THE MOTOR OR APPARATUS WHICH IT OPERATES. MOTOR STARTER INSTALLATION SHALL BE BY THE DIVISION 26 CONTRACTOR.
 6. CLEARANCES FOR ELECTRIC DUCT HEATERS AND LOW VOLTAGE CONTROL PANELS LOCATED ABOVE CEILINGS: THE CONTRACTOR SHALL COORDINATE AND PLAN THE WORK TO ALLOW FOR A CLEAR SPACE IN FRONT OF ALL ELECTRIC DUCT HEATER CONTROL PANELS (INCLUDING, BUT NOT LIMITED TO AHUS, FUS, VAV, PUX, UN, ETC.) OF 24" X 30" WIDE (OR THE WIDTH OF THE PANEL WHICHEVER IS GREATER). THE CONTROL PANEL DOOR SHALL BE ALLOWED TO OPEN AT LEAST 90 DEGREES. EQUIPMENT WITHOUT DUCT HEATERS THAT HAVE LOW VOLTAGE CONTROL PANELS SHALL HAVE A MINIMUM CLEAR SPACE IN FRONT OF THE PANEL OF 24" X 24" WIDE (OR THE WIDTH OF THE PANEL WHICHEVER IS GREATER).
 7. ROUTING OF DUCTWORK SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR AND ALL OTHER TRADES DURING THE SUBMITTAL AND LAYOUT PHASE. DUCTWORK SHALL NOT BE ROUTED THROUGH THE DEDICATED ELECTRICAL SPACE ABOVE EACH LOAD CENTER.
- DUCT SMOKE DETECTORS:
1. ALL FANS SUPPLYING MORE THAN 2000 CFM OF AIR TO ANY SPACE SHALL BE INSTALLED WITH A SMOKE DETECTOR IN THE RETURN DUCTWORK. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN THE RETURN AIR PATH OF AIR DISTRIBUTION SYSTEMS UTILIZING A COMMON SUPPLY AND/OR RETURN AIR PLENUM WITH A COMBINED DESIGN CAPACITY GREATER THAN 2000 CFM.
 2. THE SMOKE DETECTOR SHALL BE WIRED TO STOP THE FAN UPON DETECTION OF SMOKE, AND SIGNAL THE BUILDING FIRE ALARM CONTROL PANEL. THE SMOKE DETECTOR SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, MOUNTED IN THE DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR.
- AIR DISTRIBUTION:
1. SUPPLY, RETURN AND O.A. DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEETMETAL IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS, LATEST EDITION. ALL JOINTS AND SEAMS IN ALL SHEETMETAL DUCTWORK SHALL BE SEALED WITH DUCT SEALER.
 2. EXTERIOR SUPPLY AND RETURN DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEETMETAL (G 90 MINIMUM) WITH ALL SEAMS CAULKED AND SEALED WEATHERTIGHT.
 3. ALL OPEN ENDED DUCTS AND FAN OUTLETS SHALL HAVE 1/2" X 1/2" HARDWARE CLOTH AFFIXED TO THE OPENING.
 4. EXHAUST DUCTWORK SHALL BE GALVANIZED SHEET METAL (G 90 MINIMUM) CONSTRUCTED TO SMACNA STANDARDS AND SHALL NOT BE INSULATED UNLESS NOTED OTHERWISE.
 5. ALL DUCTWORK SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. DUCT SUPPORTS AND ATTACHMENT TO STRUCTURE SHALL BE PER SMACNA STANDARDS.
 6. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX M-KE (UL 181 LISTED, CLASS 1 FLEXIBLE AIR DUCT) OR EQUAL. PROVIDE MINIMUM INSULATION VALUE OF R-6; R-8 WHEN LOCATED OUTSIDE THE THERMAL ENVELOPE OF THE BUILDING, OR GREATER WHERE REQUIRED BY APPLICABLE ENERGY CODE. AIR CONNECTORS ARE NOT ACCEPTABLE. FLEX DUCT DIAMETER SHALL MATCH DEVICE NECK DIAMETER. PROVIDE ROUND GALVANIZED STEEL DUCT RUNOUTS TO MAINTAIN A MAXIMUM FLEXIBLE DUCT LENGTH OF 5' 0" FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRUMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHEN REQUIRED.
 7. ROUND AND FLEXIBLE SUPPLY AIR DUCTWORK SHALL BE CONNECTED TO MAIN DUCTS WITH A CONICAL TYPE SPIN IN FITTING WITH MANUAL VOLUME DAMPER (EXCEPT WHERE INSTALLED ABOVE INACCESSIBLE CEILINGS, THE DAMPER SHALL BE OMITTED AND PROVIDED IN THE AIR DEVICE NECK).
 8. TAPE, BED AND SEAL AIR TIGHT ALL PENETRATIONS FROM RETURN AIR PLENUMS TO NON RETURN AIR PLENUMS THAT ARE REQUIRED DUE TO DUCTWORK, PIPING OR OTHER ITEMS.
 9. DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.
 10. EXTERNAL STATIC PRESSURE (ESP) DOES NOT INCLUDE COIL, CASING OR FILTER PRESSURE DROP.
 11. INSTALL FIRE DAMPERS IN ALL RATED WALLS AND FLOOR PENETRATIONS. FIRE DAMPERS SHALL BE THE DYNAMIC TYPE WITH BLADES OUT OF THE AIRSTREAM WHERE POSSIBLE. ALL FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF U.L. 555.
 12. LOCATIONS OF GRILLES, REGISTERS, AND DIFFUSERS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS WITH LIGHTS, CEILING GRID, ETC. AND ARCHITECTURAL REFLECTED CEILING PLAN.
 13. WHERE BALANCING DAMPERS CANNOT BE ACCESSED FROM BELOW THE CEILING, PROVIDE A REMOTE OPERATED DAMPER, YOUNG REGULATOR OR EQUAL.

14. DUCTWORK INSTALLED WITHIN OPEN ATTIC SPACES SHALL BE GALVANIZED STEEL. DUCTBOARD AND FLEX DUCT IS ALLOWABLE WHERE SERVING DWELLING UNIT SUPPLY AIR SYSTEMS.
 15. FLEXIBLE DUCT CONNECTORS SHALL BE USED TO CONNECT DUCTWORK AND PLENUMS TO FAN-ROTATING EQUIPMENT, DURODYNE EXCELON OR APPROVED EQUAL. FLEXIBLE CONNECTORS EXPOSED TO THE WEATHER SHALL BE UV AND OZONE RESISTANT. FABRICS, COATING AND ADHESIVES SHALL BE TESTED IN ACCORDANCE WITH UL 701 AND HAVE A FLAME SPREAD/ SMOKE DEVELOPED RATINGS OF 25 / 50.
 16. EXPOSED INTERIOR DUCTWORK TO BE PAINTED SHALL HAVE ALL EXPOSED SURFACES (INCLUDING HANGER STRAPS) COATED WITH A "PAINT GRIP" FINISH FOR FIELD PAINTING. LINE OR INSULATE PER HVAC GENERAL NOTES OR SPECIFICATION SECTION 23 07 00.
- INSULATION:
1. DUCT INSULATION:
 - a. DUCT WRAP SHALL BE UL LISTED FIBERGLASS BLANKET INSULATION WITH FOIL VAPOR BARRIER, JOHNS MANVILLE MICROLOTE XG OR EQUAL. PUNCTURES AND TEARS IN THE FOIL JACKET SHALL BE PATCHED WITH FOIL TAPE TO MAINTAIN THE INTEGRITY OF THE VAPOR BARRIER. INSULATE SHEET METAL DUCTWORK IN THE THICKNESSES AND DENSITIES AS LISTED BELOW.
 - i. SHEET METAL SUPPLY AND OUTSIDE AIR DUCTWORK: 2" THICK, 1 LB/FT³ DENSITY, R-6 MINIMUM INSTALLED.
 - ii. SHEET METAL RETURN DUCTWORK IN NON-AIR CONDITIONED AREAS (SUCH AS INTERSTITIAL SPACES AND FLOOR/CEILING ASSEMBLIES): 2" THICK, 1 LB/FT³ DENSITY, R-6 MINIMUM INSTALLED.
 - iii. ALL SHEET METAL DUCTWORK LOCATED OUTSIDE OF THE THERMAL ENVELOPE OF THE BUILDING (INCLUDING CRAWL SPACES AND ATTIC SPACES): 3" THICK/ 1LB/FT³ DENSITY, R-6 MINIMUM INSTALLED.
 - b. INDOOR EXPOSED ROUND, SPIRAL AND OVAL SUPPLY AND RETURN AIR DUCT SHALL BE LINED WITH 1" THICK ROUND DUCT LINER (MINIMUM R-4), JOHNS MANVILLE SPRACONOSTIC PLUS OR EQUAL. SPIRAL DUCT IS SUPPLIED BY FIREBIRDS OWNERSHIP AND INSTALLED BY I.C.
 - c. DUCT LINER FOR ACOUSTICS: LINE ALL SHEETMETAL DUCTWORK A MINIMUM OF 15'-0" (OR AS INDICATED) UPSTREAM AND DOWNSTREAM OF ALL ROOFTOP UNITS DUCT LINER SHALL BE 1/2" THICK, (MINIMUM R-6 OR GREATER WHERE REQUIRED BY APPLICABLE ENERGY CODE), JOHNS MANVILLE UNACOUSTIC RC OR EQUAL. THE LEADING EDGE OF THE DUCT LINER SHALL HAVE A SHEETMETAL NOSING. LINED DUCTWORK DOES NOT REQUIRE ADDITIONAL EXTERIOR INSULATION WHERE LINER MEETS REQUIRED R-VALUES.
 - d. REFER TO ARCHITECTURAL DRAWINGS AND/OR SPECIFICATIONS FOR PAINTING OF DUCTWORK, INSULATION, ETC. IN EXPOSED INTERIOR AREAS.
- PIPING:
1. CONDENSATE FROM ALL AIR CONDITIONING EQUIPMENT SHALL BE TRAPPED AND ROUTED TO THE NEAREST PLUMBING DRAIN. CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC (EXCEPT IN HVAC PLENUMS, INSULATED TYPE "W" COPPER SHALL BE INSTALLED); CONDENSATE SHALL BE PUMPED AS REQUIRED TO INSURE PROPER DRAINAGE.
 2. ALL PIPING ABOVE GRADE SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. PIPING HUNG FROM JOISTS SHALL BE HUNG FROM THE TOP CHORDS OF THE JOISTS.
- KITCHEN EXHAUST SYSTEM AND DUCTING:
1. DUCTWORK CONNECTING KITCHEN EXHAUST HOODS TO EXHAUST FANS SHALL BE CONSTRUCTED OF 16 GAUGE BLACK STEEL WITH WELDED SEAMS OR SHALL BE A UL TESTED AND LISTED FACTORY BUILT GREASE DUCT SYSTEM. ALL GREASE EXHAUST DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER THE REQUIREMENTS OF LOCAL CODE AUTHORITIES AND NFPA 96 REQUIREMENTS. INSTALL GASKETED ACCESS DOORS AT 20" ON CENTER AND AT EACH CHANGE OF DIRECTION. ACCESS DOORS IN VERTICAL DUCT RUNS SHALL BE LOCATED 12" AFF IN A COMMON AREA.
 2. KITCHEN HOOD EXHAUST DUCTWORK SHALL BE INSULATED, WHERE REQUIRED, PER NFPA 96 AND LOCAL CODE REQUIREMENTS. KITCHEN HOOD SUPPLY DUCTWORK SHALL BE INSULATED AS SPECIFIED FOR HVAC SUPPLY DUCTWORK. EXPOSED DUCT WRAP INSULATION SYSTEMS SHALL BE PROTECTED WHERE SUBJECT TO PHYSICAL DAMAGE.
 3. ALL KITCHEN HOOD EXHAUST AND SUPPLY DUCTS SHALL BE INSPECTED AND TESTED PRIOR TO THE INSTALLATION OF THE PROPOSED FIRE MASTER FAST WRAP.

DESIGN CONDITIONS

SITE LOCATION: HUNTERSVILLE, NORTH CAROLINA
 810'-0" FEET ELEVATION
 ASHRAE 90.1-2007 CLIMATE ZONE "3A"

DESIGN CONDITIONS: 21.0°F WINTER DESIGN DRY BULB (ASHRAE 99.6%)
 94.3°F DRY BULB AND 76.2 °F MEAN COINCIDENT WET BULB SUMMER DESIGN (ASHRAE 4%)

CALCULATIONS BASED ON ASHRAE DESIGN CRITERIA AND CALCULATION METHODOLOGY. NO CAPACITY HAS BEEN INCLUDED IN THIS DESIGN FOR FUTURE ADDITIONS.

NOTE:
 MECHANICAL CONTRACTOR SHALL COORDINATE THE ELECTRICAL CHARACTERISTICS OF ALL HVAC EQUIPMENT (VOLTAGE, PHASE, ETC.) WITH THE ELECTRICAL CONTRACTOR AND ELECTRICAL PLANS, BEFORE ORDERING ANY MECHANICAL EQUIPMENT. ANY SUBSEQUENT MISMATCH BETWEEN MECHANICAL EQUIPMENT ELECTRICAL REQUIREMENTS AND THE ELECTRICAL SERVICE, AS DESIGNED AND PROVIDED SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

**FIREBIRDS
 FIREBIRDS
 BIRKDALE**

16641 BIRKDALE COMMONS PKWY
 SUITE B-200
 HUNTERSVILLE, NC 28078



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Project Number: 2020096
 Drawn By: Author Checked By: Checker

**CONSTRUCTION
 DOCUMENTS**

12/04/2020

No.	Description	Date

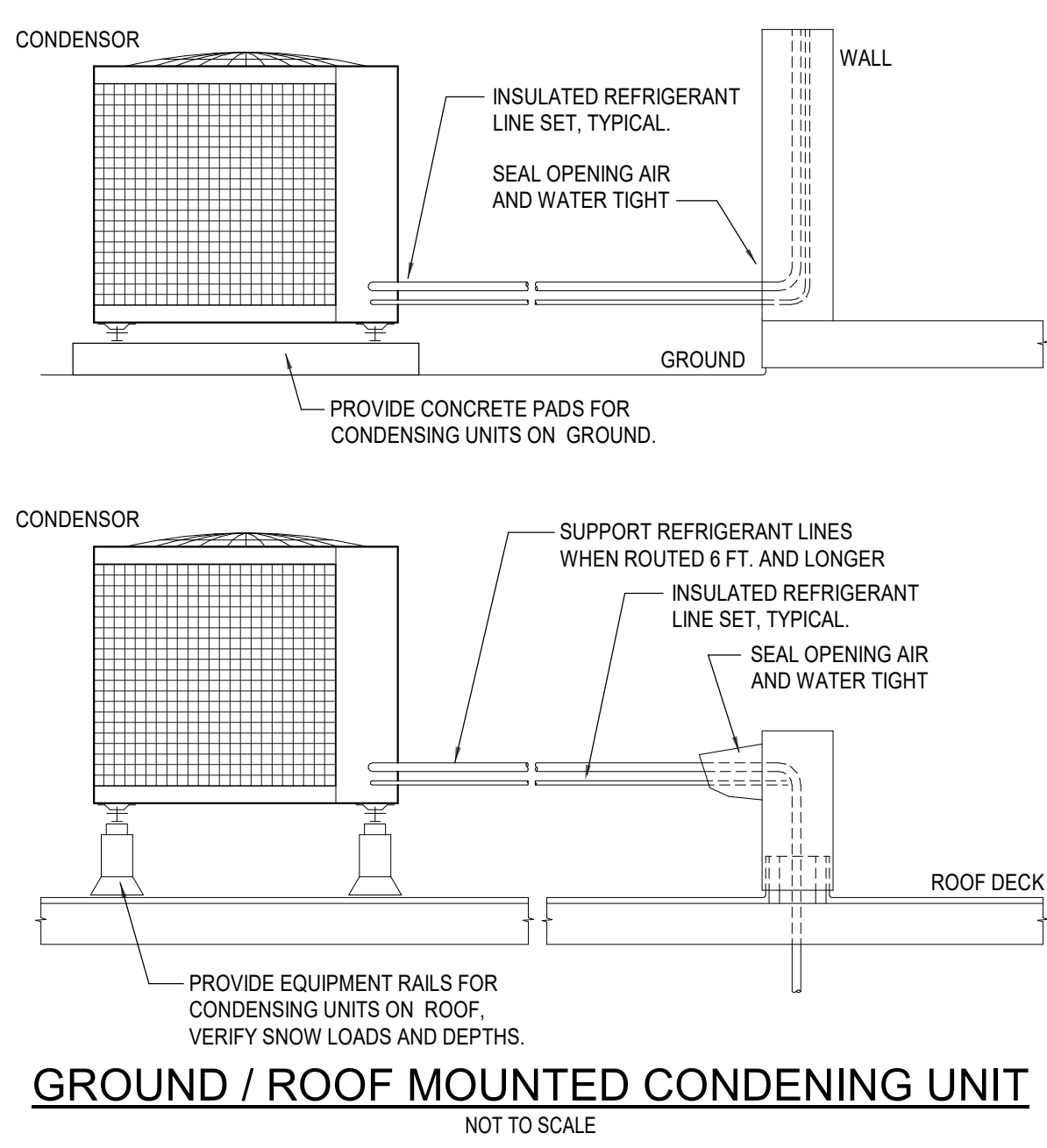


**GENERAL
 NOTES, LEGEND
 AND SHEET LIST**

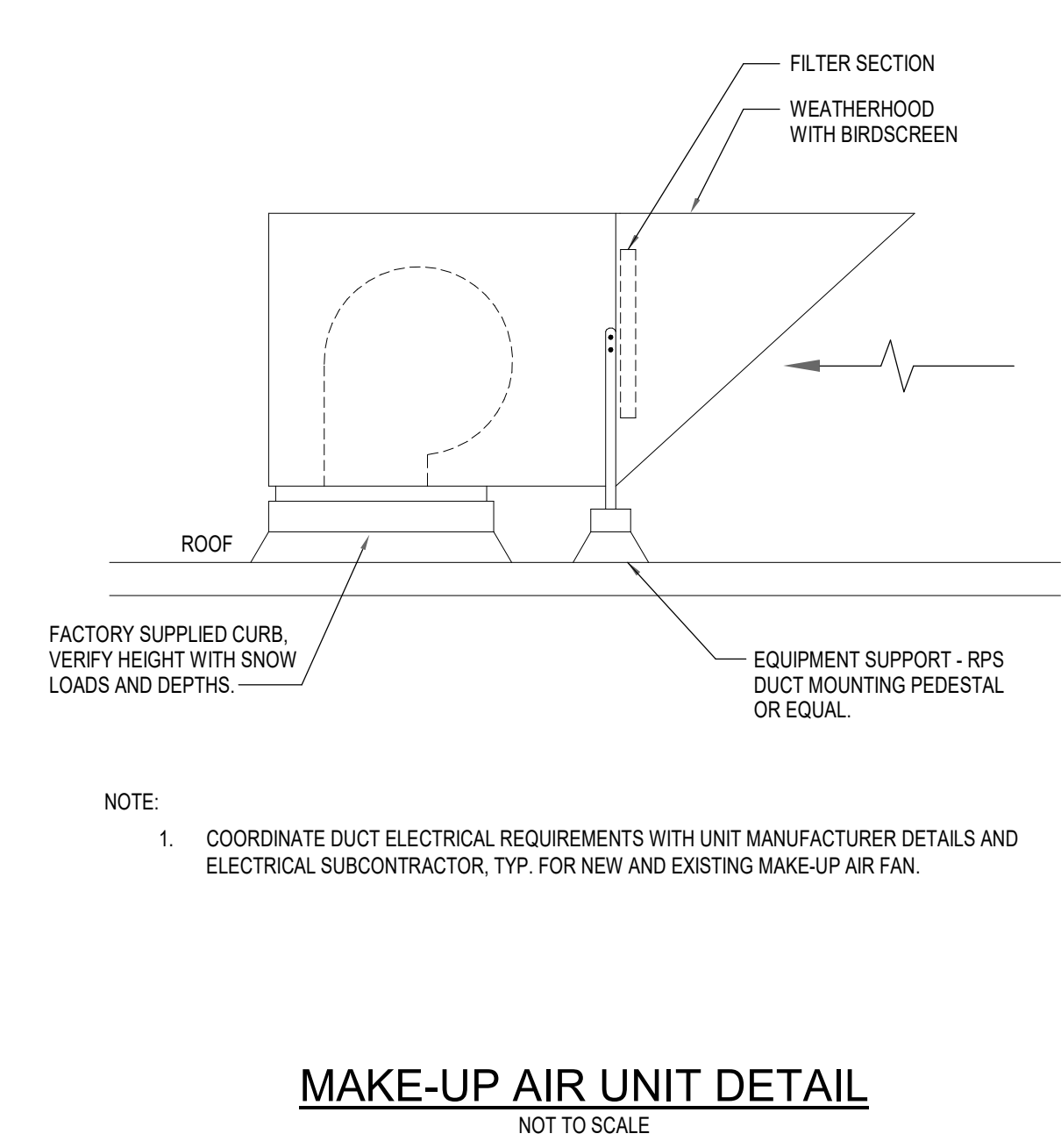
M100

19FB007 | © Starr Design, PLLC 2019

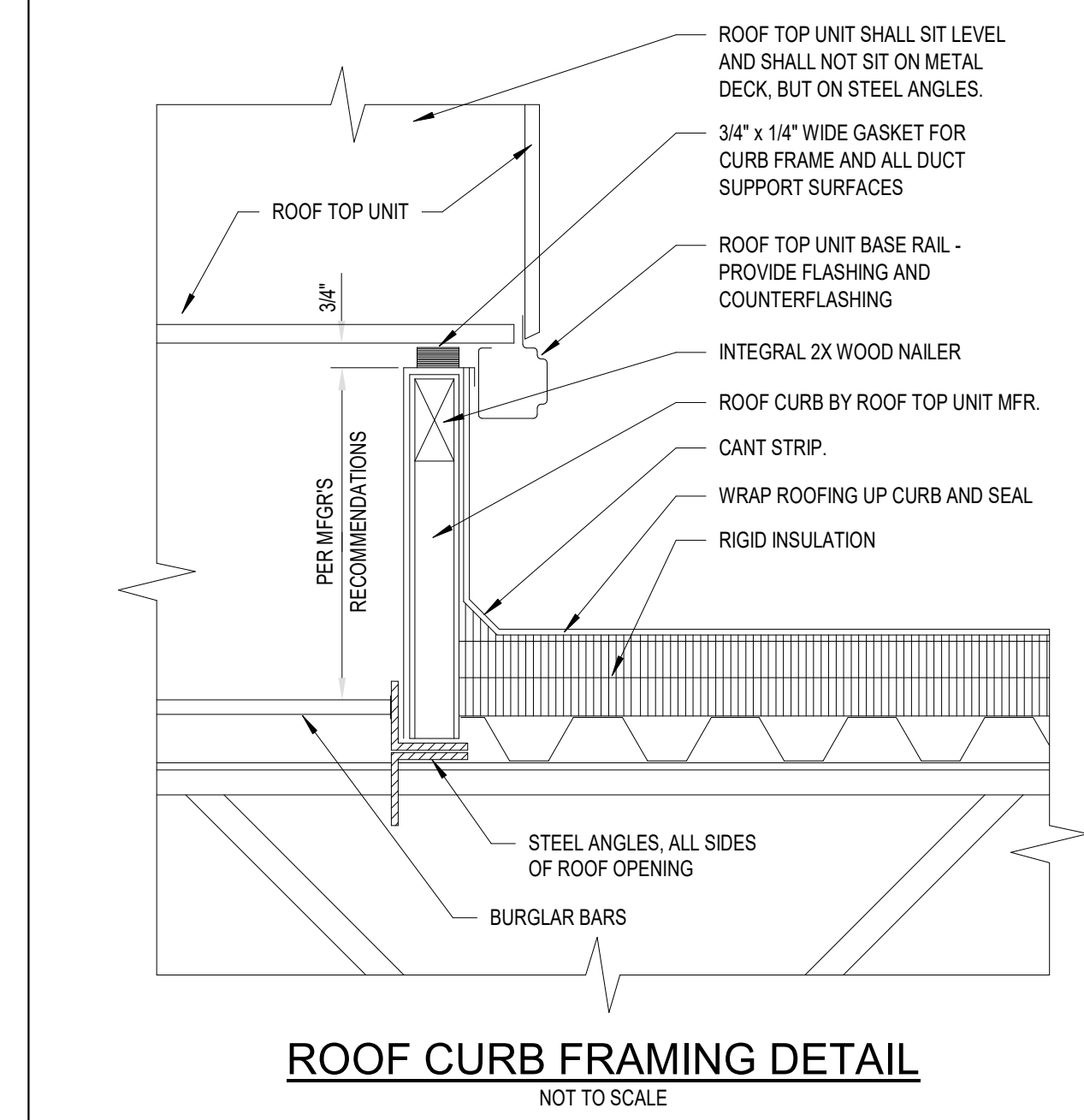
Project address | Name
 client
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 designers
 job status
 revisions
 seal
 sheet number | title



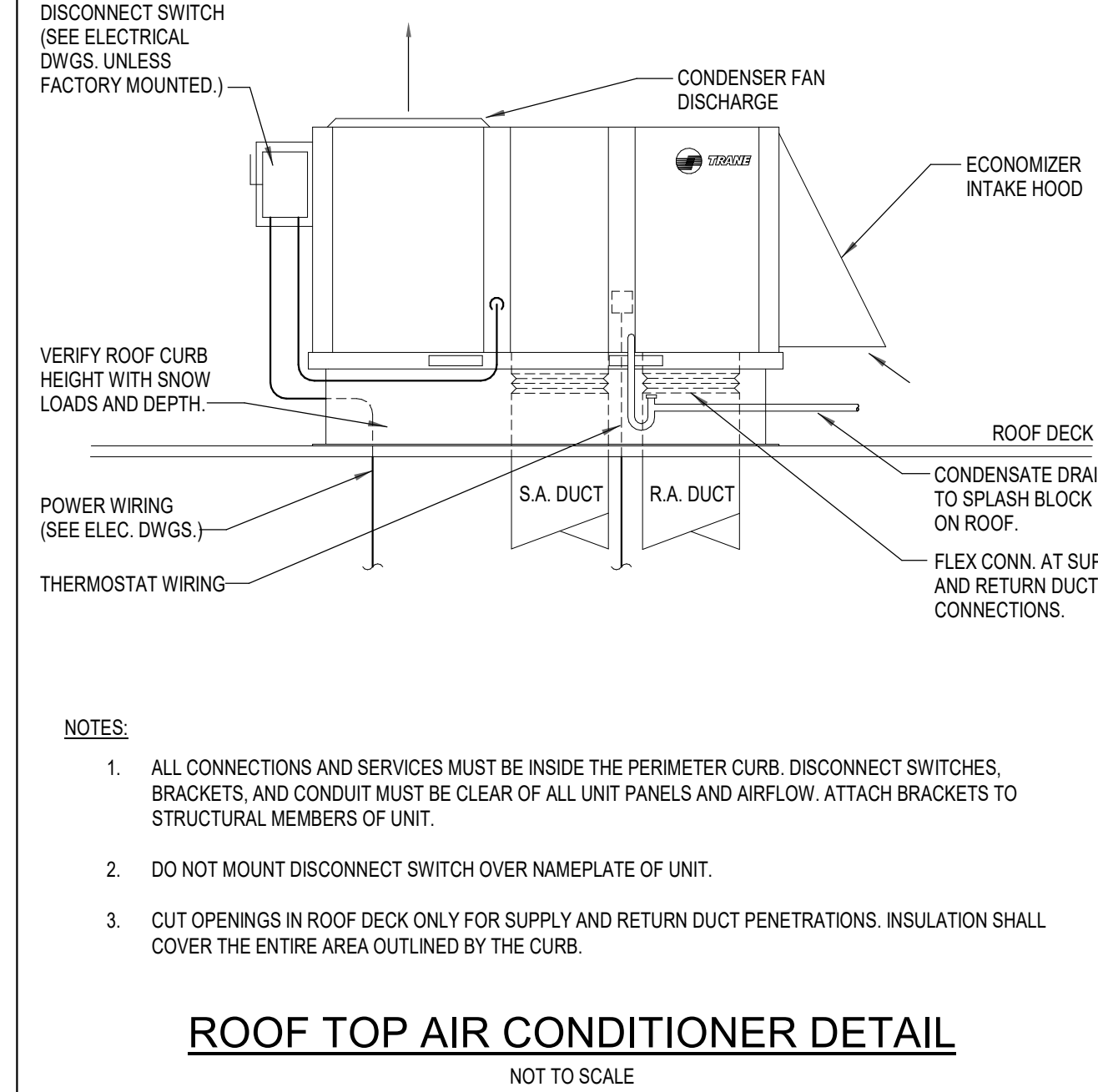
GROUND / ROOF MOUNTED CONDENSING UNIT
NOT TO SCALE



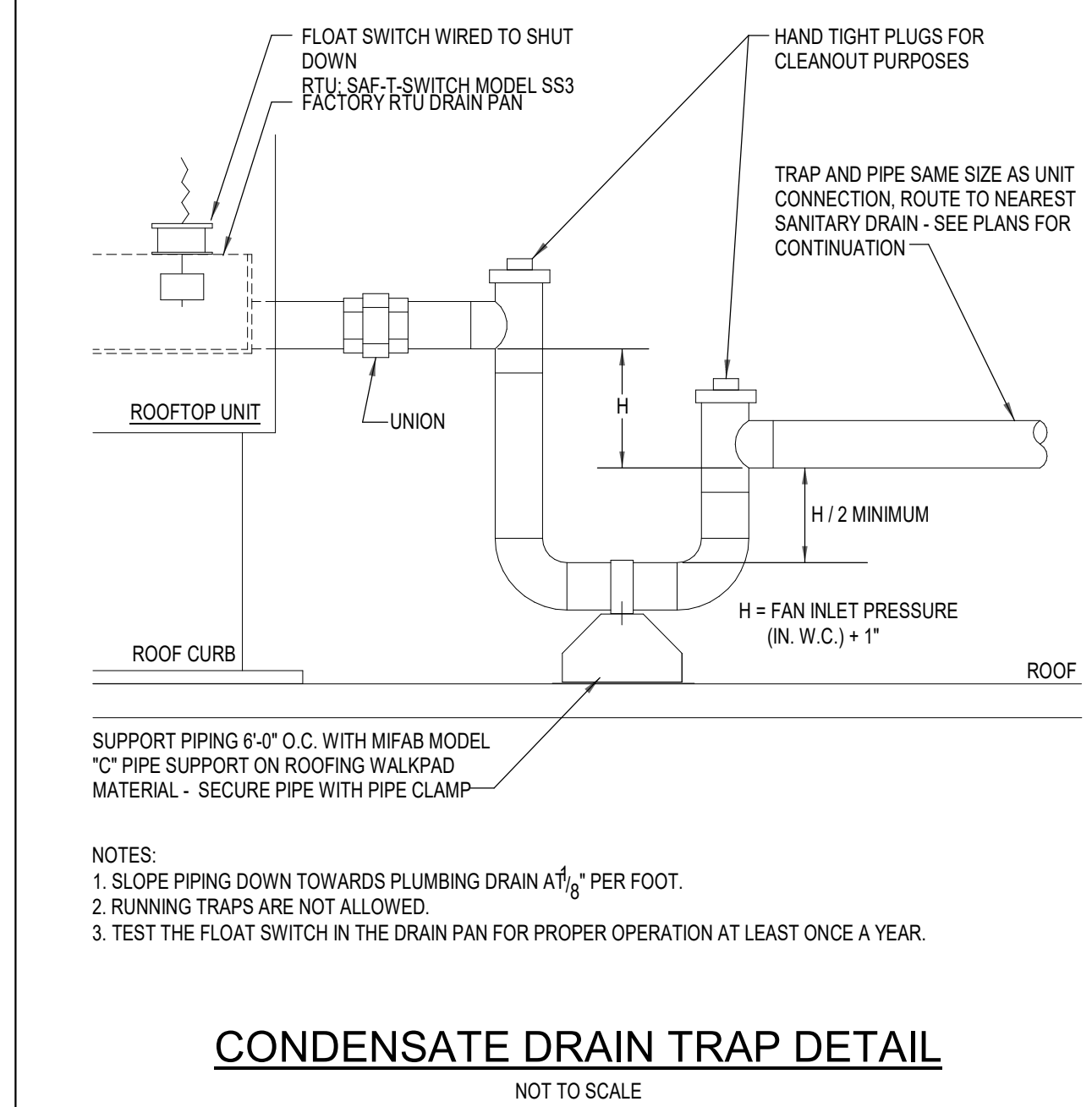
MAKE-UP AIR UNIT DETAIL
NOT TO SCALE



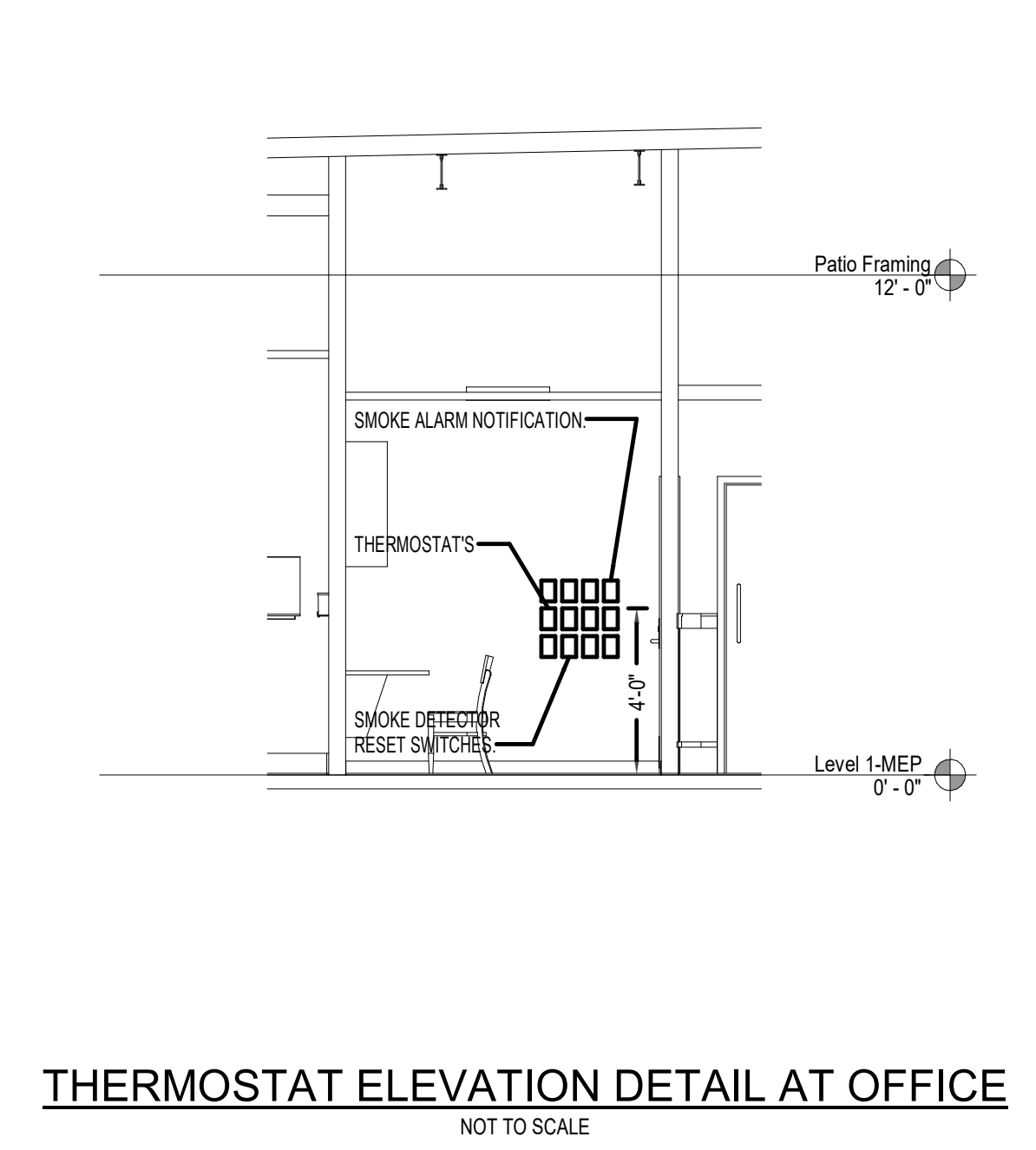
ROOF CURB FRAMING DETAIL
NOT TO SCALE



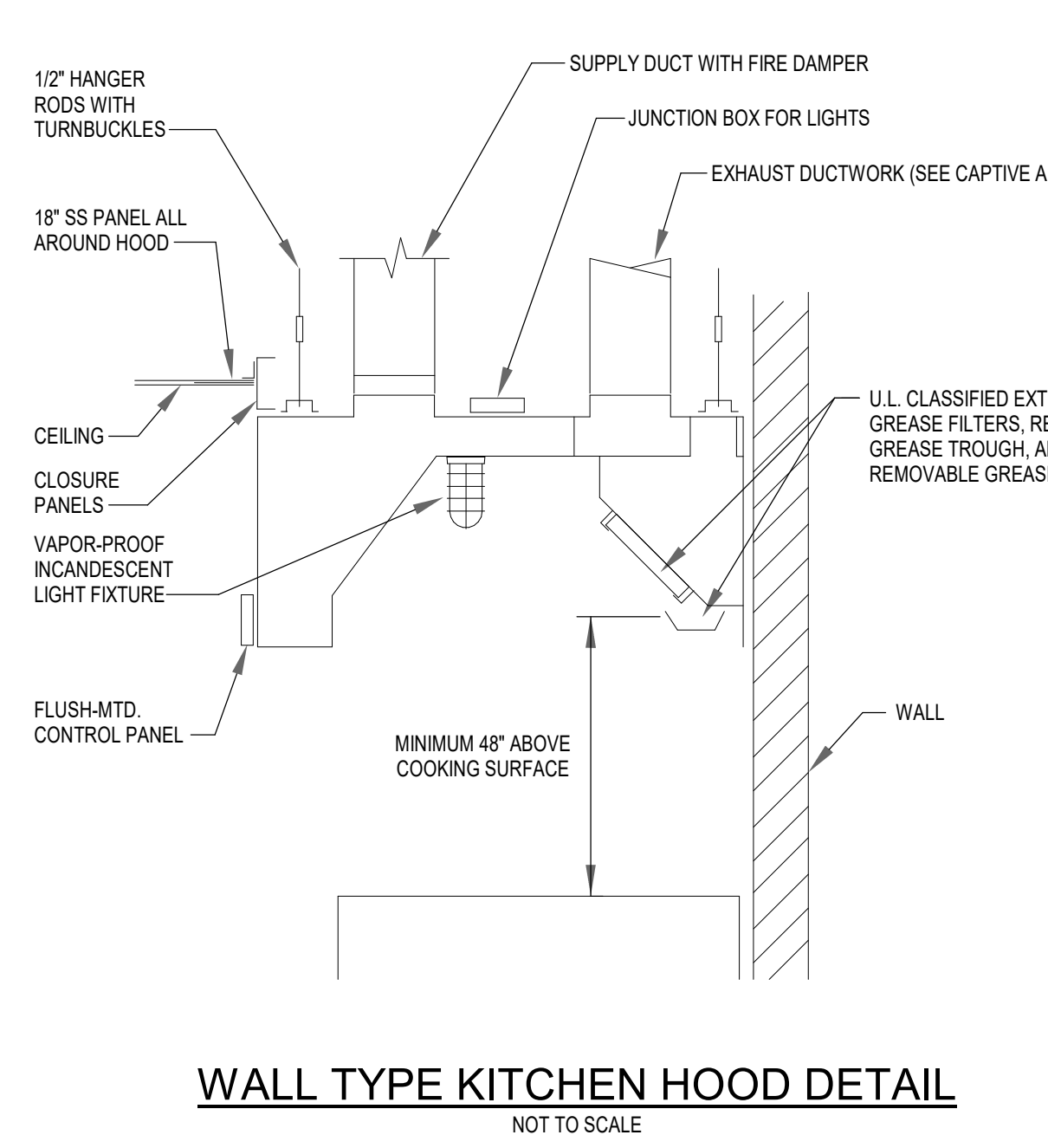
ROOF TOP AIR CONDITIONER DETAIL
NOT TO SCALE



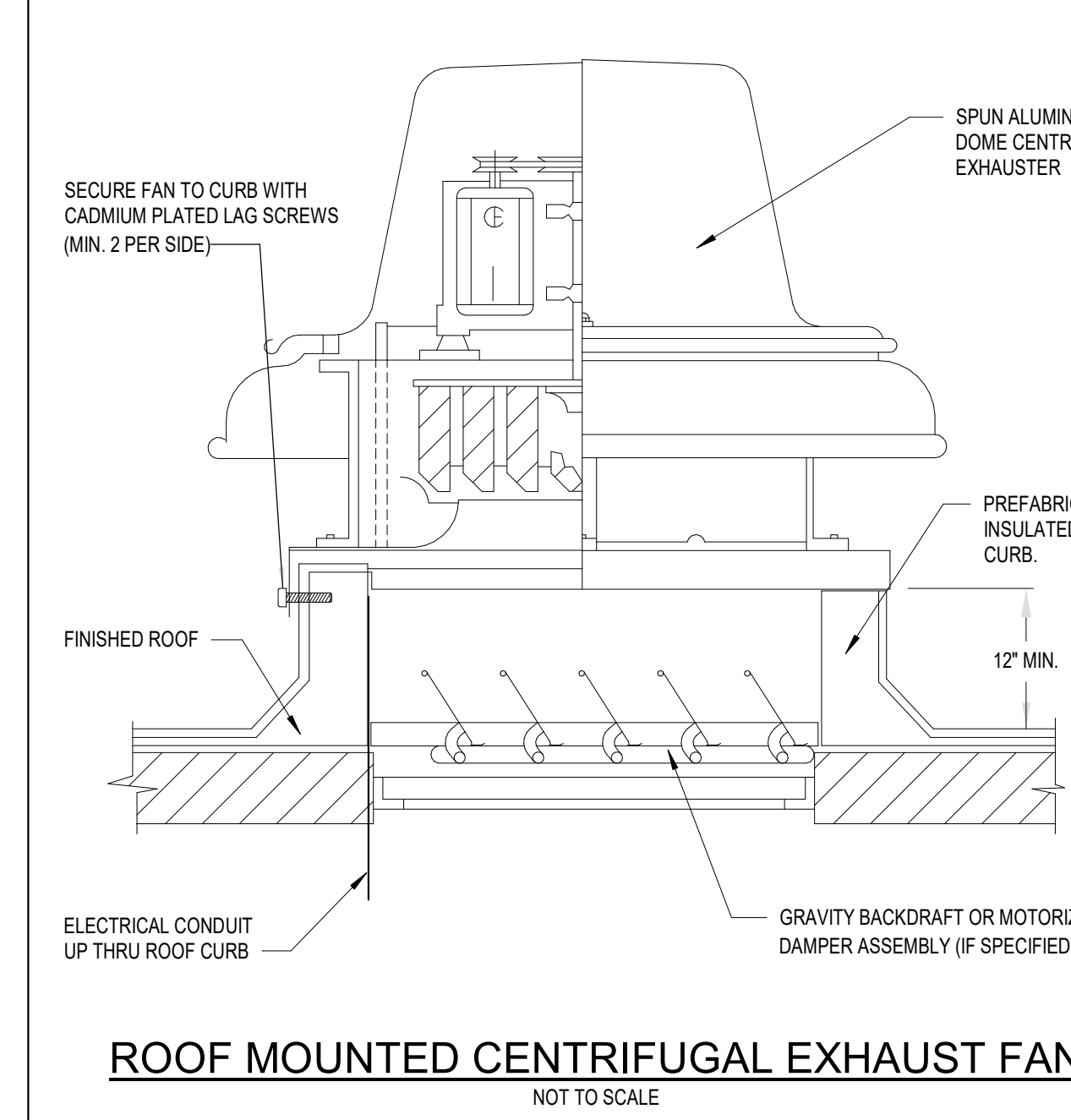
CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



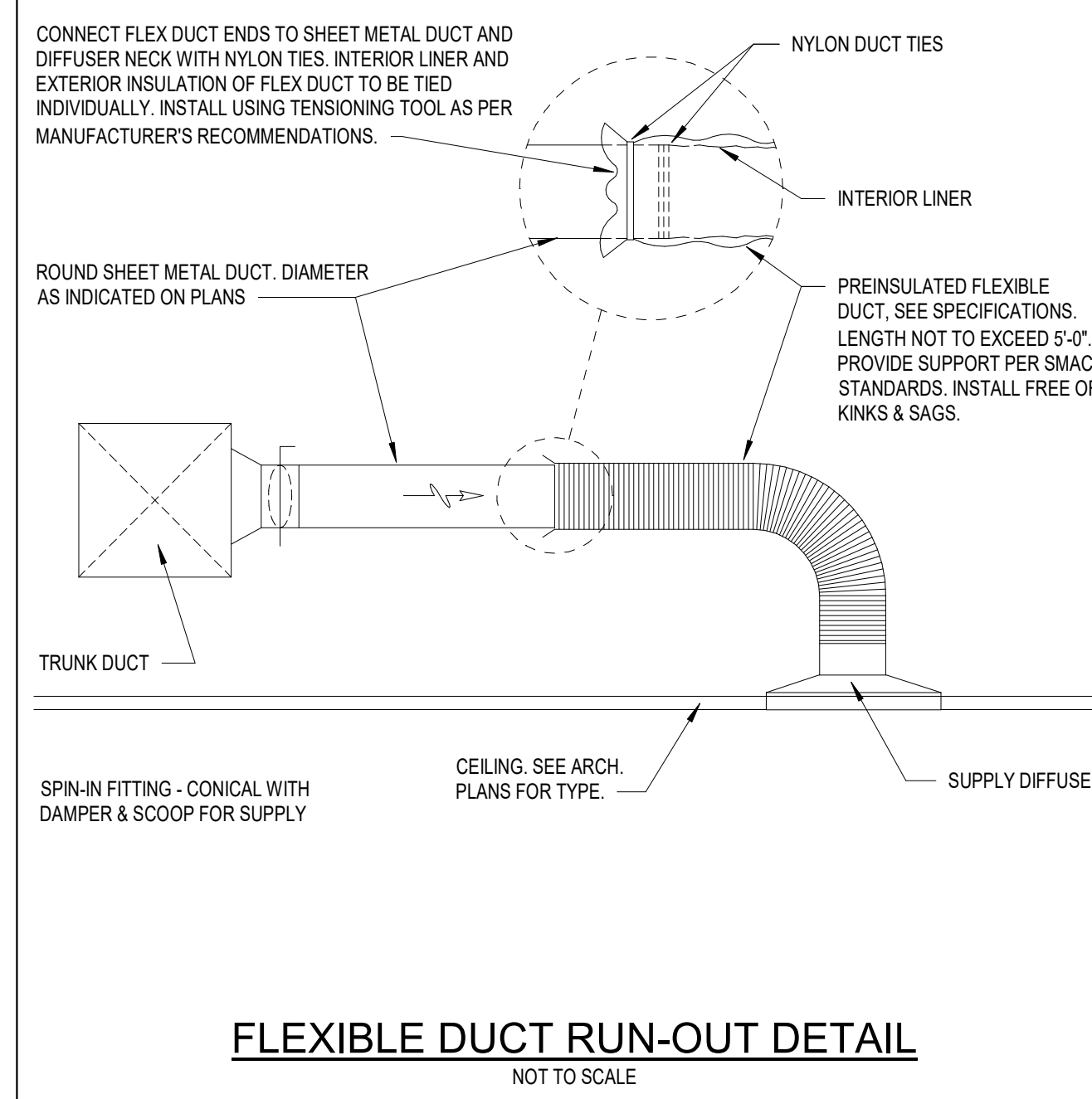
THERMOSTAT ELEVATION DETAIL AT OFFICE
NOT TO SCALE



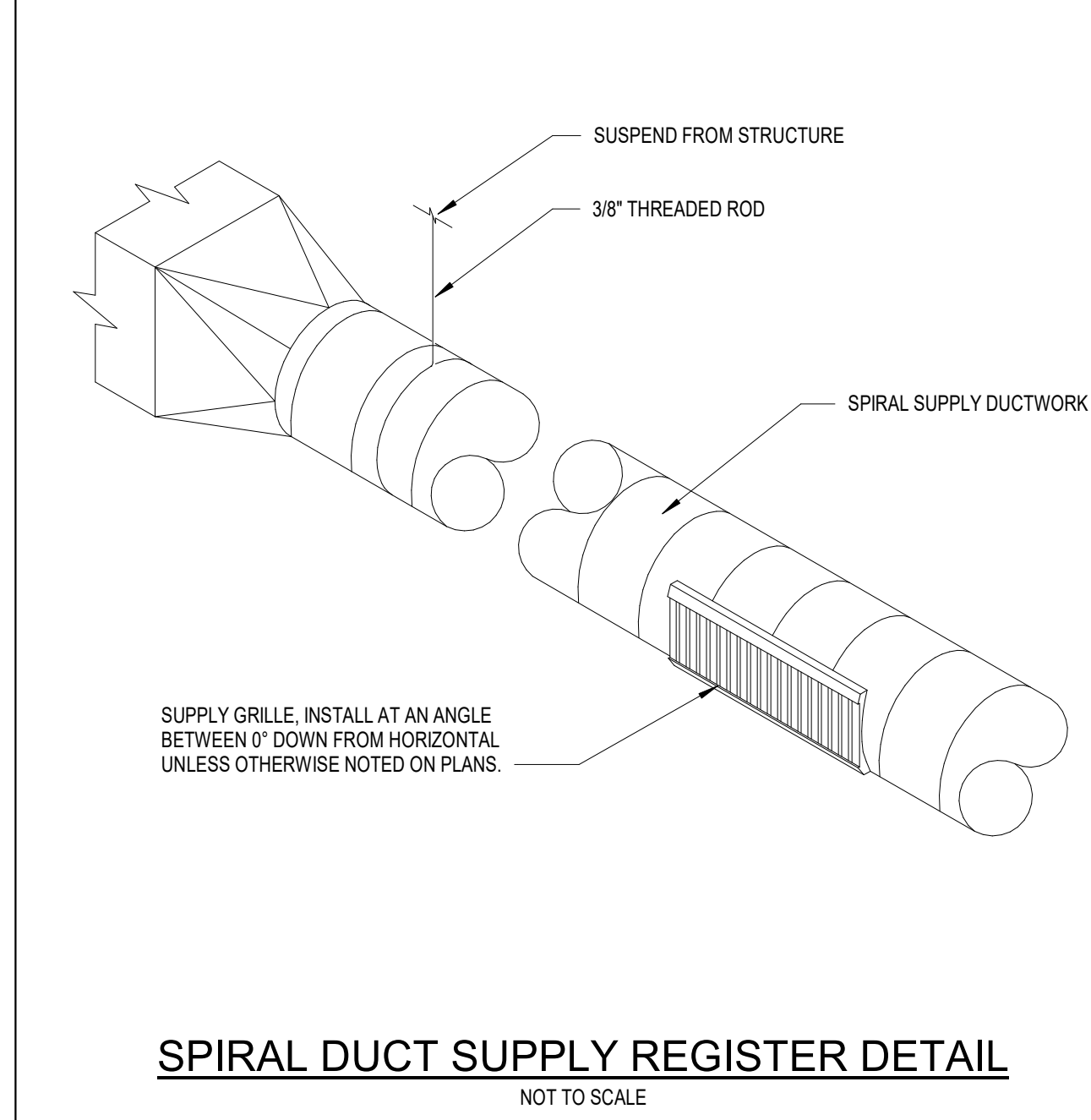
WALL TYPE KITCHEN HOOD DETAIL
NOT TO SCALE



ROOF MOUNTED CENTRIFUGAL EXHAUST FAN
NOT TO SCALE



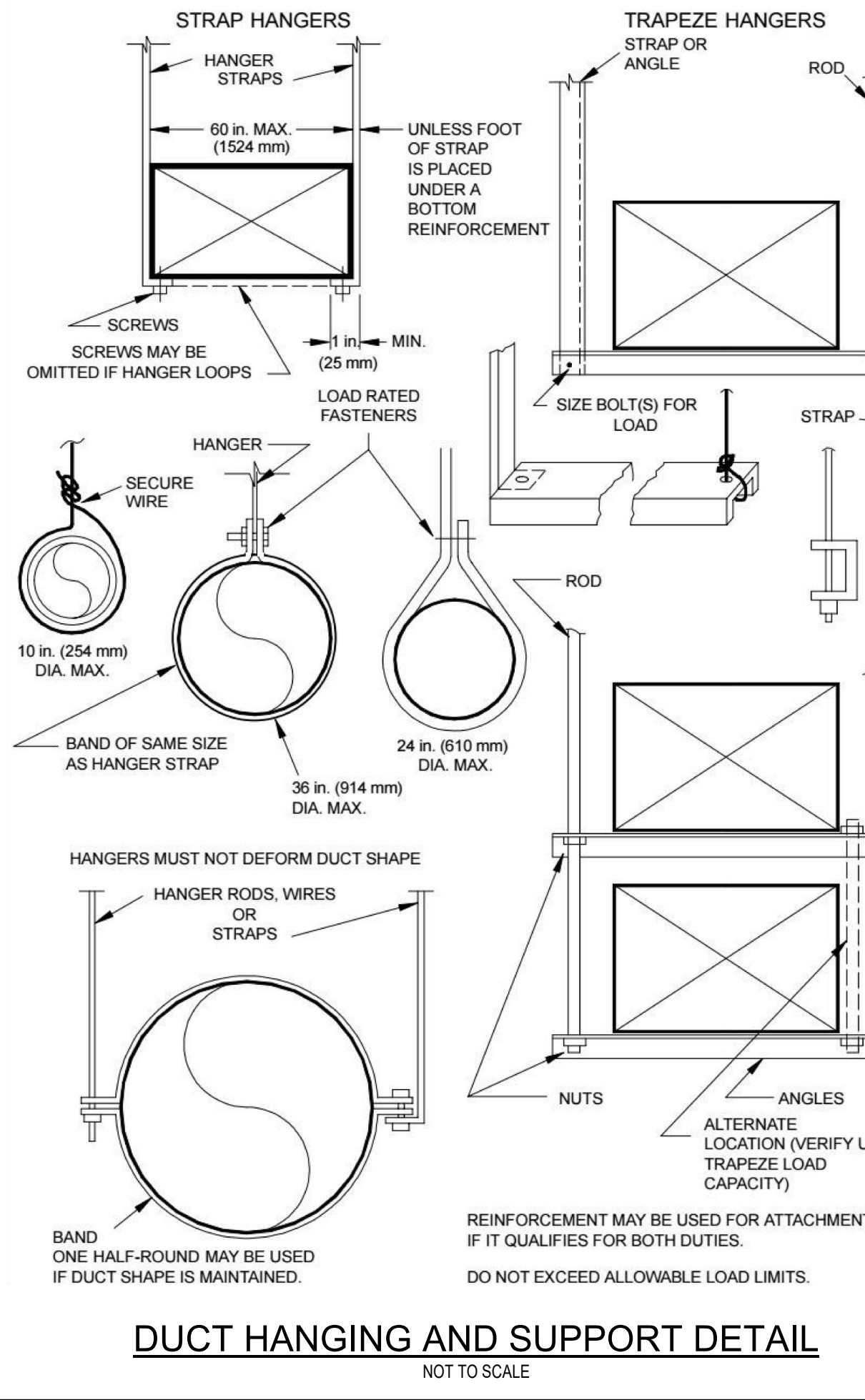
FLEXIBLE DUCT RUN-OUT DETAIL
NOT TO SCALE



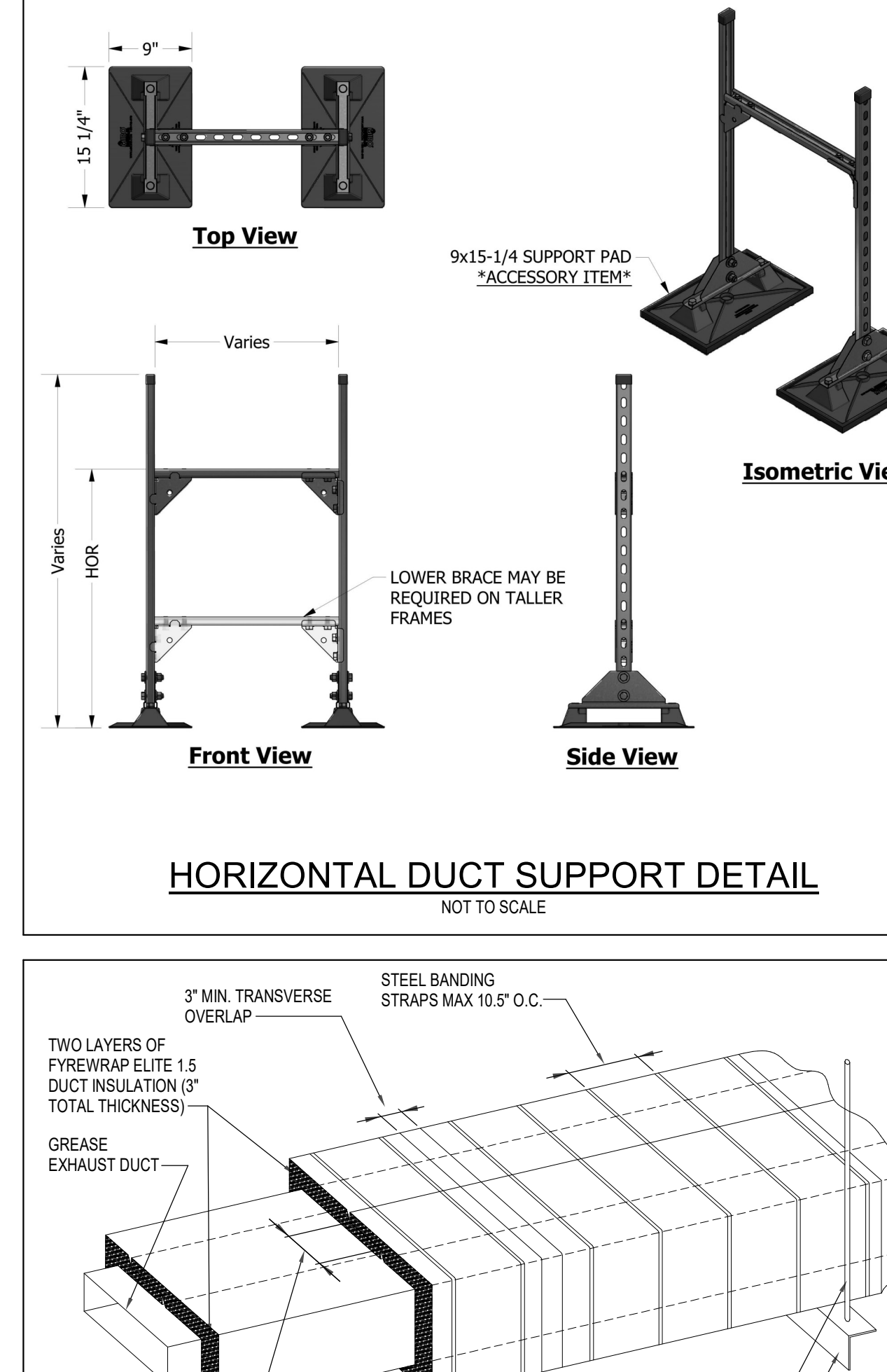
SPIRAL DUCT SUPPLY REGISTER DETAIL
NOT TO SCALE



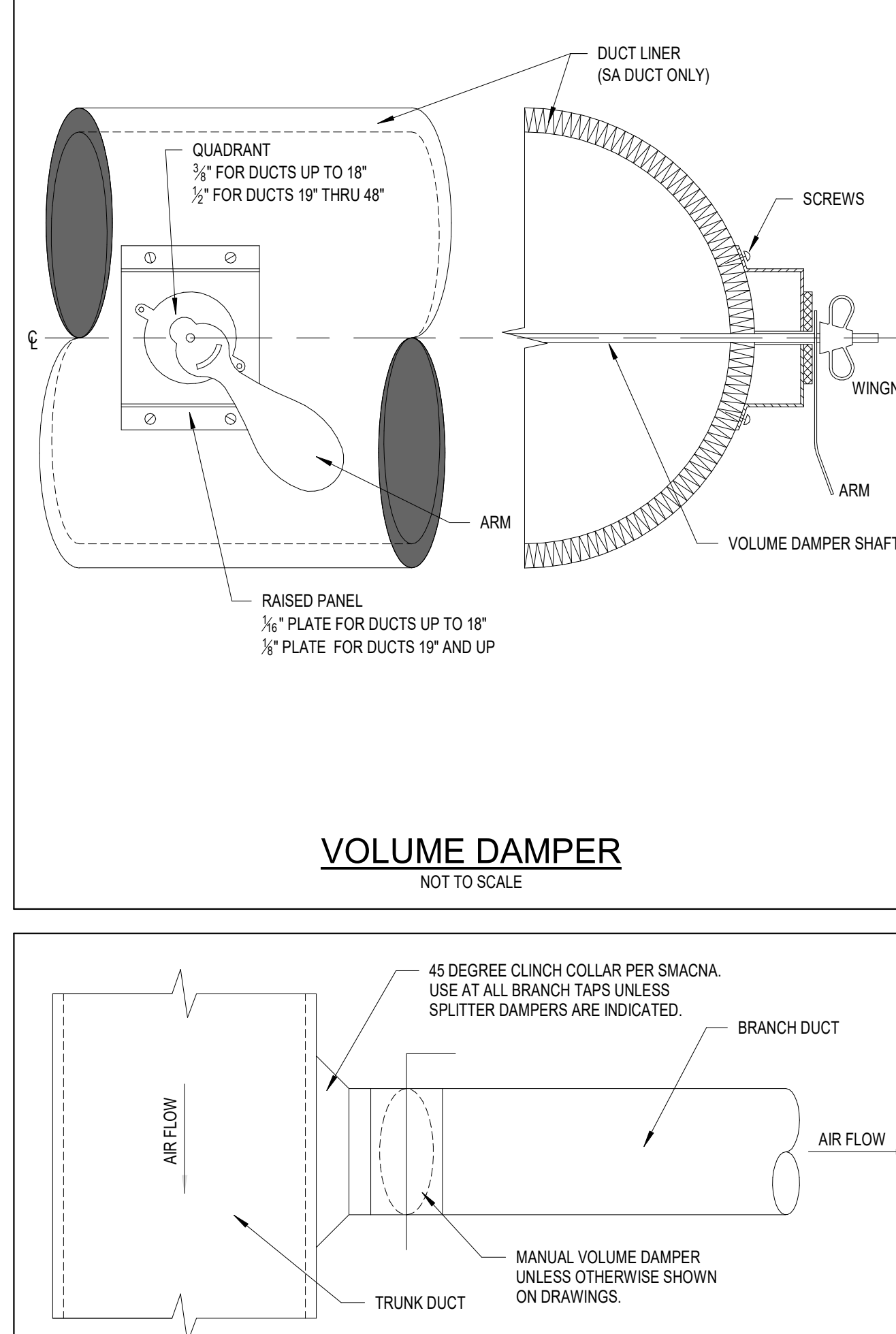
DUCT HANGING AND SUPPORT DETAIL
NOT TO SCALE



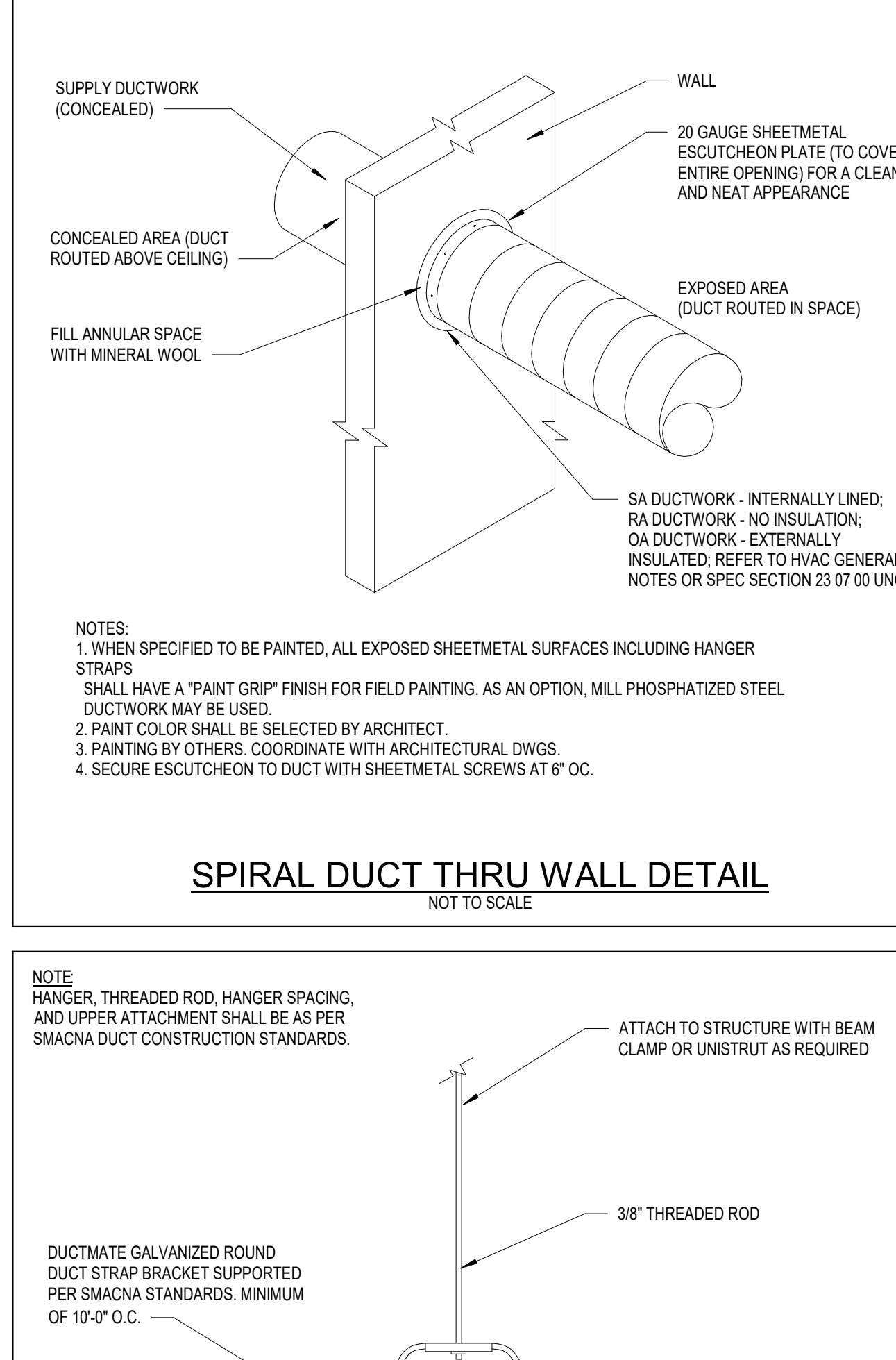
HORIZONTAL DUCT SUPPORT DETAIL
NOT TO SCALE



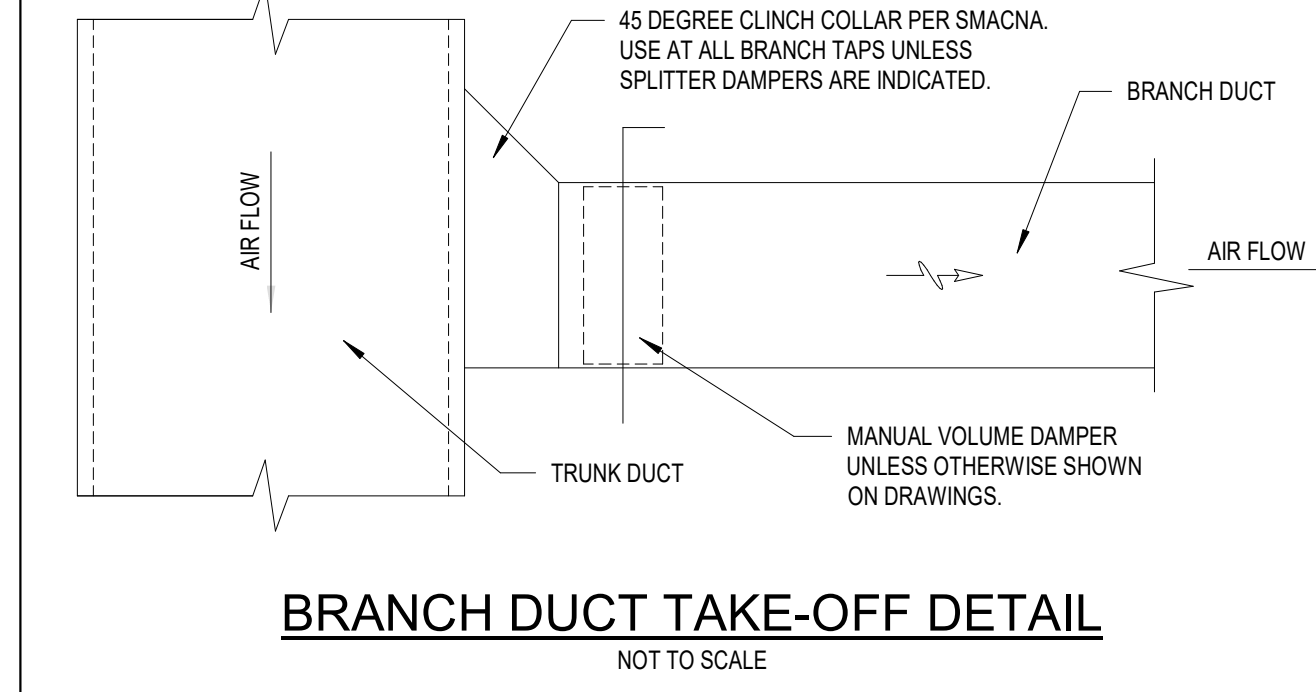
GREASE EXHAUST DUCT ENCLOSURE DETAIL
NOT TO SCALE



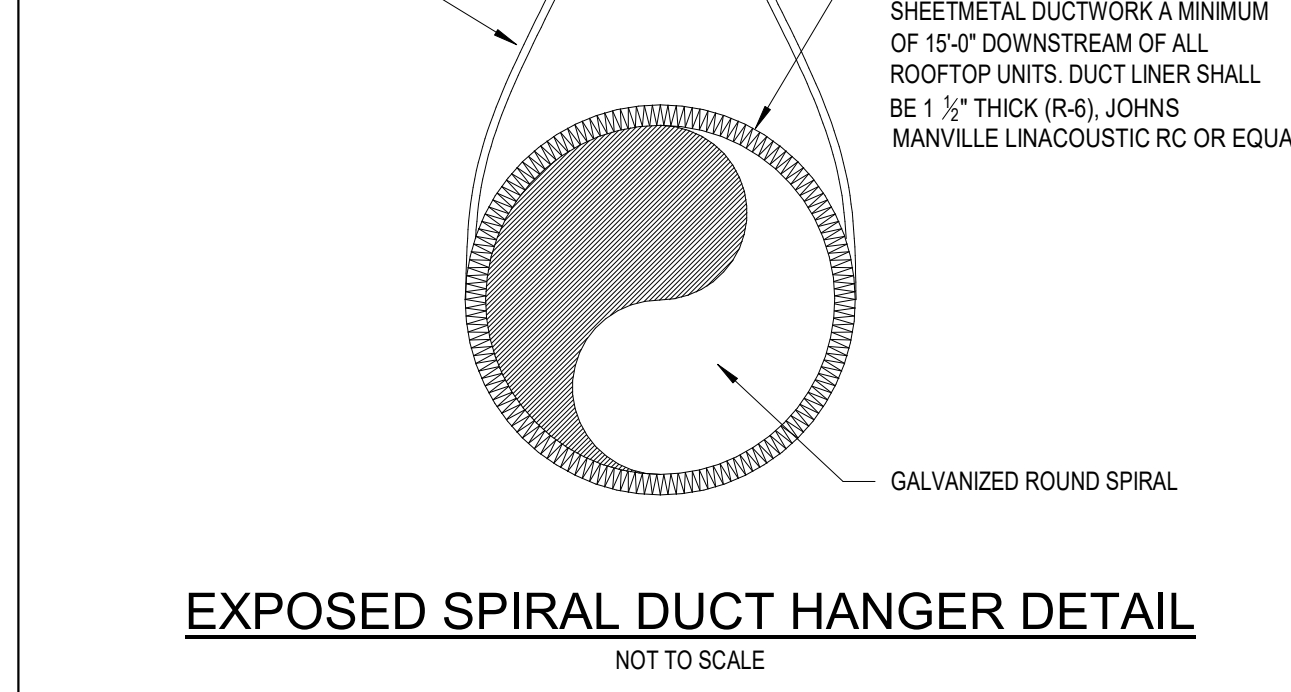
VOLUME DAMPER
NOT TO SCALE



SPIRAL DUCT THRU WALL DETAIL
NOT TO SCALE



BRANCH DUCT TAKE-OFF DETAIL
NOT TO SCALE



EXPOSED SPIRAL DUCT HANGER DETAIL
NOT TO SCALE

No.	Description	Date



project address | name
client
designer
job status
revisions
seal
sheet number | title

DUCTLESS SPLIT SYSTEM (HEAT PUMP)											
TAG	AIR HANDLER / HEAT PUMP UNIT	AREA SERVED	FAN COIL		CAPACITY			SEER	HSPF	APPROX. WEIGHT (LBS) AH / HP	ACCESSORIES
			TYPE	AIRFLOW RATE	TOTAL COOLING...	SENSIBLE COOLING...	HP HEAT (MBH)				
PAH - 1 / PHP - 1	FTXR18TVJUW(S) / 4MXS36NMVJU	PATIO	C	208 - 350	36.0	36.0	36.0	17.7	12.2	27 / 139	1 THRU 7
PAH - 2 / PHP - 1	FTXR18TVJUW(S) / 4MXS36NMVJU	PATIO	C	208 - 350	36.0	36.0	36.0	17.7	12.2	27 / 139	-

NOTES (APPLY TO...)
A. COOLING CAPACITIES ARE BASED ON AN INDOOR EAT OF 80° F DB / 67° F WB AND 95° F AMBIENT AND A PROJECT ELEVATION OF 33'-0".
B. HEAT PUMP HEATING CAPACITY BASED ON AN INDOOR EAT OF 70° F DB AND 18° F ENTERING OUTDOOR UNIT.
C. 14 SEER MINIMUM UNITS WITH R-410A, MINIMUM 9.2 HSPF. SUBMIT AHR CERTIFIED CAPACITIES FOR ACTUAL EQUIPMENT TO BE INSTALLED.
D. REFER TO HVAC GENERAL NOTES AND DETAILS F FOR ADDITIONAL INFORMATION.
E. INDOOR AND OUTDOOR UNITS SHALL BE INSTALLED PER PLANS, MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODE REQUIREMENTS.
F. DISCONNECT SWITCH FOR OUTDOOR UNIT FURNISHED BY DIV 23, INSTALLED BY DIV 26.
G. UNITS SHALL BE EQUIPPED WITH AN INTERNAL CONDENSATE TRAP OR CHECK VALVE.

ACCESSORIES (THIS LIST IS NOT ALL INCLUSIVE. IN ADDITION, PROVIDE MANUFACTURER RECOMMEND ACCESSORIES FOR SAFE AND PROPER OPERATION):
1. WIRED WALL MOUNT UNIT CONTROLLER
2. CONDENSATE PUMP AND SAFETY SWITCH
3. COMPRESSOR ANTI-RECYCLE CONTROLS
4. FILTER / DRYER PER MANUFACTURER'S RECOMMENDATIONS
5. REFRIGERANT LINE SET (VERIFY LENGTH)
6. LOW AMBIENT WIND BAFFLE
7. PROVIDE RAILS FOR MOUNTING.

SELECTIONS BASED ON PRODUCTS BY: MITSUBISHI

FANS														
TAG	MANUF.	MODEL	TYPE	DUTY	CFM	SP (IN WC)	MAX. MOTOR SIZE	RPM	DRIVE	MAX. SONES	APPROX. WEIGHT (LBS)	CONTROLLED BY	EMERGENCY POWER	ACCESSORIES/REMARKS
EF - 1	GREENHECK	G-085	RCD	RESTROOM	450	0.25	120	1550	D	7.4	19.0	CD	NO	1, 3, 13, 15

NOTES:
A. SELECTIONS ARE BASED ON A PROJECT ELEVATION OF 33'-0". CFM HAS BEEN CORRECTED FOR ALTITUDE.
B. GREASE REMOVAL FANS SHALL BE LISTED FOR GREASE REMOVAL (UL 762) AND ELECTRICAL (UL 705)
C. REFER TO DETAILS FOR ADDITIONAL OPTIONS, ACCESSORIES, MOUNTING ARRANGEMENT, ETC.
D. FOR FANS THAT ARE PART OF A SMOKE MANAGEMENT SYSTEM, REFER TO THE SMOKE CONTROL FAN SCHEDULE
E. WEIGHTS INCLUDE ACCESSORIES, CURBS, MOTORS, ETC.
F. FANS THAT ARE SCHEDULED TO RUN CONTINUOUSLY SHALL HAVE IEC 60034-1 CONTINUOUS DUTY RATED MOTORS.
G. FANS THAT ARE INTERCONNECTED WITH LIGHTING CONTROLS (E.G. LIGHT SWITCH) MAY NOT BE THE SAME VOLTAGE AS THE LIGHTING CIRCUIT. COORDINATE WITH THE ELECTRICAL CONTRACTOR AND PROVIDE RELAYS/CONTROLS AS REQUIRED.
H. REFER TO AIR HANDLING UNIT SCHEDULE FOR OA CFM AND BALANCE ACCORDINGLY.
I. FANS SHALL BE CERTIFIED AND BEAR THE HVI-2100 OR AMCA LABEL FOR AIR AND SOUND PERFORMANCE.
J. MOTORS CONTROLLED BY A VARIABLE FREQUENCY DRIVE (VFD) SHALL BE INVERTER DUTY MOTORS AND SHALL BE COMPATIBLE WITH THE PARTICULAR MANUFACTURER'S DRIVE THAT IS USED. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

FAN TYPES:
CC - CEILING CENTRIFUGAL
CAB - IN LINE CABINET
RCD - ROOF CENTRIFUGAL DOWNBLAST
RCU - ROOF CENTRIFUGAL UPBLAST

DRIVE:
D - DIRECT
B - BELT

FAN CONTROL NOTES:
CA - WALL SWITCH - REFER TO ELECTRICAL DWGS.
CB - WALL MOUNTED THERMOSTAT
CS - OCCUPANCY SENSOR - REFER TO ELECTRICAL DWGS.
CD - INTERLOCK WITH BAS/TIMECLOCK

ACCESSORIES:
1. GRAVITY BACKDRAFT DAMPER
2. FACTORY MOUNTED DISCONNECT SWITCH
3. MINIMUM 1/4" HIGH INSULATED ROOF CURB
4. BIRD SCREEN
5. SPEED CONTROLLER
6. ENERGY STAR

UNLESS NOTED OTHERWISE, SELECTIONS ARE BASED ON PRODUCTS BY GREENHECK.
EQUAL PRODUCTS: PENNBARRY, CARNES, COOK, ACME PROVIDED THE PRODUCTS MEET OR EXCEED THE SCHEDULED PERFORMANCE AND SPECIFICATIONS.

SEQUENCE OF OPERATION: RTU (ELEC/GAS)	
GAS HEATING / ELECTRIC COOLING ROOFTOP UNIT SEQUENCE OF OPERATION:	
DAY CYCLE - COOLING:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE COMPRESSORS TO MAINTAIN ROOM SET TEMPERATURE.
DAY CYCLE - HEATING:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE GAS HEATER TO ACHIEVE ROOM TEMPERATURE SETPOINT.
DAY CYCLE - DEHUMIDIFICATION:	
1.	SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.
2.	RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3.	HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY.
MORNING WARM-UP CYCLE:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE RTU TO REACH ROOM TEMPERATURE SET POINT.
3.	WHEN SET TEMPERATURE IS REACHED, COOLING OR HEATING CYCLE SHALL COMMENCE.
NIGHT SETBACK:	
1.	ALL KITCHEN HOODS AND EXHAUST FANS SHALL BE DE-ENERGIZED.
2.	THERMOSTAT SHALL CYCLE EITHER COOLING OR HEATING AND SUPPLY AIR FAN TO MAINTAIN ROOM SET POINT TEMPERATURE.
SMOKE DETECTOR:	
1.	WHEN SMOKE DETECTOR IS ACTIVATED, SUPPLY AIR FAN SHALL SHUTDOWN.
2.	FIRE ALARM SHALL BE SIGNALLED.
3.	SUPPLY AIR FAN SHALL BE MANUALLY RESET.

SEQUENCE OF OPERATION: DOAS (ELEC/GAS)	
GAS HEATING / ELECTRIC COOLING ROOFTOP UNIT SEQUENCE OF OPERATION:	
DAY CYCLE - COOLING:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE COMPRESSORS TO MAINTAIN ROOM SET TEMPERATURE.
DAY CYCLE - HEATING:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE GAS HEATER TO ACHIEVE ROOM TEMPERATURE SETPOINT.
DAY CYCLE - DEHUMIDIFICATION:	
1.	SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.
2.	RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3.	HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY.
MORNING WARM-UP CYCLE:	
1.	SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2.	THERMOSTAT SHALL CYCLE RTU TO REACH ROOM TEMPERATURE SET POINT.
3.	WHEN SET TEMPERATURE IS REACHED, COOLING OR HEATING CYCLE SHALL COMMENCE.
NIGHT SETBACK:	
1.	ALL KITCHEN HOODS AND EXHAUST FANS SHALL BE DE-ENERGIZED.
2.	THERMOSTAT SHALL CYCLE EITHER COOLING OR HEATING AND SUPPLY AIR FAN TO MAINTAIN ROOM SET POINT TEMPERATURE.
SMOKE DETECTOR:	
1.	WHEN SMOKE DETECTOR IS ACTIVATED, SUPPLY AIR FAN SHALL SHUTDOWN.
2.	FIRE ALARM SHALL BE SIGNALLED.
3.	SUPPLY AIR FAN SHALL BE MANUALLY RESET.

ROOFTOP UNITS (GAS HEAT)																									
TAG	MANUF.	EQUIP. SERIES	AREA SERVED	SYSTEM TYPE	SUPPLY FAN			NET COOLING				HEATING			FILTERS	ACCESSORIES									
					AIRFLOW (CFM) TOTAL	OUTSIDE AIR MIN	MAX	EAT... MOTOR HP	ESP (IN WC)	CAPACITY (MBH) NOM TONS	TOT	SENS	DB	WB			EER/IEER	EER	CAPACITY MAX INPUT	MIN OUTPUT	EAT (°F)	EFFICIENCY %	AJUE	STAGES	MERV RATING
RTU-1	TRANE	YSC092F3	BAR / DINING	CV	3,000	-	-	3.75	1.00	7.5	94.0	89.0	80.0	67.0	13.0	11.3	150.0 / 105.0	120.0 / 84.0	-	80.0	-	2	8.0	797.0	ALL (EXCLUDE 9)
RTU-2	TRANE	YSC092F3	DINING	CV	3,000	-	-	3.75	1.00	7.5	94.0	89.0	80.0	67.0	13.0	11.3	150.0 / 105.0	120.0 / 84.0	-	80.0	-	2	8.0	797.0	ALL

NOTES (APPLY TO ALL UNITS):
A. SCHEDULED COOLING CAPACITY IS BASED ON THE FOLLOWING OUTDOOR AMBIENT TEMPERATURE: 95° F D.B.
B. REFRIGERANT SHALL BE R-410A.
C. ALL RTUS WITH CAPACITIES 7.5 TONS AND HIGHER SHALL BE PROVIDED WITH MULTIPLE COMPRESSORS AND A MINIMUM OF 2 INDEPENDENT REFRIGERANT CIRCUITS.
D. RETURN AND OUTSIDE AIR DAMPERS SHALL BE CLASS 1 LOW-LEAKAGE TYPE.
E. PROVIDE CRANKCASE HEATERS ON ALL UNITS 6 TONS AND LARGER.
F. RTUS SHALL BE PROVIDED WITH 2' PLEATED DISPOSABLE FILTERS, CONDENSATE OVERFLOW SWITCH IN PRIMARY DRAIN PAN, MOTORIZED OUTSIDE AIR DAMPER, HP REVERSING VALVE, SUCTION LINE ACCUMULATOR, DEFROST CYCLE CONTROL, S. ELECTRIC RESISTANCE HEATER, COMPRESSOR ANTI-RECYCLE CONTROL, SINGLE POINT POWER CONNECTION, COILING OPERATION DOWN TO 49° F, 14" HIGH INSULATED ROOF CURB WITH BASE SLOPED TO MATCH ROOF PITCH.
G. VARIABLE FLOW FAN SYSTEMS SHALL BE PROVIDED WITH VARIABLE SPEED DRIVE, INDOOR FAN MOTOR SHAFT GROUNDING RING, AND AIR FLOW MEASURING DEVICE TO MONITOR AND CONTROL OUTSIDE AIR VOLUME.

ACCESSORIES: (THIS LIST IS NOT ALL INCLUSIVE. IN ADDITION, PROVIDE MANUFACTURER RECOMMEND ACCESSORIES FOR SAFE AND PROPER OPERATION):
1. 7-DAY PROGRAMMABLE THERMOSTAT WITH FAN-ON-AUTO CONTROL AND AUTO HEATING-COOLING CHANGEOVER (EQUAL TO TRANE XR402)
2. LOCKING THERMOSTAT COVER
3. UNIT MOUNTED FACTORY DISCONNECT
4. SMOKE DETECTORS: MOUNT IN RETURN AIRSTREAM - ACTIVATION OD DUCT SMOKE ALARM DETECTOR SHALL INITIATE A VISIBLE AND AUDIBLE SUPERVISORY ALARM SIGNAL LOCATED AT CONSTANTLY ATTENDED LOCATION.
5. GFCI 15 AMP CONVENIENCE OUTLET POWERED ON LINE SIDE OF DISCONNECT
6. PHASE MONITORING PROTECTION
7. 2-STAGE COOLING AND 2 COMPRESSORS
8. BELT DRIVE, PLENUM FAN
9. PROVIDE WITH IONIZATION DEVICE, EQUAL TO GLOBAL PLASMA DEVICE.
10. INTEGRATED FIXED DRY BULB TYPE ECONOMIZER, SIZED FOR 100% SUPPLY AIR CAPACITY, CAPABLE OF SIMULTANEOUS ECONOMIZER AND COMPRESSOR OPERATION, WITH BAROMETRIC RELIEF, UNLESS SPECIFIED WITH POWER EXHAUST.
11. CONDENSER COIL, HALL GUARDS
12. MANUFACTURER STARTUP
13. CONDENSATE OVERFLOW PROTECTION VIA FLOAT SWITCH IN DRAIN PAN TO SHUT DOWN UNIT
14. ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD)

GRILLES, REGISTERS & DIFFUSERS										
TAG	SERIES	CFM	DUTY	NECK SIZE	FACE SIZE	DAMPER	MATERIAL	TYPE	NOTES / ACCESSORIES	
A	SPD	SEE DWGS	SUPPLY	SEE DWGS	24" x 24"	YES	ALUMINUM	SQUARE PLAQUE FACE CEILING DIFFUSER	1, 2, 6	
B	SPD	SEE DWGS	RETURN / TRANSFER	SEE DWGS	24" x 24"	YES	ALUMINUM	SQUARE PLAQUE FACE RETURN DIFFUSER	1, 2, 6	
C	SPD	SEE DWGS	EXHAUST	SEE DWGS	24" x 24"	YES	ALUMINUM	SQUARE PLAQUE FACE RETURN DIFFUSER	1, 2, 6	
D	SDGE	SEE DWGS	SUPPLY	SEE DWGS	SEE DWGS	YES	ALUMINUM	SPIRAL DUCT SUPPLY GRILLE	1, 2, 6	
E	PPRF	SEE DWGS	RETURN	SEE DWGS	24" x 24"	YES	ALUMINUM	PERFORATED FACE RETURN MODULE	1, 2, 6	
F	SDS	SEE DWGS	SUPPLY	SEE DWGS	4'-0"	YES	ALUMINUM	4'-0" LINEAR SLOT - 1" SLOTS (2)	1, 2, 3, 6	
G	PPRF	SEE DWGS	SUPPLY	SEE DWGS	24" x 24"	YES	ALUMINUM	PERFORATED SUPPLY GRILLE	1, 2, 6, 7	

NOTES (APPLY TO ALL DEVICES UNO):
A. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE OF CEILING, SUSPENSION SYSTEM AND FINISHES WHERE DEVICE WILL BE MOUNTED. FRAME AND BORDER TYPE SHALL BE COMPATIBLE WITH ADJACENT SURFACES AND FINISHES.
B. FINISH SHALL BE MANUFACTURER'S STANDARD. REFER TO ACCESSORIES/NOTES FOR CUSTOM FINISHES. IF ANY, SUBMIT COLOR CHART WITH SHOP DRAWINGS.
C. WHEN A DAMPER IS CALLED FOR ABOVE AND THE DEVICE IS TO BE MOUNTED IN AN INACCESSIBLE CEILING, EITHER A FACE ADJUSTABLE OR REMOTE CABLE OPERATED BALANCING DAMPER SHALL BE INCLUDED.
D. FOR DRYWALL OR PLASTER CEILING INSTALLATION, PROVIDE PLASTER FRAME.

ACCESSORIES:
1. MOLDED INSULATION (R-6) BLANKET ON BACK PAN
2. BALANCING DAMPER IN INLET
3. MANUFACTURER'S STANDARD INSULATED PLENUM
4. RETURN HOOD/LIGHT SHIELD ON RA SLOTS
5. INSECT SCREEN (1/16" SQUARE MESH)
6. MATCH FINISH TO CEILING COLOR AND COORDINATE WITH ARCHITECT.
7. PERFORATED SUPPLY DIFFUSER WITHOUT AIR PATTERN CONTROLLER (RETURN GRILLE)

SELECTIONS ARE BASED ON PRODUCTS BY: PRICE
EQUAL PRODUCTS: METALAIR

ELECTRIC HEATERS								
TAG	SERIES	TYPE	MOUNTING	BTUH HI / LO	CAPACITY (KW)	MOUNTING HEIGHT AFF	APPROX. WEIGHT (lbs)	ACCESSORIES
EWH - 1	MCCSAR4008	WALL HEATER	RECESSED	13,648 / 6,824	4.0 / 2.0	12"	25	1, 2, 3
EWH - 2	CWH34083F	WALL HEATER	SURFACE	13,640	4.0	12"	25	1, 2, 5, 8

NOTES (APPLY TO ALL HEATERS):
A. ALL HEATERS SHALL BE UL OR ETL TESTED AND LISTED.
B. CAPACITY SCHEDULED IS AT INSTALLED VOLTAGE. COORDINATE WITH ELECTRICAL DWGS.
C. ALL HEATERS SHALL HAVE THERMAL OVERLOAD PROTECTION.
D. STAIRWELL AND SPRINKLER RISER ROOM HEATERS - THERMOSTAT SETPOINT SHALL BE 45°F.

ACCESSORIES:
1. INTEGRAL TAMPERPROOF THERMOSTAT
2. INTEGRAL DISCONNECT SWITCH
3. SURFACE MOUNTING KIT
4. SEMI-RECESS MOUNTING KIT
5. UNIVERSAL WALL/CEILING MOUNTING BRACKET
6. COMPLETE INSTALLATION TO INCLUDE ALL SPLICES, END CAPS, MOUNTING HARDWARE, ETC.

SELECTIONS BASED ON PRODUCTS BY: RAYWALL
EQUAL PRODUCTS BY: MARKEL, BERKO, QMARK, INDEECO

Natural Ventilation Chart					
ROOM	ROOM AREA SQ. FT.	OPERABLE OPENING SQ. FT. REQUIRED BY CODE (0.4% SQ. FT.)	WINDOW OPEN AREA SQ. FT.	DOOR OPEN AREA SQ. FT.	ACTUAL OPERABLE OPENING SQ. FT.
Patio - 21	530.00	21.20	336.0	48.0	384.0

Ventilation Sizing Summary for Dining		
Project Name:	Firebirds - Birkdale	04/13/2020
Prepared by:	Jordan & Skala Engineers	07:21AM

1. Summary
Ventilation Sizing Method _____ ASHRAE Std 62.1-2013
Design Condition _____ Heating operation
Occupant Diversity (D) _____ 1.000
Uncorrected Outdoor Air Intake (You) _____ 2173 CFM
System Ventilation Efficiency (Ev) _____ 0.694
Outdoor Air Intake (Vot) _____ 3130 CFM

Zone Name / Space Name	Mult	Supply Air (CFM) (Vpz)	Space Floor Area (Sq Ft) (A _f)	Area Outdoor Air Rate (CFM/Sq Ft) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
Zone 1										
01 - Bar Area	1	1310	458.0	0.18	40.0	7.50	0.8	478	382	0.997
01 - Dining	1	2507	1900.0	0.18	133.0	7.50	0.8	1674	1340	0.694
02 - Hostess	1	137	86.0	0.18	7.0	7.50	0.8	85	68	0.740
07 - Secondary Dining	1	929	464.0	0.18	33.0	7.50	0.8	414	331	0.817
08 - Beverage	1	657	112.0	0.06	4.0	5.00	0.8	33	27	1.311
13 - Women	1	46	128.0	0.00	0.0	0.00	0.8	0	0	1.362
25 - Mech. Room	1	27	78.0	0.00	0.0	0.00	0.8	0	0	1.362
26 - Main	1	49	116.0	0.00	0.0	0.00	0.8	0	0	1.362
27 - Vestibule	1	337	88.0	0.06	4.0	5.00	0.8	32	25	1.288
Totals (incl. Space Multipliers)		6000							2173	0.694

THERMOSTAT SCHEDULE					
MARK	SERVICE & LOCATION	OCCUPIED		UNOCCUPIED	
		COOLING	HEATING	COOLING	HEATING
DOAS-1	DINING ROOM	75° F	68° F	78° F	60° F
DOAS-2	KITCHEN	72° F	70° F	78° F	60° F
RTU-1	BAR / DINING ROOM	72° F	70° F	78° F	60° F
RTU-2	LOBBY / DINING ROOM	78° F	68° F	78° F	60° F
MAU-3	KITCHEN HOOD #4	78° F	68° F	-	-
MAU-6	KITCHEN HOOD #1 & #2	78° F	68° F	-	-
PAH-1	ENCLOSED PATIO	78° F	68° F	78° F	60° F
PAH-2	ENCLOSED PATIO	78° F	68° F	78° F	60° F

NOTES:
1. CONTRACTOR SHALL COORDINATE EXACT OPERATIONAL TIMES WITH OWNER / MANAGER PRIOR TO PROGRAMMING THERMOSTATS.
2. CONTRACTOR SHALL COORDINATE RESTROOM EXHAUST FAN TIMER WITH THERMOSTAT SCHEDULE.
3. CONTRACTOR MUST VERIFY THAT HUMIDITY CONTROLS AND SENSORS FUNCTIONS PER MANUFACTURERS SPECIFICATIONS, SET TO 60% R.H. IN THE SPACE SERVED.

HVAC RESPONSIBILITY SCHEDULE			
MARK	PROVIDER	INSTALLER	NOTES
RTU - 1 and 2	OWNER	MECH. CONTRACTOR	
CAPTIVE AIRE EQUIPMENT	OWNER	MECH. CONTRACTOR	
PATIO MINI-SPLIT HEAT PUMPS	MECH. CONTRACTOR	MECH. CONTRACTOR	
ELECTRIC WALL HEATERS	MECH. CONTRACTOR	MECH. CONTRACTOR	
EF - 1	MECH. CONTRACTOR	MECH. CONTRACTOR	
EXPOSED SPIRAL DUCT	OWNER	MECH. CONTRACTOR	1
DIFFUSERS / GRILLES	OWNER	MECH. CONTRACTOR	
RFERIG. WORK (COOLER/FREEZER/ICE MACHINE)	-	-	2
GREASE DUCT LEAK TEST	-	-	2
TEST AND BALANCE	-	-	3
SMOKE DETECTORS	OWNER	RTU MANUFACTURER	
THERMOSTAT / SENSORS / HUMIDISTAT	OWNER	MECH. CONTRACTOR	
WIRING & PROGRAMMING T-STAT/H-STAT CONTROLS	MECH. CONTRACTOR	MECH. CONTRACTOR	
UNIT START-UP	MECH. CONTRACTOR	MECH. CONTRACTOR	
TRAINING FOR HVAC UNIT OPERATIONS	MECH. CONTRACTOR	-	
FILTERS CHANGED PRIOR TO STORE OPENING	MECH. CONTRACTOR	MECH. CONTRACTOR	

MECHANICAL ITEMS NOT COVERED IN THE ABOVE SCHEDULE SHALL BE PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR, UNLESS NOTED OTHERWISE.

NOTES:
1. DOES NOT APPLY TO DUCTWORK IN KITCHEN, RESTROOMS AND ENTRY VESTIBULE.
2. CONTRACTED SEPARATELY BY OWNER.
3. MECHANICAL SUB. AND ELEC. SUB. REQUIRED TO BE ON SITE WHILE RTU / FAN BALANCE COMPLETED BY McNAMARA AND THE T & B ON THE EXHAUST HOODS BY CAPTIVE AIRE.

KITCHEN AIR BALANCE			
EXHAUST FROM KITCHEN	CFM	MAKE-UP AIR TO KITCHEN	CFM
KEF - 1	1750	MAU - 3	2802
KEF - 2	2560	MAU - 6	1935
KEF - 4	3267	DOAS - 2	4400
		TRANSFER AIR FROM DINING ROOM	1490
KEF - 5	2250		
KEF - 7	800		
TOTAL EXHAUST:	10627	TOTAL MAKE-UP AIR:	10627

KITCHEN MINIMUM EXHAUST PER IMC TABLE 403.3:
1775 SF x 0.7 CFM/SF = 1245 CFM

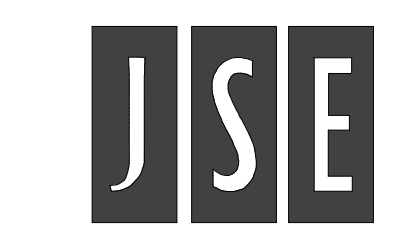
FIREBIRDS
FIREBIRDS
BIRKDALE

16641 BIRKDALE COMMONS PKWY
SUITE B-200
HUNTERSVILLE, NC 28078



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Project Number: 2020096
Drawn By: Author Checked By: Checker

CONSTRUCTION DOCUMENTS
12/04/2020

No.	Description	Date

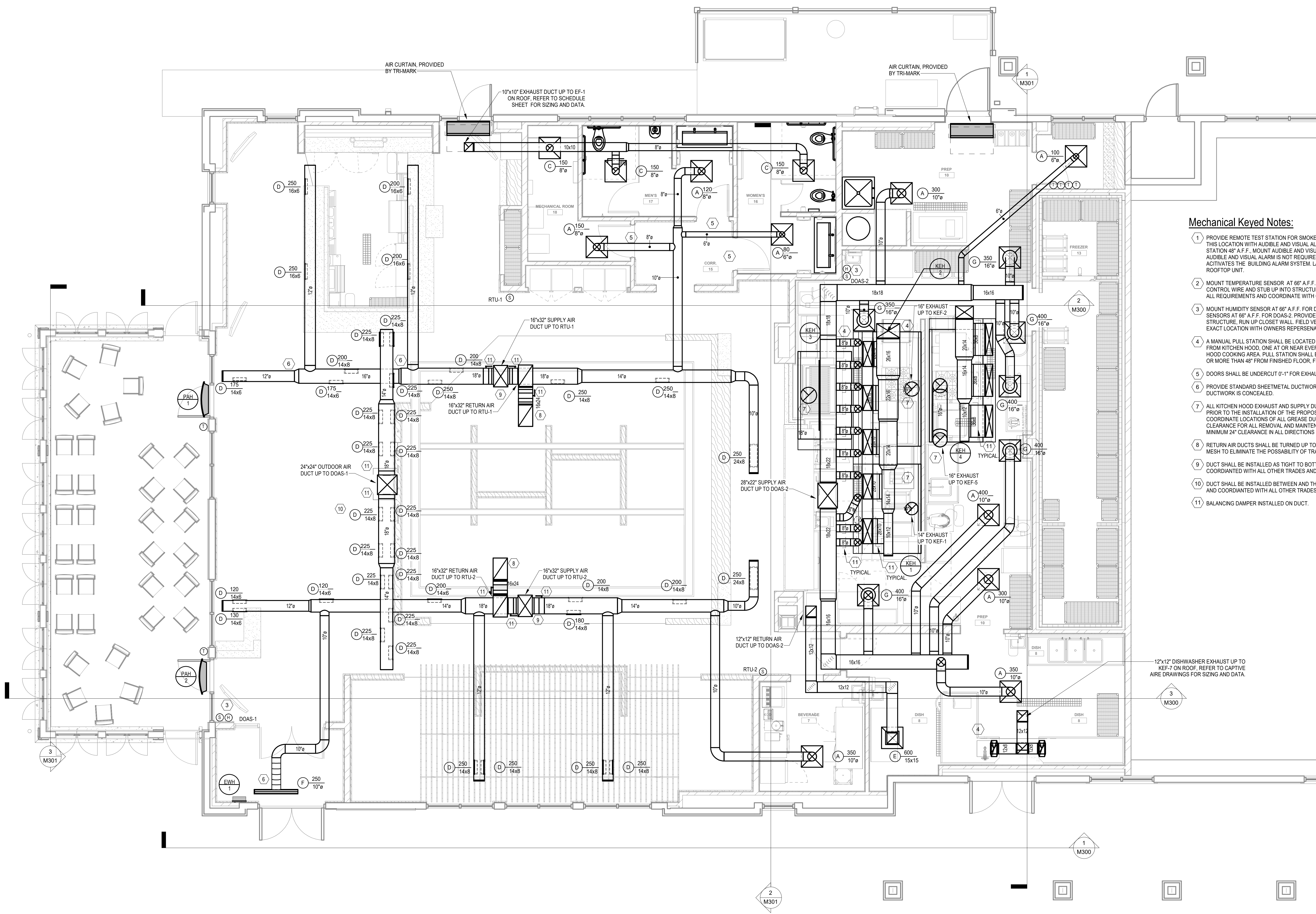


MECHANICAL SCHEDULES
M102

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Mechanical Keyed Notes:

- 1 PROVIDE REMOTE TEST STATION FOR SMOKE DETECTORS FOR ALL ROOFTOP UNITS IN THIS LOCATION WITH AUDIBLE AND VISUAL ALARM WITH KEYS. MOUNT TEST STATION 48" A.F.F. MOUNT AUDIBLE AND VISUAL IN A CONSTANTLY ATTENDED LOCATION. AUDIBLE AND VISUAL ALARM IS NOT REQUIRED WHERE SMOKE DETECTOR DETECTORS ACTIVATES THE BUILDING ALARM SYSTEM. LABEL EACH REMOTE WITH ASSOCIATED ROOFTOP UNIT.
- 2 MOUNT TEMPERATURE SENSOR AT 60" A.F.F. FOR RTU-1 & 2. PROVIDE CONDUIT FOR CONTROL WIRE AND STUB UP INTO STRUCTURE. RUN UP IN CLOSET WALL. FIELD VERIFY ALL REQUIREMENTS AND COORDINATE WITH OWNERS REPRESENTATIVE.
- 3 MOUNT HUMIDITY SENSOR AT 60" A.F.F. FOR DOAS-1. MOUNT HUMIDITY AND TEMPERATURE SENSORS AT 60" A.F.F. FOR DOAS-2. PROVIDE CONDUIT AND CONTROL AND STUB UP INTO STRUCTURE. RUN UP CLOSET WALL. FIELD VERIFY ALL REQUIREMENTS AND COORDINATE EXACT LOCATION WITH OWNERS REPRESENTATIVE.
- 4 A MANUAL PULL STATION SHALL BE LOCATED WITHIN 10'-0" MINIMUM AND 20'-0" MAXIMUM FROM KITCHEN HOOD. ONE AT OR NEAR EVERY POINT OF EGRESS FROM THE KITCHEN HOOD COOKING AREA. PULL STATION SHALL BE SECURELY MOUNTED NOT LESS THAN 42" OR MORE THAN 48" FROM FINISHED FLOOR. FIELD VERIFY EXACT LOCATIONS.
- 5 DOORS SHALL BE UNDERCUT 0'-1" FOR EXHAUST AIR FLOW.
- 6 PROVIDE STANDARD SHEETMETAL DUCTWORK IN AREAS THAT ARE NOT EXPOSED AND DUCTWORK IS CONCEALED.
- 7 ALL KITCHEN HOOD EXHAUST AND SUPPLY DUCTS SHALL BE INSPECTED AND TESTED PRIOR TO THE INSTALLATION OF THE PROPOSED FIRE MASTER FAST WRAP. VERIFY AND COORDINATE LOCATIONS OF ALL GREASE DUCT CLEANOUTS AND PROVIDE ADEQUATE CLEARANCE FOR ALL REMOVAL AND MAINTENANCE FROM ALL TRADES. MAINTAIN A MINIMUM 24" CLEARANCE IN ALL DIRECTIONS OF GREASE DUCT CLEANOUT OPENINGS.
- 8 RETURN AIR DUCTS SHALL BE TURNED UP TOWARD ROOF DECK AND COVERED WITH WIRE MESH TO ELIMINATE THE POSSIBILITY OF TRASH BEING DRAWN INTO THE ROOFTOP UNIT. COORDINATED WITH ALL OTHER TRADES AND DISCIPLINES.
- 9 DUCT SHALL BE INSTALLED AS TIGHT TO BOTTOM OF TRUSSES AS POSSIBLE AND COORDINATED WITH ALL OTHER TRADES AND DISCIPLINES.
- 10 DUCT SHALL BE INSTALLED BETWEEN AND THROUGH TRUSSES, AND AS HIGH AS POSSIBLE AND COORDINATED WITH ALL OTHER TRADES AND DISCIPLINES.
- 11 BALANCING DAMPER INSTALLED ON DUCT.



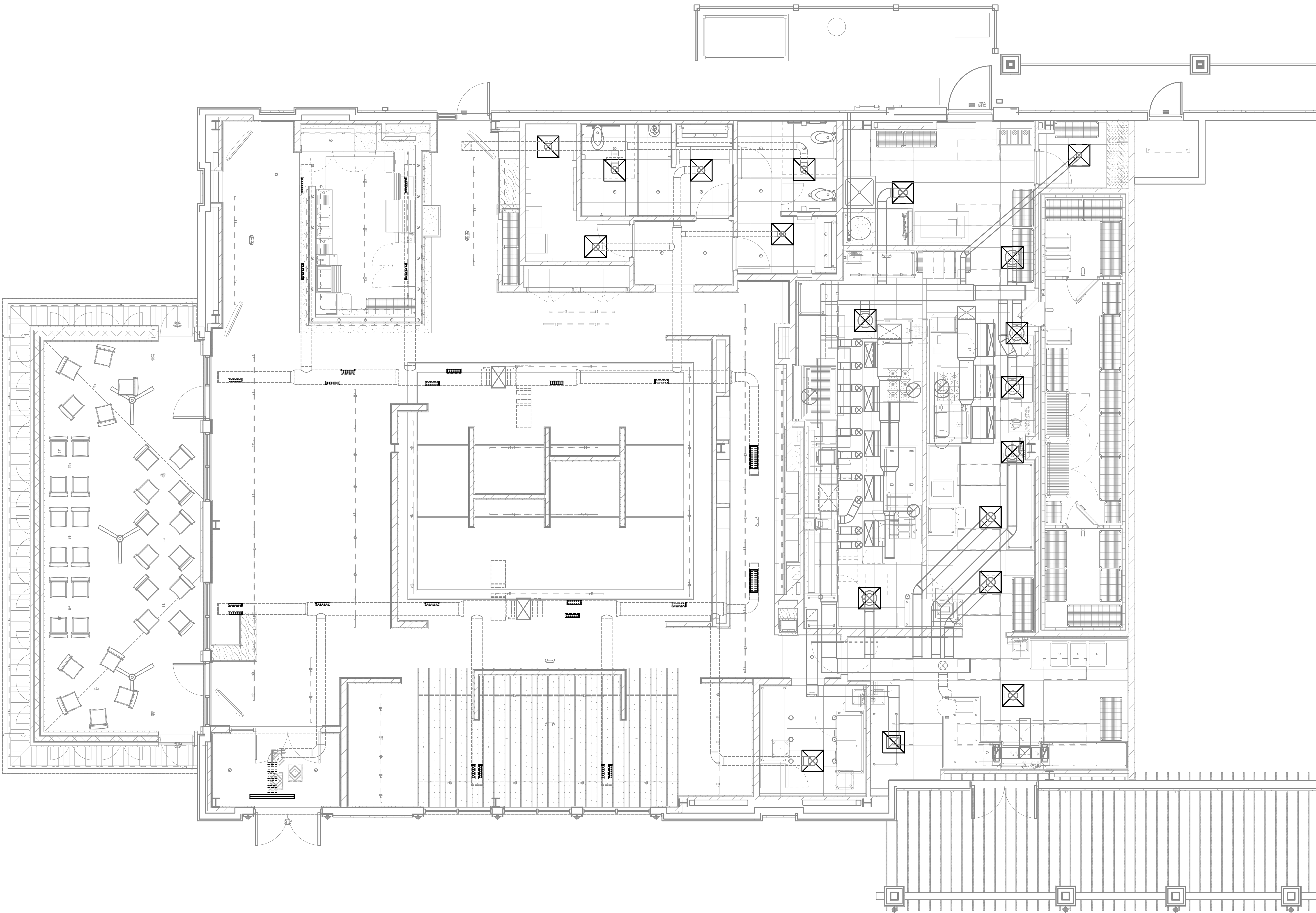
1 MECHANICAL FLOOR PLAN
Scale: 1/4" = 1'-0"

**CONSTRUCTION
DOCUMENTS**
12/04/2020

No.	Description	Date



MECHANICAL
LEVEL 1 FLOOR
PLAN
M200
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1 MECHANICAL REFLECTED CEILING PLAN
 Scale: 1/4" = 1'-0"
 0 4 8 16

FIREBIRDS
 FIREBIRDS
 BIRKDALE

16641 BIRKDALE COMMONS PKWY
 SUITE B-200
 HUNTERSVILLE, NC 28078

project address | name

FIREBIRDS
 WOOD FIRED GRILL

client

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Project Number: 2020096
 Drawn By: Author Checked By: Checker

designers

CONSTRUCTION
 DOCUMENTS
 12/04/2020

job status

No.	Description	Date

revisions



seal

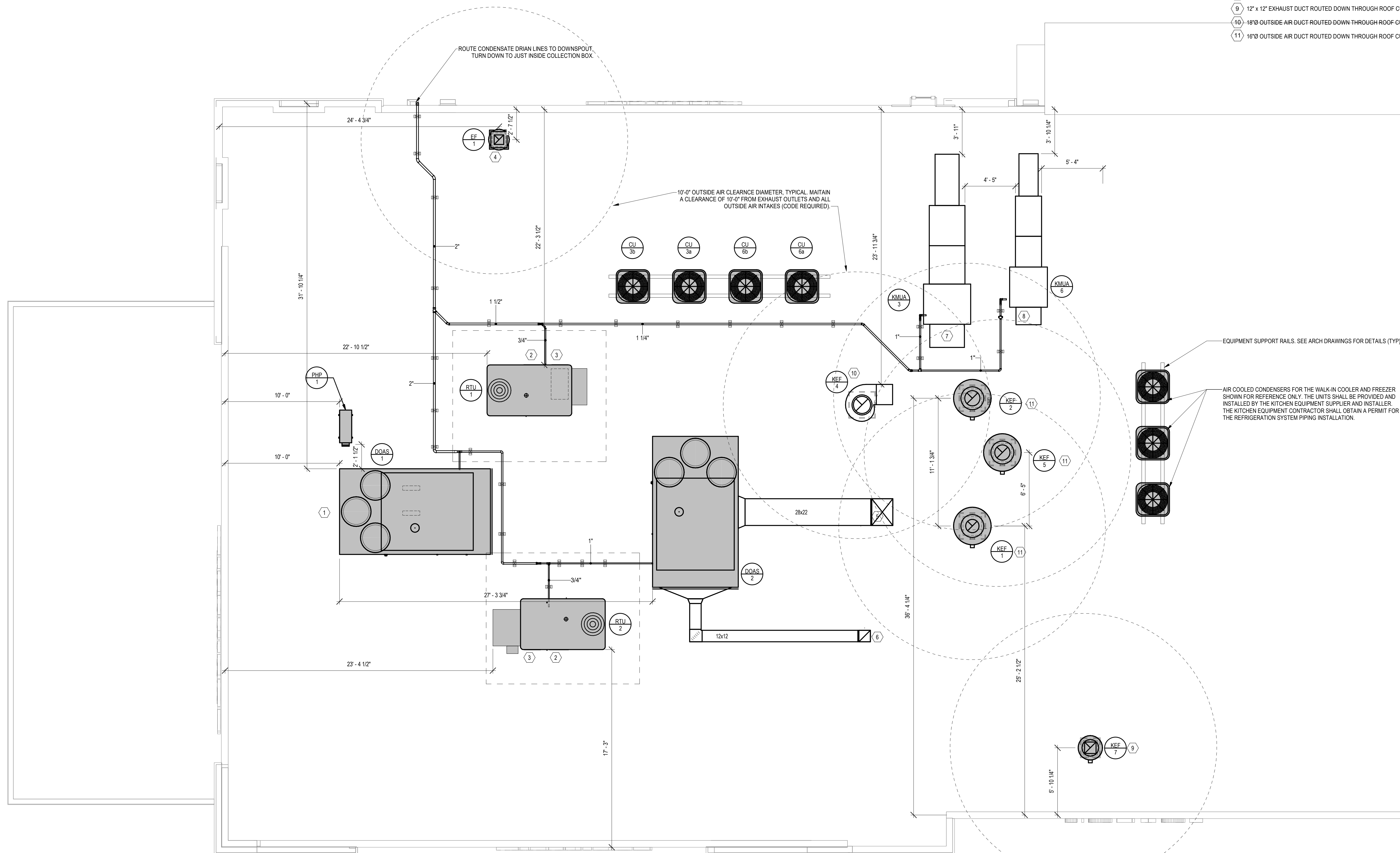
MECHANICAL
 REFLECTED
 CEILING PLAN
M201

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sheet number | title

Mechanical Keyed Notes:

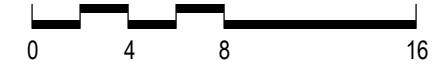
- 1) 22" x 22" OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 2) 16" x 24" SUPPLY AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 3) 16" x 24" RETURN AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 4) 10" x 10" EXHAUST DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 5) 28" x 22" OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 6) 16" x 14" EXHAUST DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 7) 26" x 10" OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 8) 20" x 14" OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 9) 12" x 12" EXHAUST DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 10) 18" Ø OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.
- 11) 16" Ø OUTSIDE AIR DUCT ROUTED DOWN THROUGH ROOF CURB TO LEVEL BELOW.



EQUIPMENT SUPPORT RAILS. SEE ARCH DRAWINGS FOR DETAILS (TYP)

AIR COOLED CONDENSERS FOR THE WALK-IN COOLER AND FREEZER SHOWN FOR REFERENCE ONLY. THE UNITS SHALL BE PROVIDED AND INSTALLED BY THE KITCHEN EQUIPMENT SUPPLIER AND INSTALLER. THE KITCHEN EQUIPMENT CONTRACTOR SHALL OBTAIN A PERMIT FOR THE REFRIGERATION SYSTEM PIPING INSTALLATION.

1 MECHANICAL ROOF PLAN
Scale: 1/4" = 1'-0"

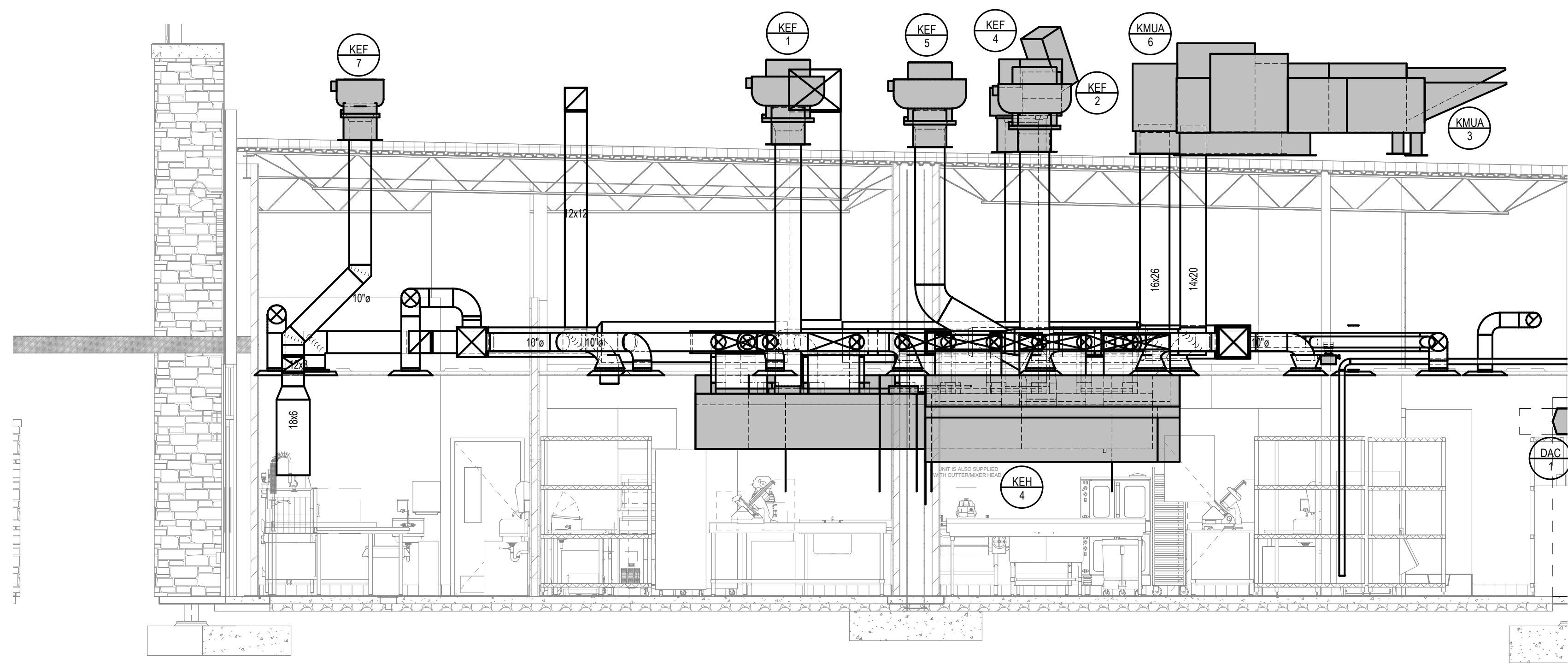


CONSTRUCTION
DOCUMENTS
12/04/2020

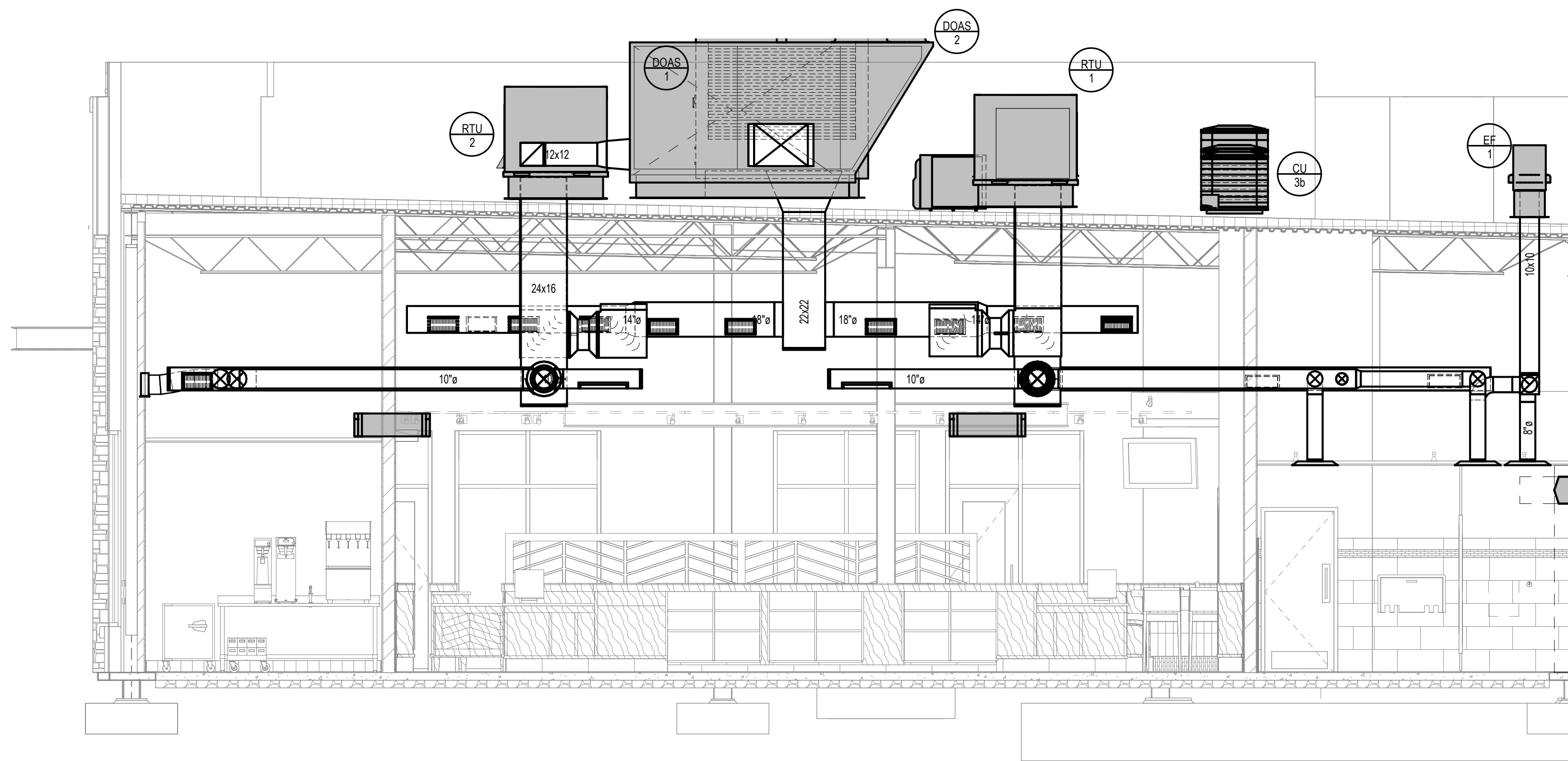
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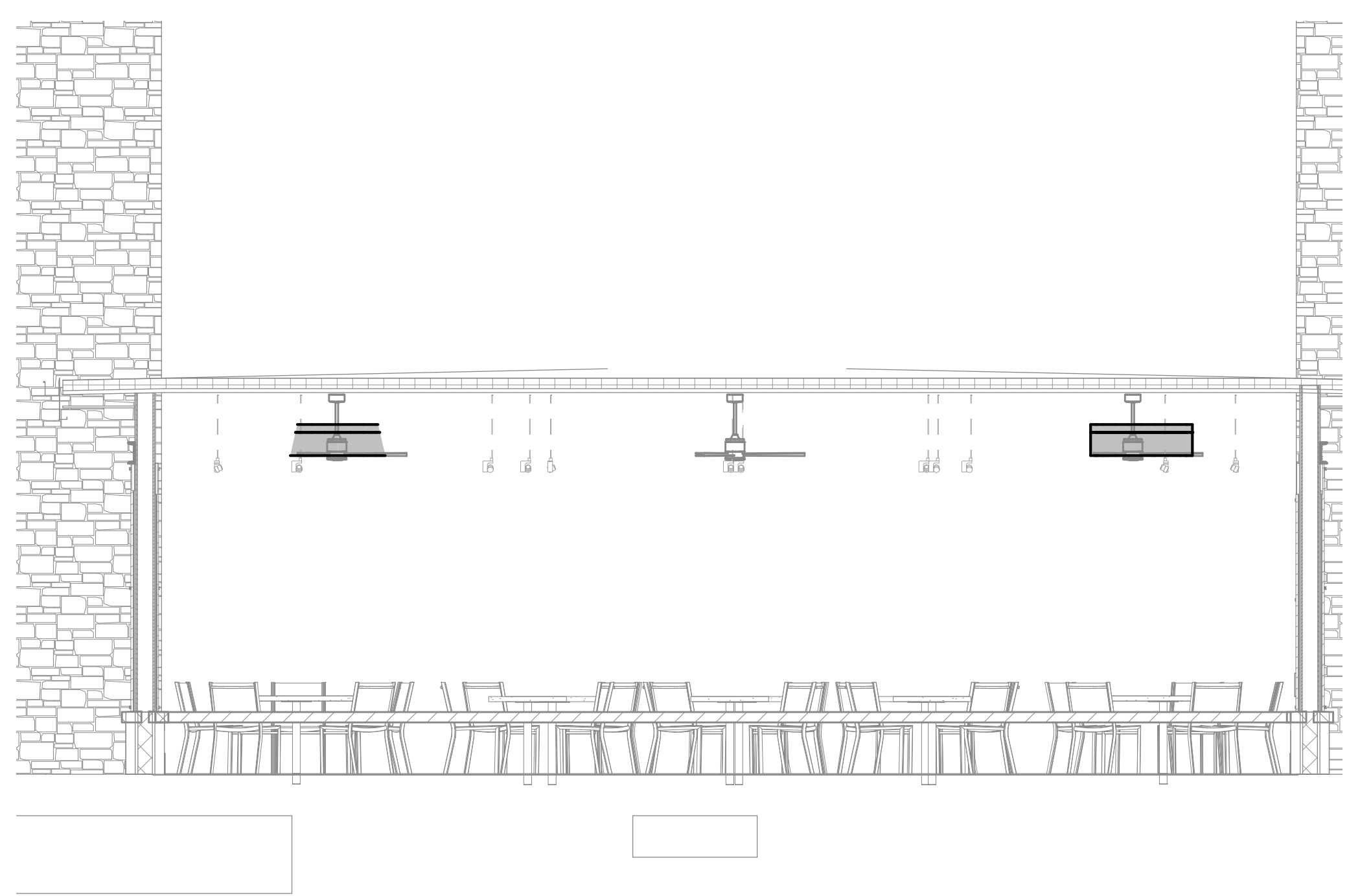
MECHANICAL
ROOF PLAN
M202



1 Section at Kitchen
 Scale: 1/4" = 1'-0"
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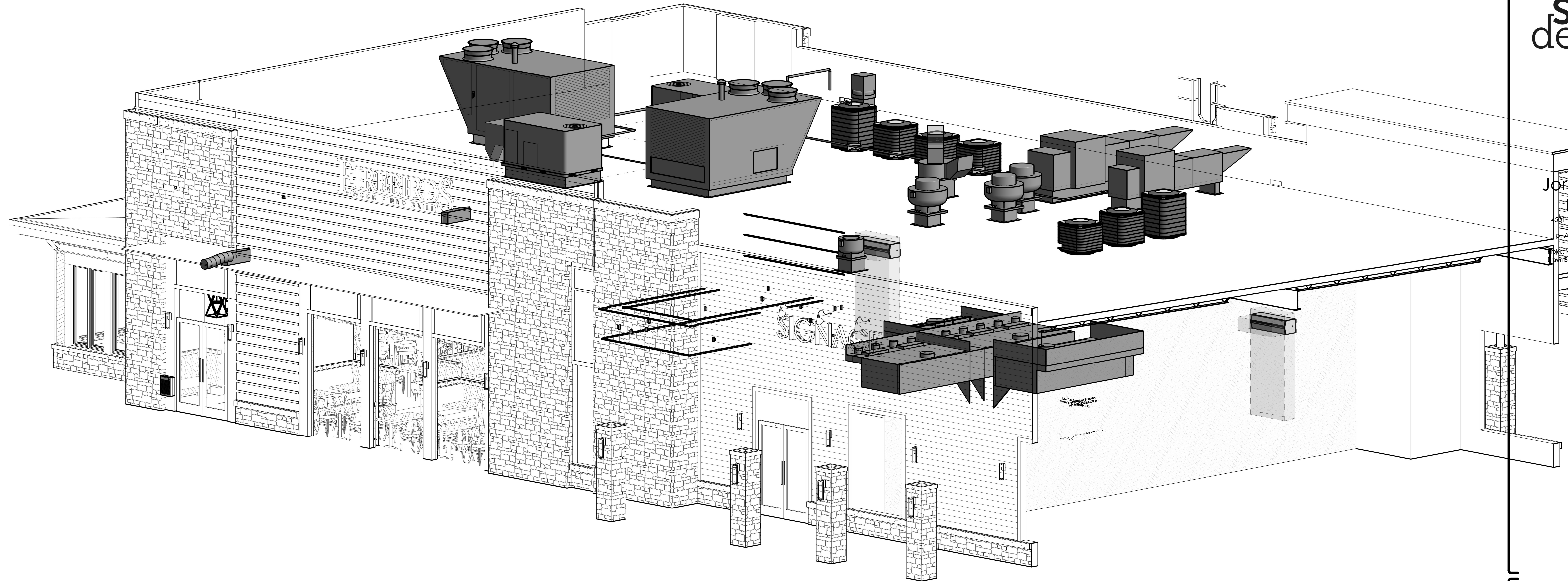
2 Section at Main Dining 2
 Scale: 1/4" = 1'-0"
 0 4 8 16



3 Section at Enclosed Patio
 Scale: 1/4" = 1'-0"
 0 4 8 16

No.	Description	Date





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Checked By: Checker

**CONSTRUCTION
DOCUMENTS**
12/04/2020

No.	Description	Date



**MECHANICAL
BUILDING
ISOMETRIC**

M302

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1 3D - Mechanical
Scale: 0 4 8 16



DOAS/RTU FAN SCHEDULE

FAN UNIT NO.	DOAS/RTU TAG	DOAS/RTU MODEL #	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	ESP.	RPM	H.P.	B.H.P.	VOLT	MCA	MCCP	WEIGHT (LBS.)	SONES	
1	DOAS-1 (FOH)	CASRTU3-1300-18-20T-DOAS	18P-3	0	3600	3600	0.750	1494	5.000	2.7690	3	208	97.6A	150A	2927	16.7
2	DOAS-2 (BOH)	CASRTU4-1300-20-25T-DOAS	20P-4	600	4400	5000	0.750	1327	5.000	3.0980	3	208	136.2A	200A	4484	17.7

SCHEDULE DOAS/RTU COOLING

FAN UNIT NO.	TAG	COMPRESSOR			OUTDOOR FAN			INDOOR COIL			OUTSIDE AIR DB TEMP.	OUTSIDE AIR WB TEMP.	MIXED AIR DB TEMP.	MIXED AIR WB TEMP.	LEAVING DB TEMP.	LEAVING WB TEMP.	LEAVING DP TEMP.	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	REHEAT LEAVING DB TEMP.	REHEAT LEAVING WB TEMP.	DESIRED REHEAT CAPACITY	MAX REHEAT CAPACITY	REHEAT LEAVING RELATIVE HUMIDITY	MOISTURE REMOVAL RATE	IEER
		TONNAGE	VOLTAGE	□	MOTOR VOLTAGE	MOTOR □	MOTOR FREQUENCY	MOTOR QTY	ROWS	FACE AREA																	
1	DOAS-1 (FOH)	20	190-240	3	200-240	3	60	3	7	11.9 SQFT.	80.8°F	75.8°F	80.8°F	75.8°F	54.7°F	53.5°F	52.7°F	264.0 MBH	98.6 MBH	165.4 MBH	70.0°F	60.4°F	60.1 MBH	129.6 MBH	58	149.3 LBS/HR	18.2
2	DOAS-2 (BOH)	25	190-240	3	200-240	3	60	3	6	25.3 SQFT.	80.8°F	75.8°F	80.1°F	74.4°F	54.3°F	53.8°F	53.5°F	336.0 MBH	139.3 MBH	196.7 MBH	70.0°F	59.9°F	88.2 MBH	260 MBH	56	178.2 LBS/HR	17.9

DOAS/RTU HEATING

FAN UNIT NO.	DOAS/RTU TAG	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
1	DOAS-1 (FOH)	283460	226768	55 deg F	7 in. w.c. - 14 in. w.c.	Natural	80
2	DOAS-2 (BOH)	300000	240000	42 deg F	7 in. w.c. - 14 in. w.c.	Natural	80

FAN NOTES

FAN UNIT NO.	DOAS/RTU TAG	OPTION (Qty. - Descr.)
1	DOAS-1 (FOH)	<ul style="list-style-type: none"> 1- Single Point Electrical Connection for RTU. QNTY 1 750va Transformer Used. If a Non-DCV Prewire controls this unit, the #28, #47, "MA", or "EZ" Option Prewire must be selected. Do not provide supply starter in prewire. 1- CASLink Building Monitoring System - Internet or Cellular Connection Required 1- 2" MERV 13 Filters for Size 3 RTU. Qty 4. 1- 2" MERV 8 Filters for Size 3 RTU. Qty 4. 1- Overheat Stat 1- VFD factory mounted and wired in commercial control vestibule for RTU 1- 20 Ton Modulating Cooling Option, 208/230V. R410A Refrigerant, Variable Speed Compressor, ECM Condensing Fan(s). 1- Inlet Pressure Gauge, 0-35" 1- Manifold Pressure Gauge, 0 to 10" wc, 1 Furnace 1- RTU Size 3 Side Discharge 1- 20 Ton Modulating Reheat Option. Discharge Relative Humidity Control. 1- Size 3 RTU Curb Duct Hanger 1- Duct Mounted Smoke Detector - Ships Loose 1- Occupied Scheduling 1- Clogged Filter Switch with notification on HMI 1- VAV Package w/ Manual/DDC Control (571 VFD Included) 1- Freezerstat 1- RTU Fixed 100% OA Intake Control 1- RTU Size 3 No Return
		<ul style="list-style-type: none"> 1- Single Point Electrical Connection for RTU. QNTY 1 750va Transformer Used. If a Non-DCV Prewire controls this unit, the #28, #47, "MA", or "EZ" Option Prewire must be selected. Do not provide supply starter in prewire. 1- RTU Size 4 Down Discharge 1- 2" MERV 13 Filters for Size 4 RTU. Qty 12. 1- 2" MERV 8 Filters for Size 4 RTU. Qty 12. 1- VFD factory mounted and wired in commercial control vestibule for RTU 1- Inlet Pressure Gauge, 0-35" 1- Manifold Pressure Gauge, 0 to 10" wc, 1 Furnace 1- Size 4 RTU Curb Duct Hanger 1- VAV Package w/ Manual/DDC Control (571 VFD Included) 1- Clogged Filter Switch with notification on HMI 1- Occupied Scheduling 1- RTU Size 4 Down Return 1- RTU Manual Intake/Return Damper Control Via HMI 1- Return Mounted Smoke Detector for RTU. Complete with detector and sampling tube. Factory installed 1- CASLink Building Monitoring System - Internet or Cellular Connection Required 1- 25 Ton Modulating Cooling Option, 208/230V. R410A Refrigerant, Variable Speed Compressor, ECM Condensing Fan(s). 1- 25 Ton Modulating Reheat Option. Space Relative Humidity Control. 1- Overheat Stat 1- Freezerstat
2	DOAS-2 (BOH)	<ul style="list-style-type: none"> 1- Single Point Electrical Connection for RTU. QNTY 1 750va Transformer Used. If a Non-DCV Prewire controls this unit, the #28, #47, "MA", or "EZ" Option Prewire must be selected. Do not provide supply starter in prewire. 1- RTU Size 4 Down Discharge 1- 2" MERV 13 Filters for Size 4 RTU. Qty 12. 1- 2" MERV 8 Filters for Size 4 RTU. Qty 12. 1- VFD factory mounted and wired in commercial control vestibule for RTU 1- Inlet Pressure Gauge, 0-35" 1- Manifold Pressure Gauge, 0 to 10" wc, 1 Furnace 1- Size 4 RTU Curb Duct Hanger 1- VAV Package w/ Manual/DDC Control (571 VFD Included) 1- Clogged Filter Switch with notification on HMI 1- Occupied Scheduling 1- RTU Size 4 Down Return 1- RTU Manual Intake/Return Damper Control Via HMI 1- Return Mounted Smoke Detector for RTU. Complete with detector and sampling tube. Factory installed 1- CASLink Building Monitoring System - Internet or Cellular Connection Required 1- 25 Ton Modulating Cooling Option, 208/230V. R410A Refrigerant, Variable Speed Compressor, ECM Condensing Fan(s). 1- 25 Ton Modulating Reheat Option. Space Relative Humidity Control. 1- Overheat Stat 1- Freezerstat
		<ul style="list-style-type: none"> 1- Single Point Electrical Connection for RTU. QNTY 1 750va Transformer Used. If a Non-DCV Prewire controls this unit, the #28, #47, "MA", or "EZ" Option Prewire must be selected. Do not provide supply starter in prewire. 1- RTU Size 4 Down Discharge 1- 2" MERV 13 Filters for Size 4 RTU. Qty 12. 1- 2" MERV 8 Filters for Size 4 RTU. Qty 12. 1- VFD factory mounted and wired in commercial control vestibule for RTU 1- Inlet Pressure Gauge, 0-35" 1- Manifold Pressure Gauge, 0 to 10" wc, 1 Furnace 1- Size 4 RTU Curb Duct Hanger 1- VAV Package w/ Manual/DDC Control (571 VFD Included) 1- Clogged Filter Switch with notification on HMI 1- Occupied Scheduling 1- RTU Size 4 Down Return 1- RTU Manual Intake/Return Damper Control Via HMI 1- Return Mounted Smoke Detector for RTU. Complete with detector and sampling tube. Factory installed 1- CASLink Building Monitoring System - Internet or Cellular Connection Required 1- 25 Ton Modulating Cooling Option, 208/230V. R410A Refrigerant, Variable Speed Compressor, ECM Condensing Fan(s). 1- 25 Ton Modulating Reheat Option. Space Relative Humidity Control. 1- Overheat Stat 1- Freezerstat

CURB ASSEMBLIES

FAN UNIT NO.	DOAS/RTU TAG	WEIGHT	ITEM	SIZE
1	# 1 DOAS-1 (FOH)	66 LBS	Curb	69.500"W x 91.000"L x 12.000"H Insulated
2	# 2 DOAS-2 (BOH)	88 LBS	Curb	80.000"W x 111.000"L x 12.000"H Insulated

CAPTIVE
 6302 Carmel Road, Suite #105, Charlotte, NC, 28226 PHONE: (704) 844-9088 FAX: (919) 272-5952 EMAIL: req300@captiveinc.com
 Piedmont Office
 Firebirds - Prototype 4-0 - Huntersville NC - DOAS
 HUNTERSVILLE, NC, 28070
 3/31/2020
 4311167
 - evan.zipperer
 3/4" = 1'-0"
MASTER DRAWING
 1

project address | name

client

designers

designers

job status

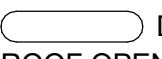
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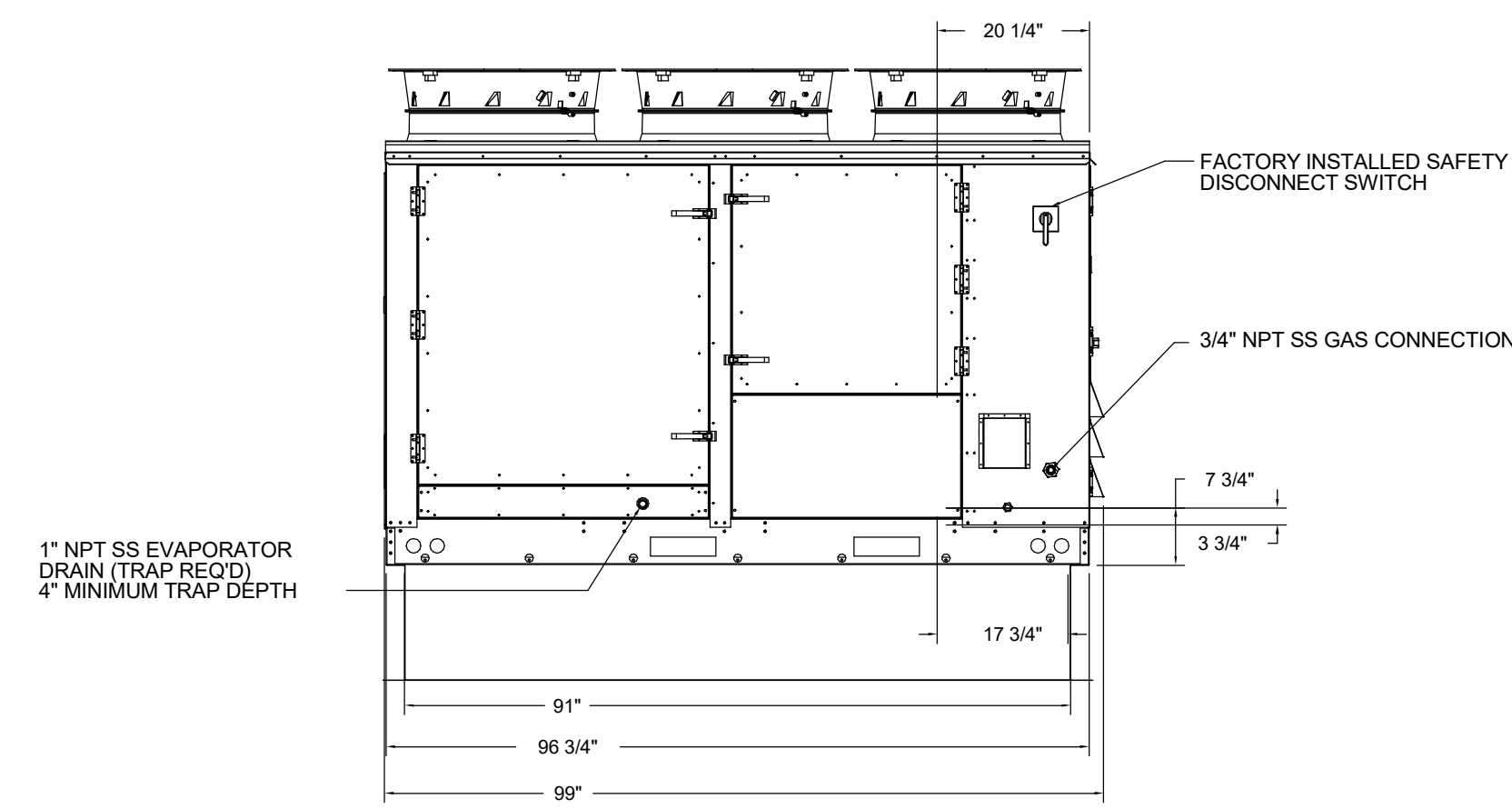
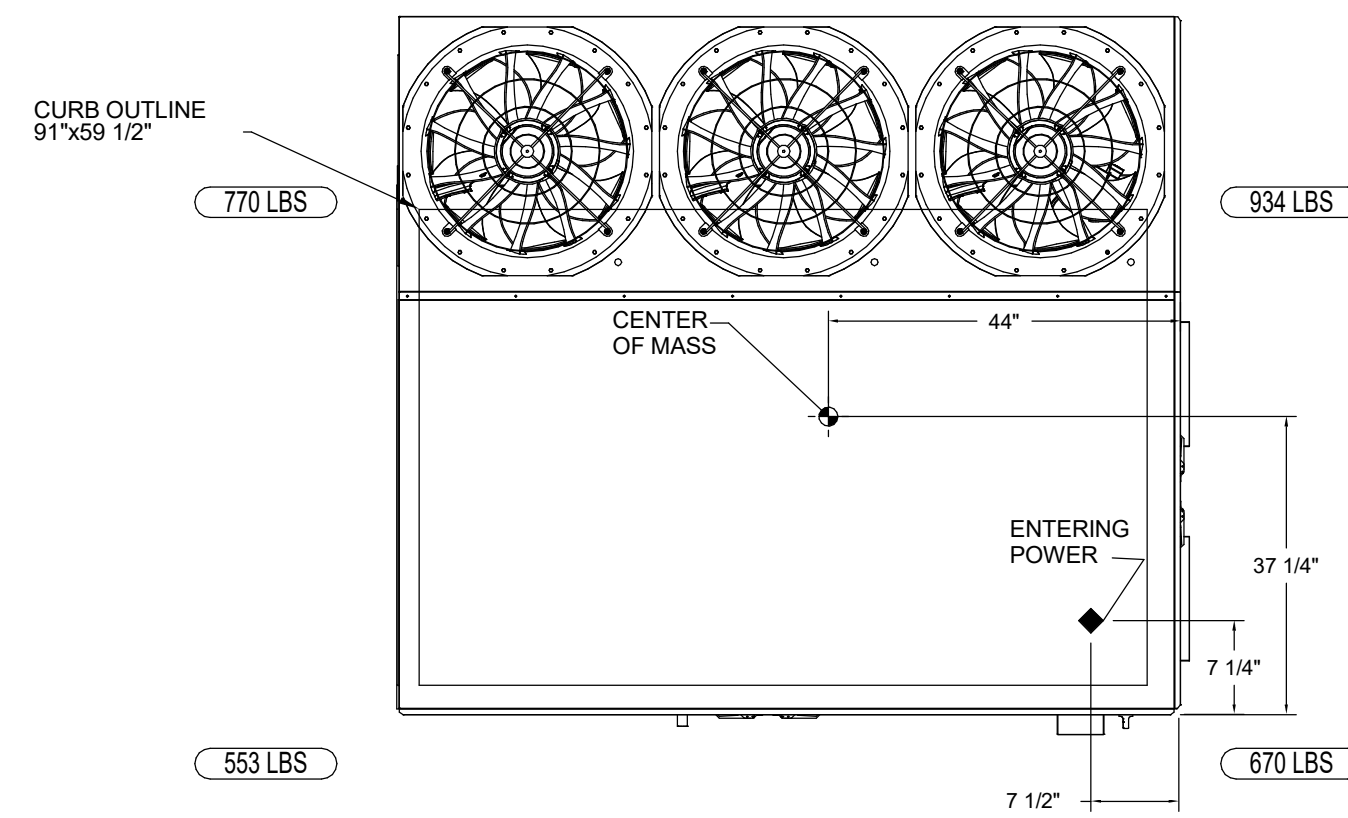
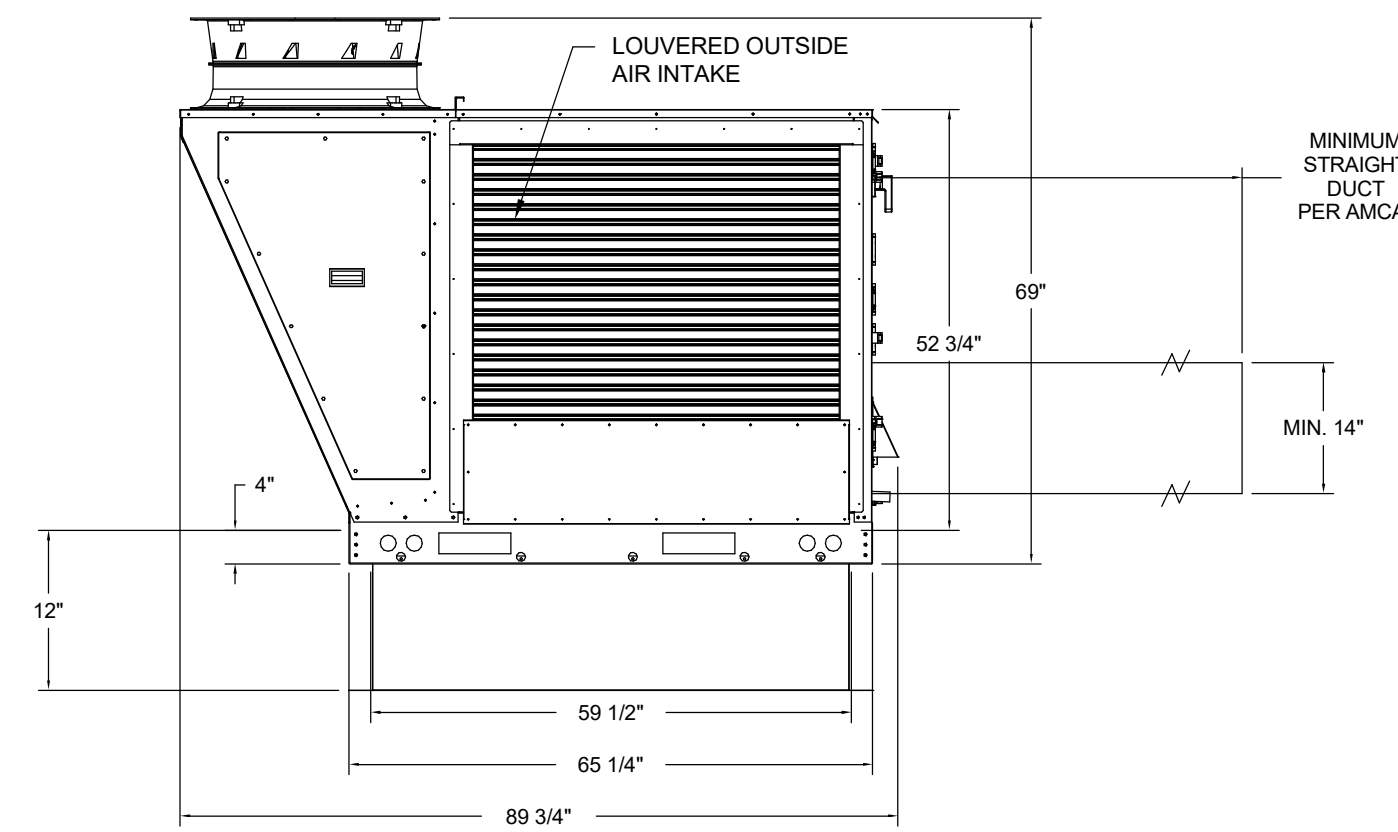
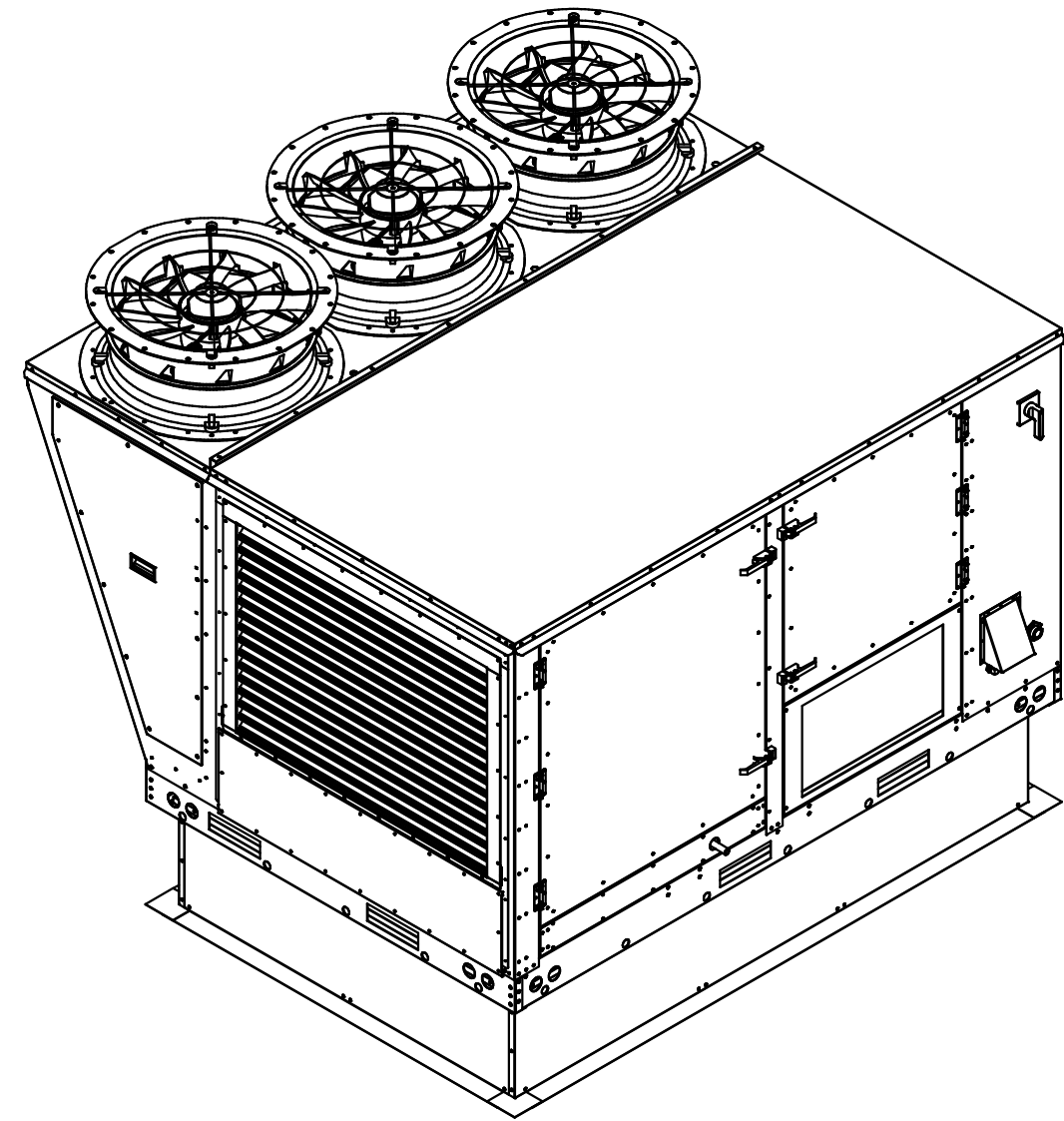
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FAN #1 CASRTU3-I.300-18-20T-DOAS - HEATER (DOAS-1 (FOH))

NOTES:

- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
-  DENOTES CORNER WEIGHT.
- ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 25" x 14"



1" NPT SS EVAPORATOR DRAIN (TRAP READY) & MINIMUM TRAP DEPTH

OPTIONS

- SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, #MA, OR #E2 OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
- CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
- 2" MERV 13 FILTERS FOR SIZE 3 RTU. QTY 4.
- 2" MERV 8 FILTERS FOR SIZE 3 RTU. QTY 4.
- OVERHEAT STAT
- VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR RTU
- 20 TON MODULATING COOLING OPTION, 208/230V, R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FAN(S).
- INLET PRESSURE GAUGE, 0-35"
- MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
- RTU SIZE 3 DOWN DISCHARGE
- 20 TON MODULATING REHEAT OPTION. DISCHARGE RELATIVE HUMIDITY CONTROL.
- SIZE 3 RTU CURB DUCT HANGER
- DUCT MOUNTED SMOKE DETECTOR - SHIPS LOOSE
- OCCUPIED SCHEDULING
- CLOGGED FILTER SWITCH WITH NOTIFICATION ON HMI
- VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
- FREEZESTAT
- RTU FIXED 100% OA INTAKE CONTROL
- RTU SIZE 3 NO RETURN

CAPTIVE
 Firebirds - Prototype 4.0 - Huntersville NC - DOAS
 HUNTERSVILLE, NC, 28070
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 1/2" = 1'-0"
MASTER DRAWING
 2

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 Project Number: 2020096
 Drawn By: Author Checked By: Checker

CONSTRUCTION DOCUMENTS
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No.	Description	Date



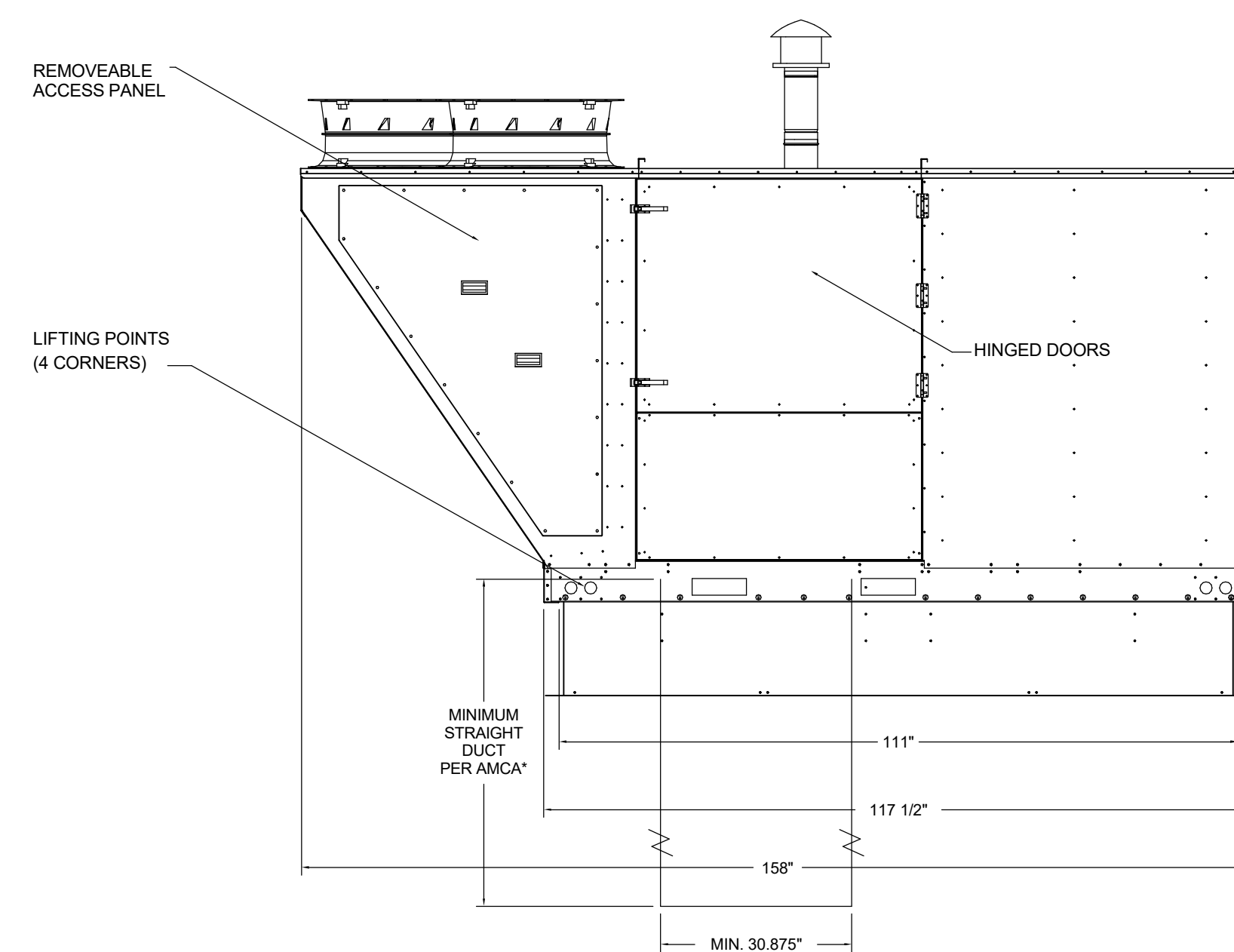
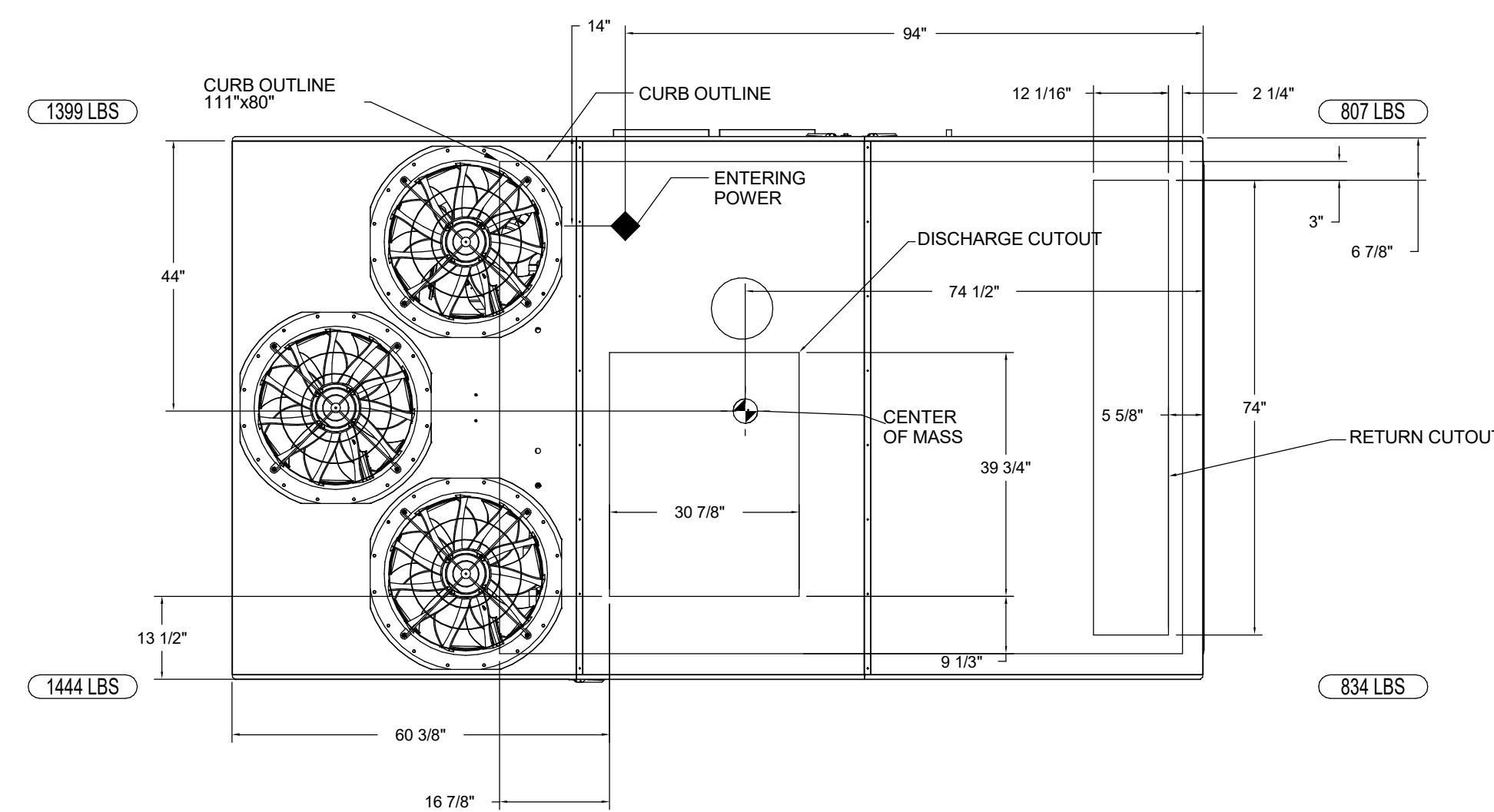
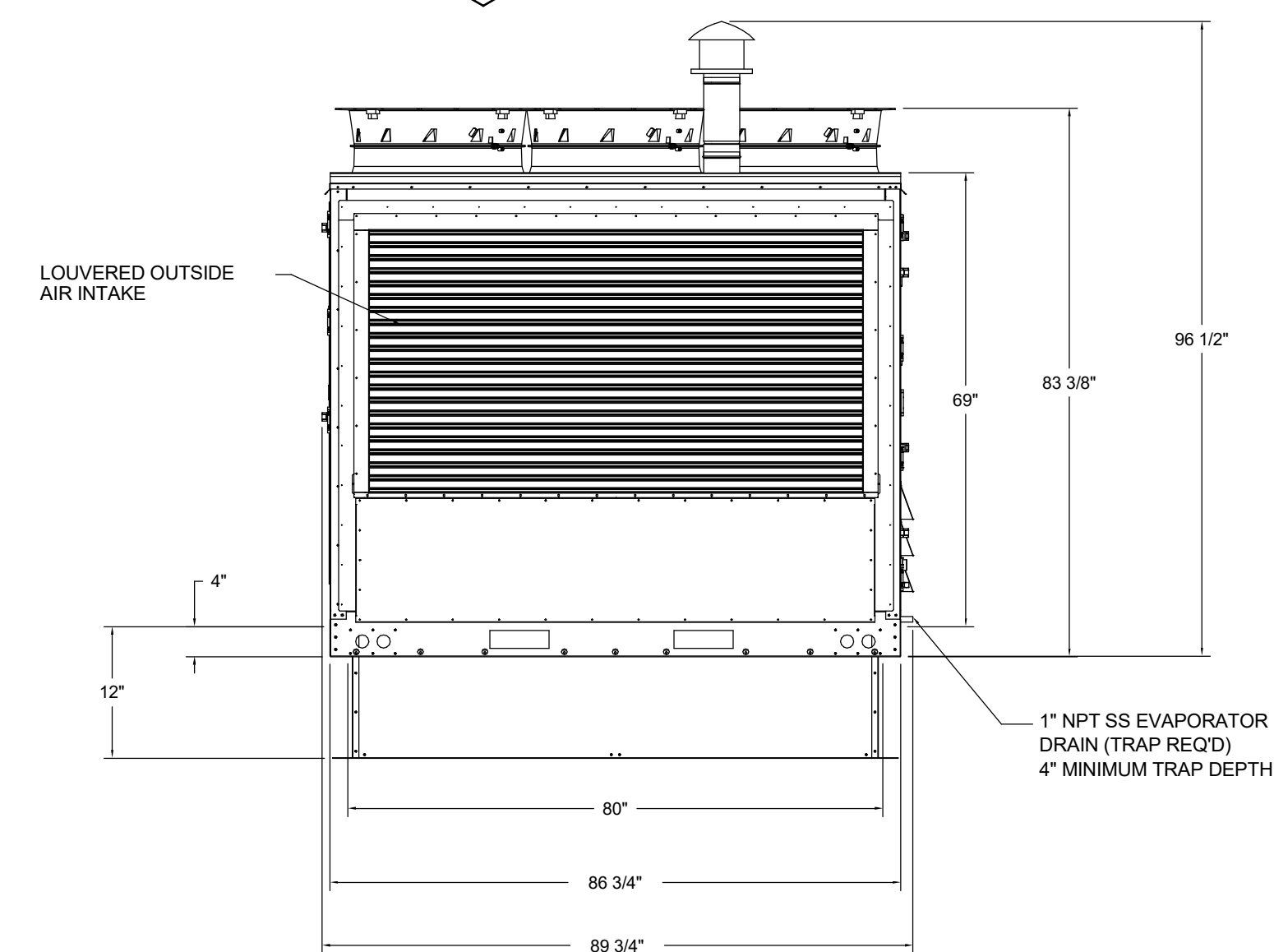
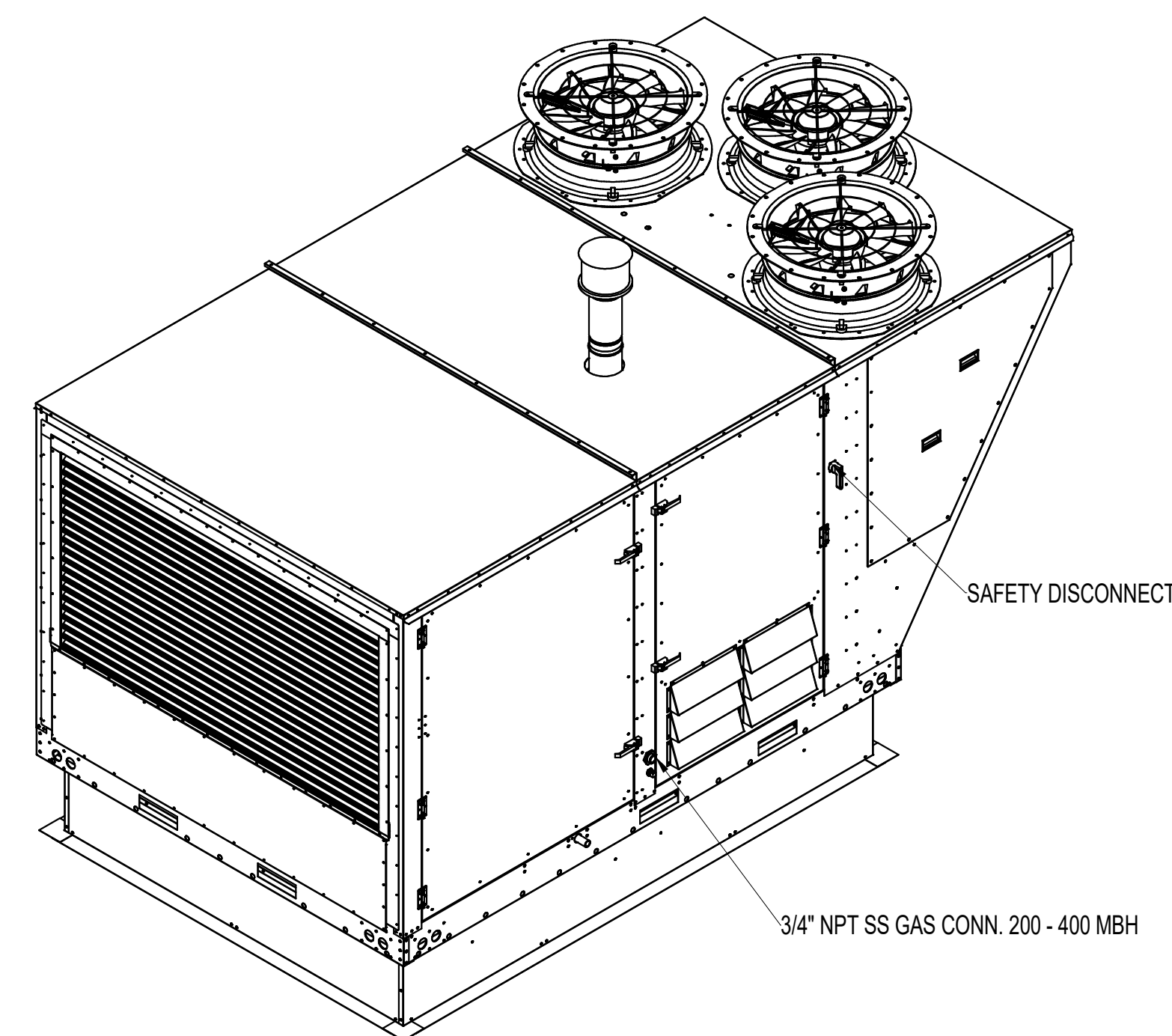
MECHANICAL -
 DOAS UNIT
 DRAWINGS
M401
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FAN #2 CASRTU4-1.300-20-25T-DOAS - HEATER (DOAS-2 (BOH))

NOTES:

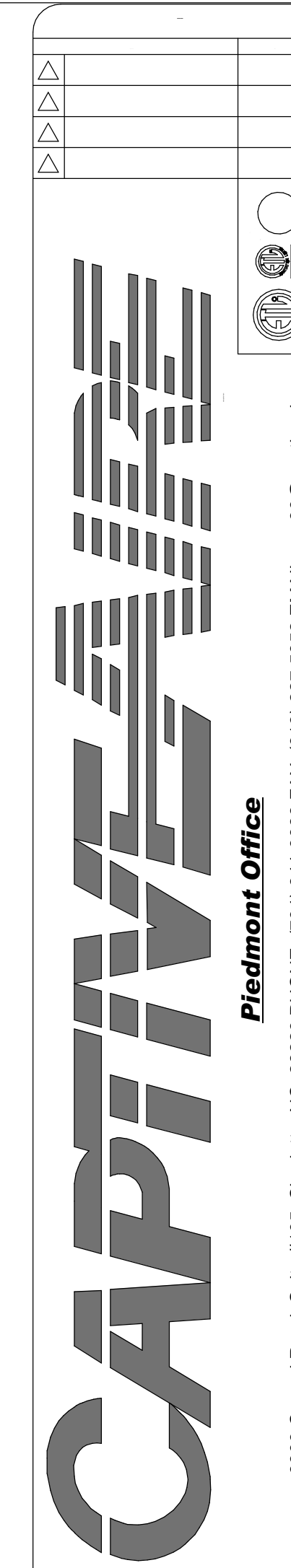
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN
- DENOTES CORNER WEIGHT.
- ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 30.875" x 39.75"



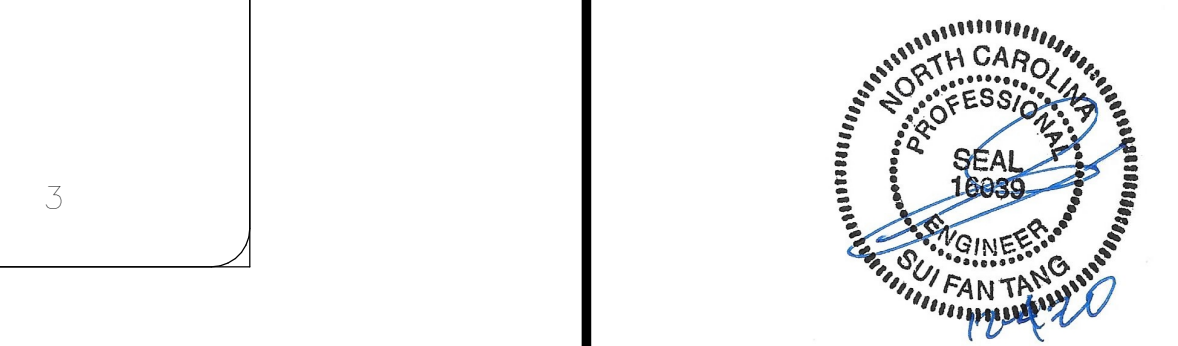
OPTIONS

- SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
- RTU SIZE 4 SIDE DISCHARGE
- 2" MERV 13 FILTERS FOR SIZE 4 RTU. QTY 12.
- 2" MERV 8 FILTERS FOR SIZE 4 RTU. QTY 12.
- VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR RTU
- INLET PRESSURE GAUGE, 0-35"
- MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
- SIZE 4 RTU CURB DUCT HANGER
- VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
- CLOGGED FILTER SWITCH WITH NOTIFICATION ON HMI
- OCCUPIED SCHEDULING
- RTU SIZE 4 BACK RETURN
- RTU MANUAL INTAKE/RETURN DAMPER CONTROL VIA HMI
- RETURN MOUNTED SMOKE DETECTOR FOR RTU. COMPLETE WITH DETECTOR AND SAMPLING TUBE. FACTORY INSTALLED
- CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
- 25 TON MODULATING COOLING OPTION, 208/230V, R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FAN(S).
- 25 TON MODULATING REHEAT OPTION. SPACE RELATIVE HUMIDITY CONTROL.
- OVERHEAT STAT
- FREEZESTAT



Firebirds - Prototype 4.0 - Huntersville NC - DOAS
HUNTERSVILLE, NC, 28070

3/31/2020
4311167
evan.zipperer
1/2" = 1'-0"
MASTER DRAWING



FIREBIRDS
FIREBIRDS
BIRKDALE

16641 BIRKDALE COMMONS PKWY
SUITE B-200
HUNTERSVILLE, NC 28078

FIREBIRDS
WOOD FIRED GRILL

starr design
branded environments

Starr Design, PLLC
1435 West Morehead St, Suite 240
Charlotte, NC 28208
P: 704.377.5200 F: 704.377.5201
www.starrdesignteam.com

JSE

Jordan & Skala Engineers

4501 Charlotte Park Dr., Suite 100
Charlotte, NC 28217
p. 704.599.4377 • t. 704.509.9330

Project Number: 2020096
Drawn By: Author Checked By: Checker

CONSTRUCTION DOCUMENTS
12/04/2020

No.	Description	Date

revisions

MECHANICAL - DOAS UNIT DRAWINGS

M402

19FB007 | © Starr Design, PLLC 2019

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job status

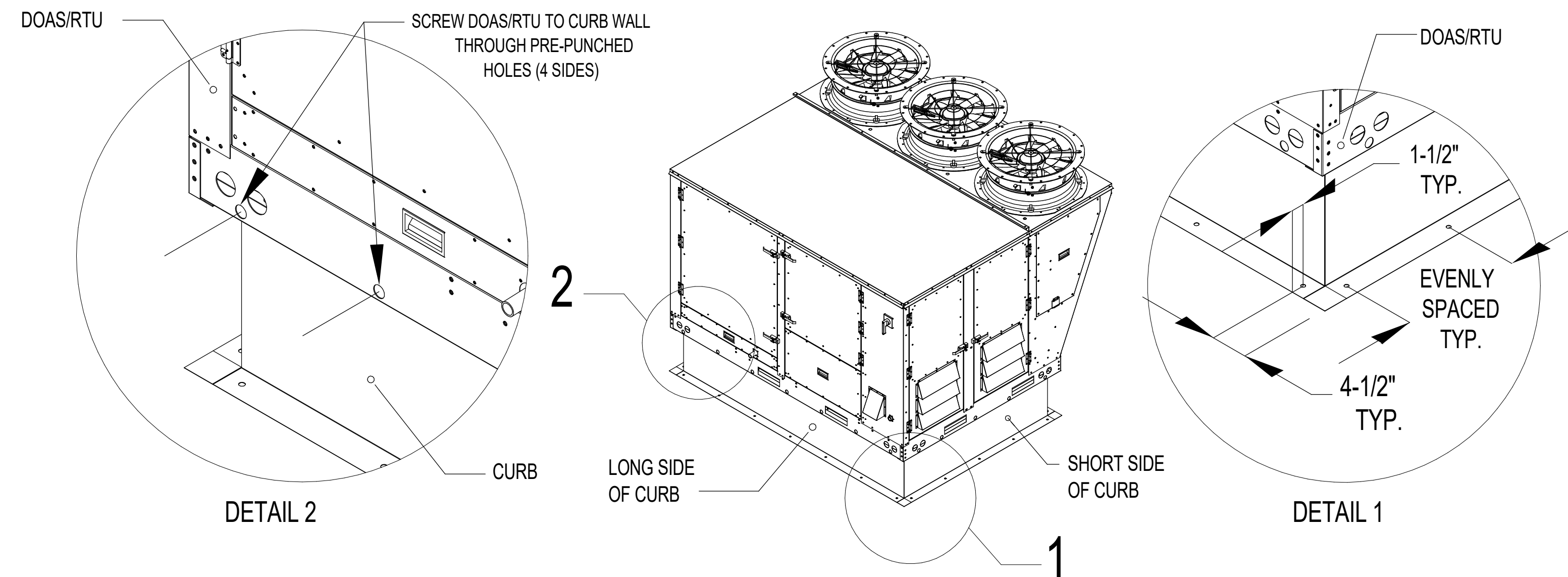
revisions

seal

sheet number | title

TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

- Secure the curb to the roof framing members by drilling 1/4" pilot holes in the curb flanges at locations shown in the diagram below. Using 3/8" x 2" zinc plated steel lag bolts, and zinc plated washers, screw through the curb flanges and into the roof framing members. A minimum of (5) lag bolts on each short side, and (7) lag bolts on each long side is required.
- Secure the unit base to the side walls of the curb using (24) 1/4"-14 x 2" self-drilling, steel zinc plated screws. Pre-punched holes have been provided for each screw location.



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 HUNTERSVILLE, NC, 28070

3/31/2020
4311167
evan zipperer
3/4" = 1'-0"
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CONSTRUCTION DOCUMENTS
12/04/2020

No.	Description	Date



MECHANICAL - DOAS UNIT DRAWINGS

M404

project address | name

client

designers

job status

revisions

seal

No.	Description	Date

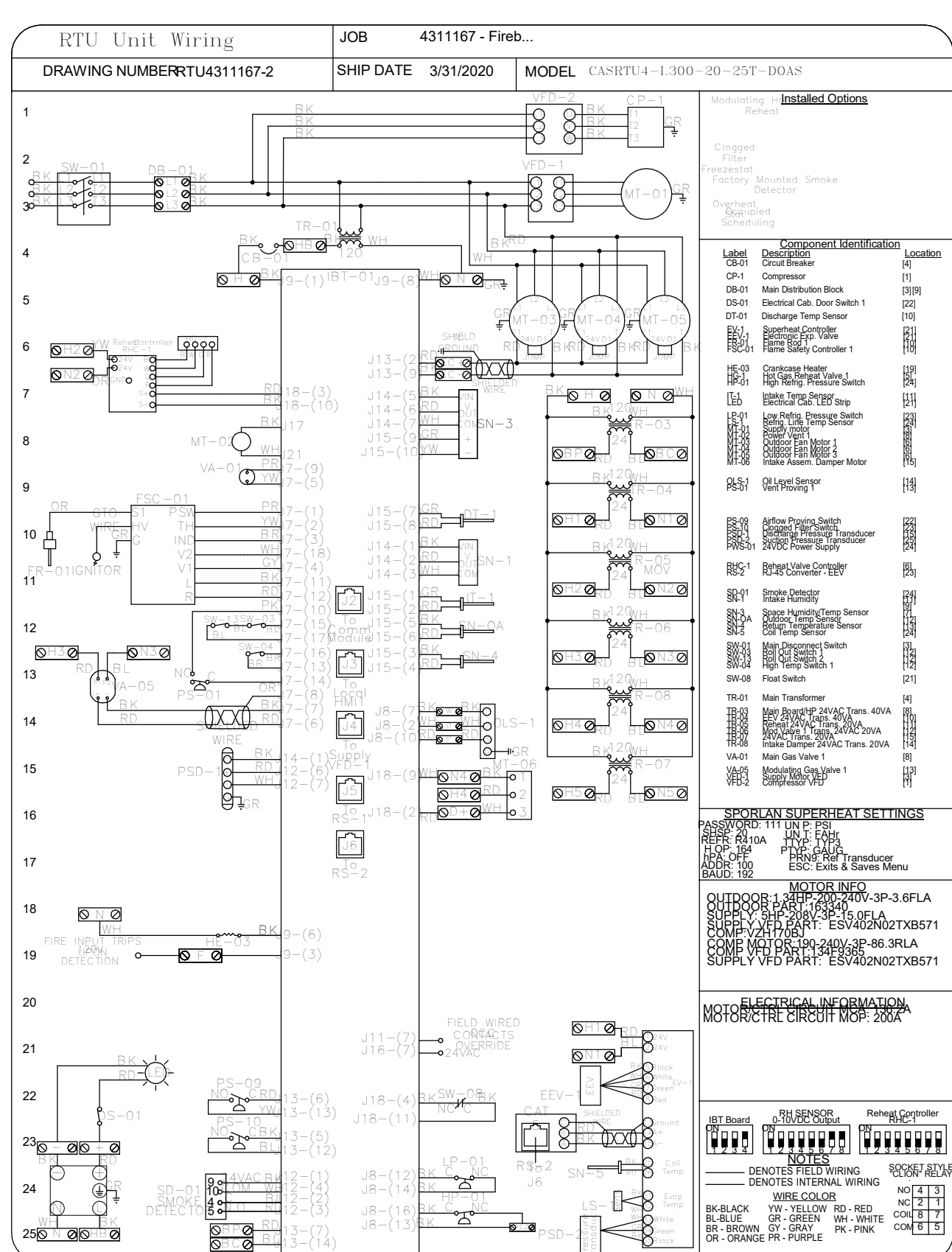
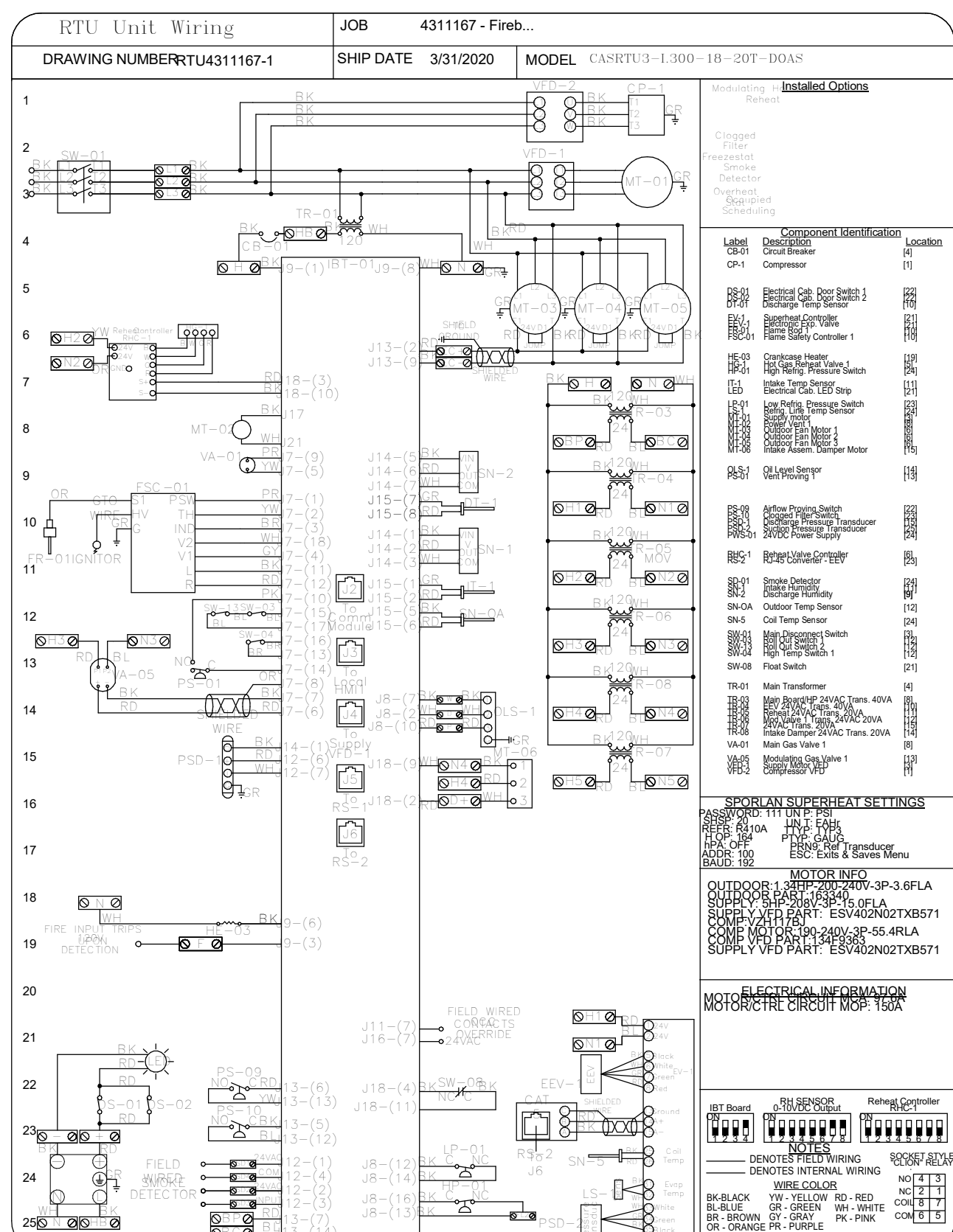
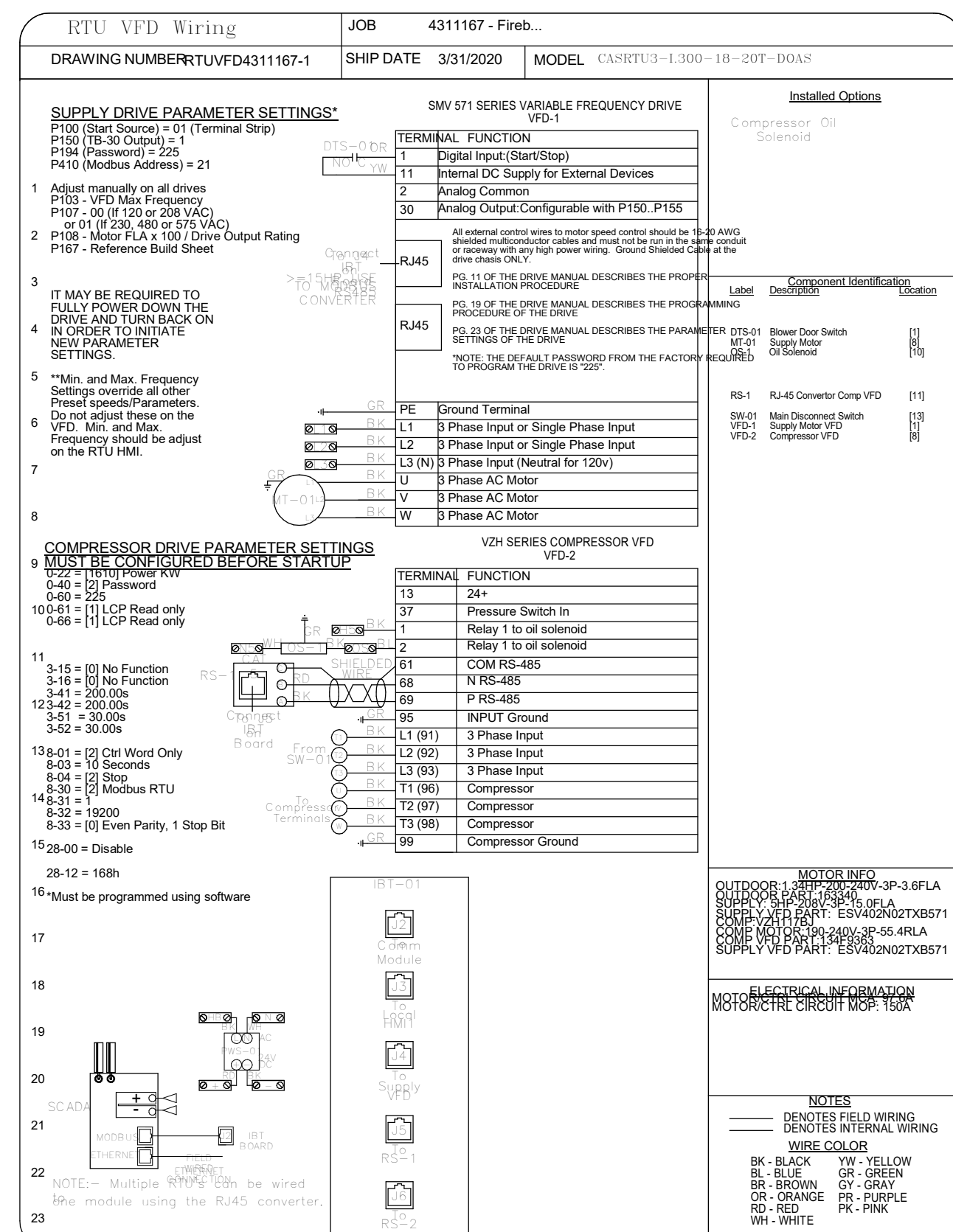
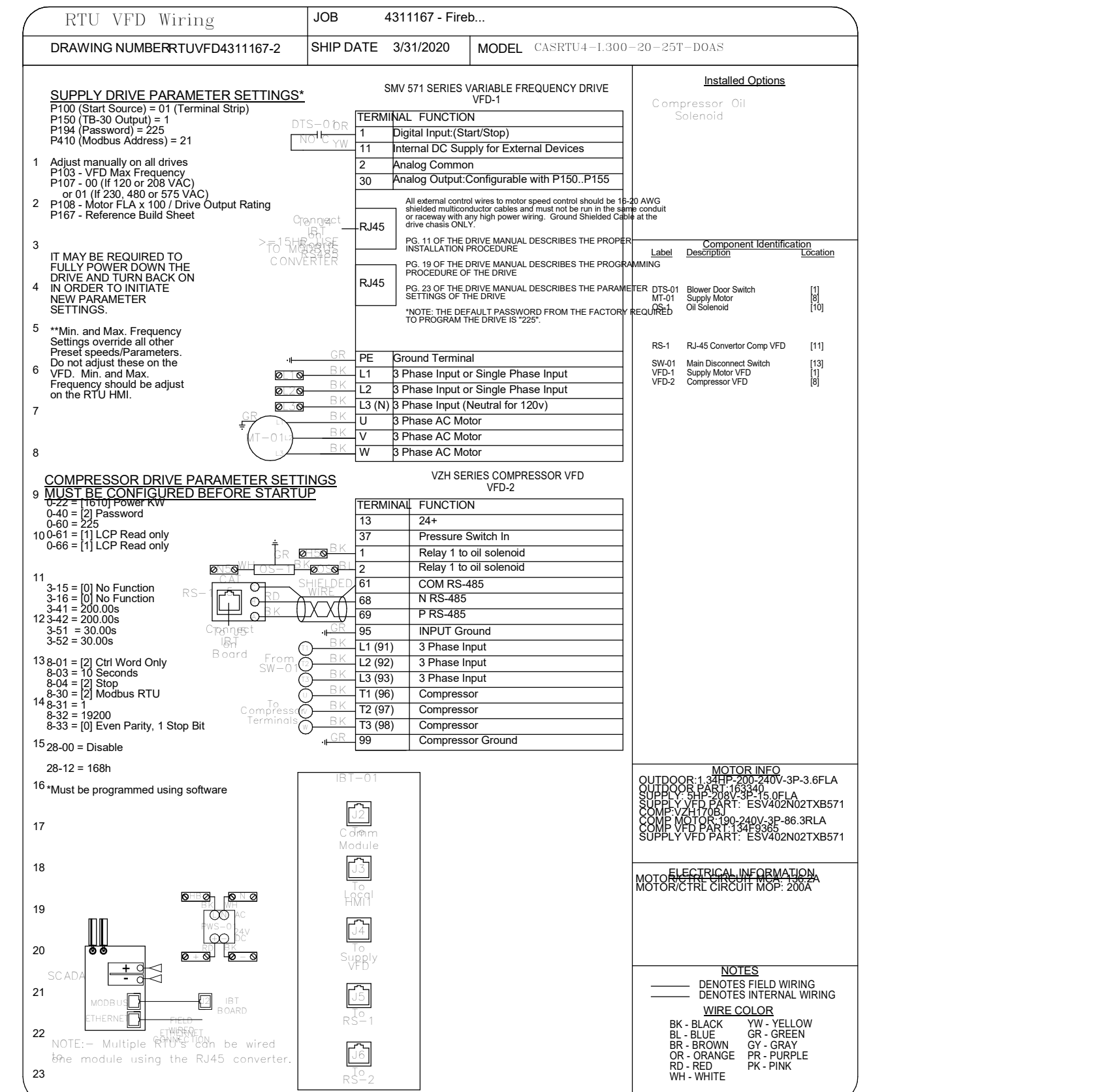
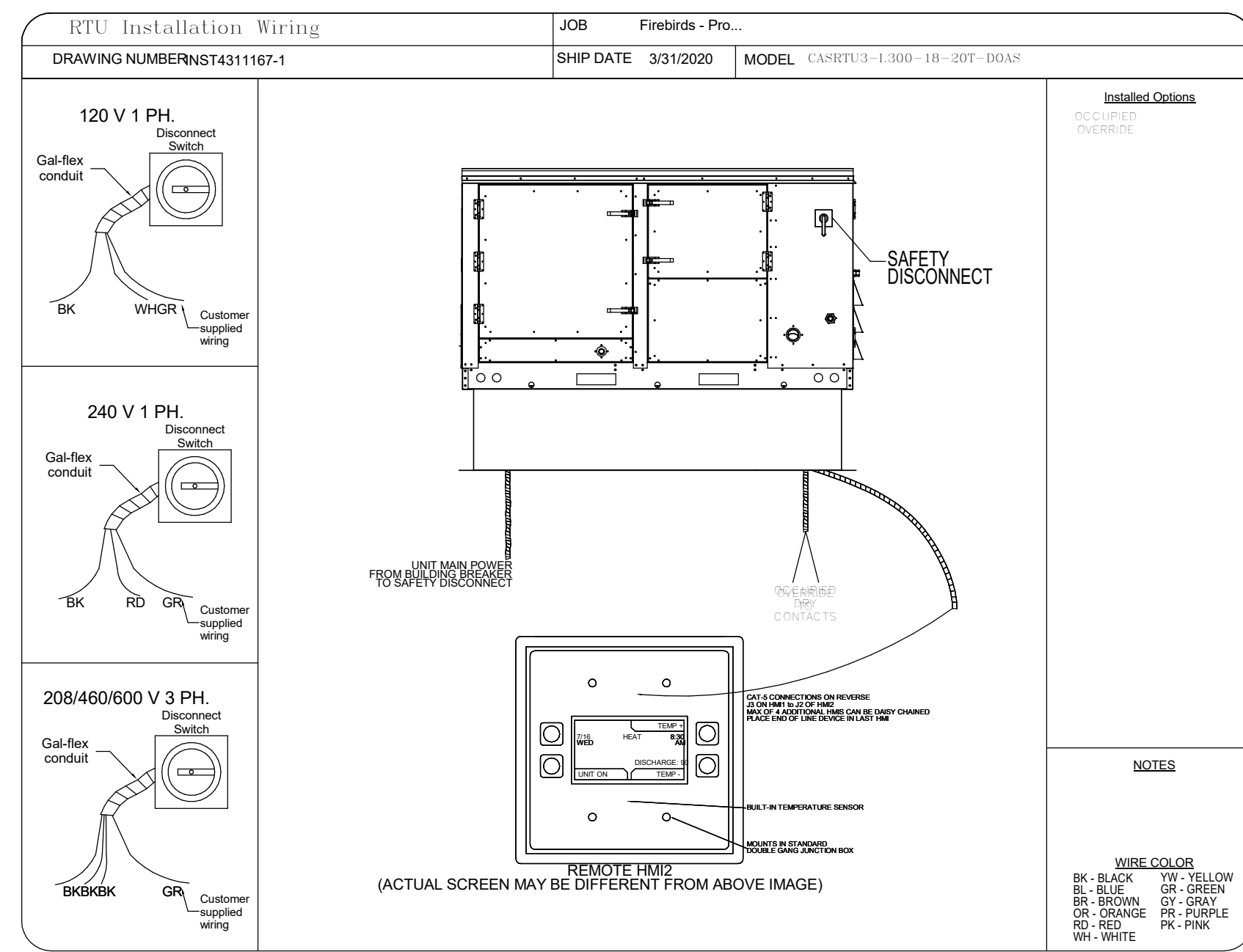


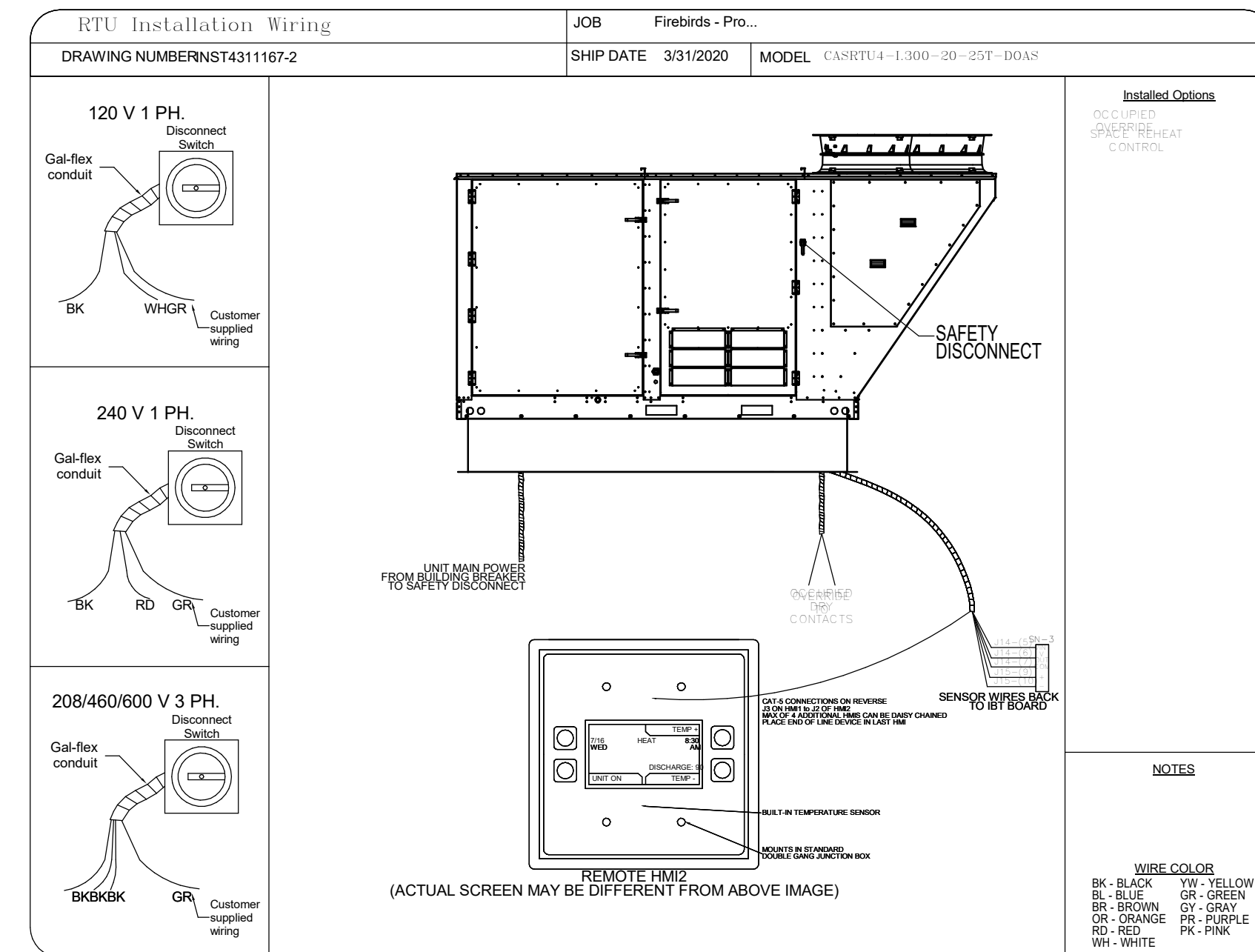
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6030 Cammer Road, Suite #105, Charlotte, NC 28226 PHONE: (704) 844-9088 FAX: (704) 227-5652 EMAIL: rgs30@captivewire.com

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3/4" = 1'-0"
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3/4" = 1'-0"

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7

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client

designers

job status

revisions

seal

sheet number | title

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 Piedmont Office
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HOOD INFORMATION

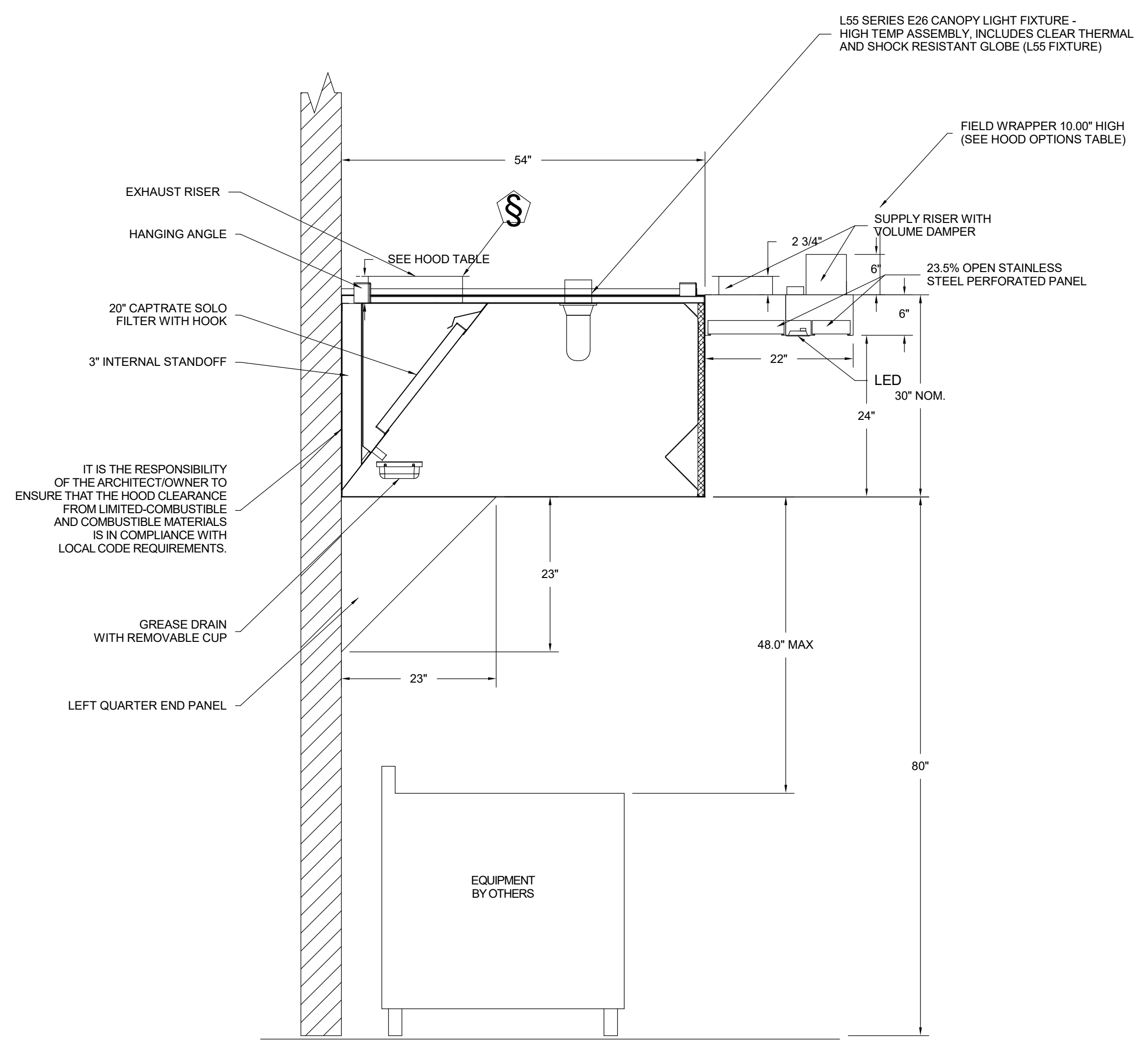
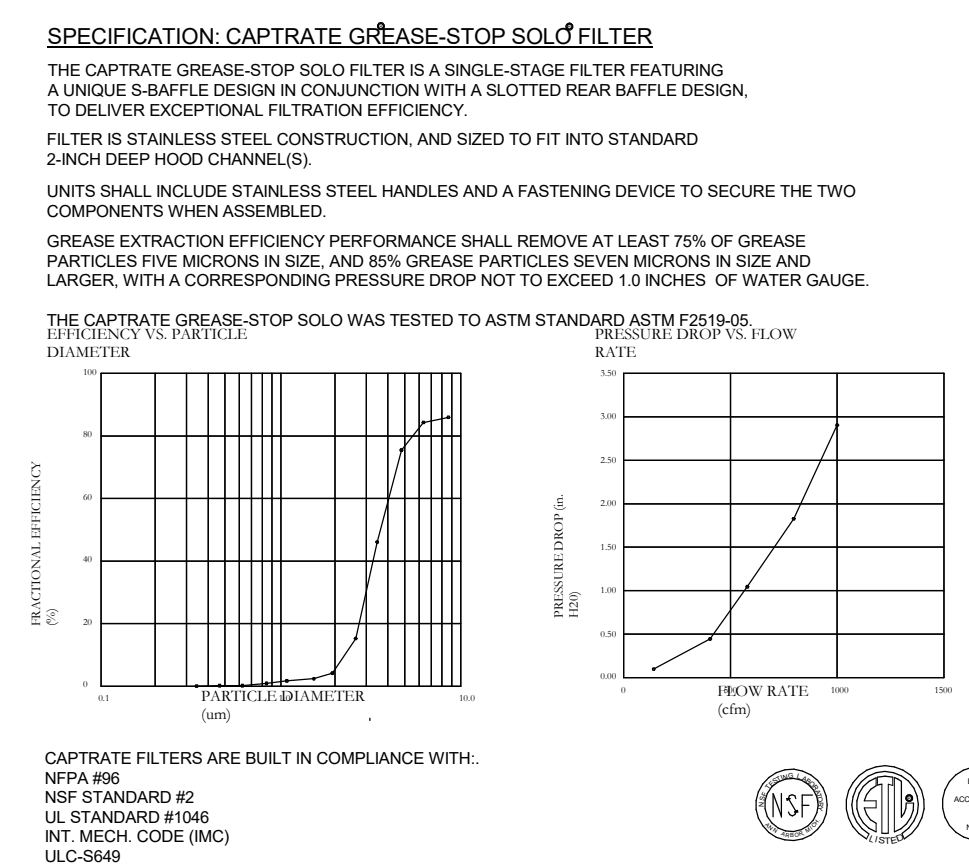
HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)				MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG		
										WIDTH	LENG	HEIGHT	DIA				CFM	VEL	SP
1	MAIN LEFT	5430 ND-2-ACPSP-F	CAPTIVEAIRE	8' 4"	600 DEG	I	HEAVY	210	1750	4"	14"	1750	1637	-0.659"	1138	508	430 SS WHERE EXPOSED	LEFT	ALONE
2	MAIN RIGHT	5430 ND-2-ACPSP-F	CAPTIVEAIRE	10' 8"	600 DEG	I	HEAVY	240	2560	4"	16"	2560	1833	-0.954"	1664	750	430 SS WHERE EXPOSED	RIGHT	ALONE
3	GRILL	6030 ND-2	CAPTIVEAIRE	8' 2"	700 DEG	I	EXTRA-HEAVY	400	3267	4"	18"	3267	1849	-1.415"	0	0	430 SS 100%	ALONE	ALONE
4	BACK	6030 ND-2-PSP-F	CAPTIVEAIRE	10' 6"	600 DEG	I	HEAVY	214	2250	4"	16"	2250	1611	-0.737"	1935	0	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	TYPE	FILTER(S)			LIGHT(S)			WIRE GUARD		LOCATION		UTILITY CABINET(S)		ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	SIZE	TYPE	SIZE							
1	MAIN LEFT	CAPTRATE SOLO FILTER	6	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO						SC-321110MA	1 LIGHT 1 FAN	YES	598 LBS
2	MAIN RIGHT	CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	7	L55 SERIES E26	NO	RIGHT	20"x54"x30"	CAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	SC-321110MA	1 LIGHT 1 FAN	YES	1195 LBS	
3	GRILL	CAPTRATE SOLO FILTER	6	20"	16"	85% SEE FILTER SPEC	5	L55 SERIES E26	NO	LEFT	12"x60"x30"	CORE PROTECTION	0	SC-310110MA	1 LIGHT 1 FAN	YES	785 LBS	
4	BACK	CAPTRATE SOLO FILTER	7	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO	RIGHT	12"x60"x30"	CAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	SC-311110MA	1 LIGHT 1 FAN	YES	1095 LBS	

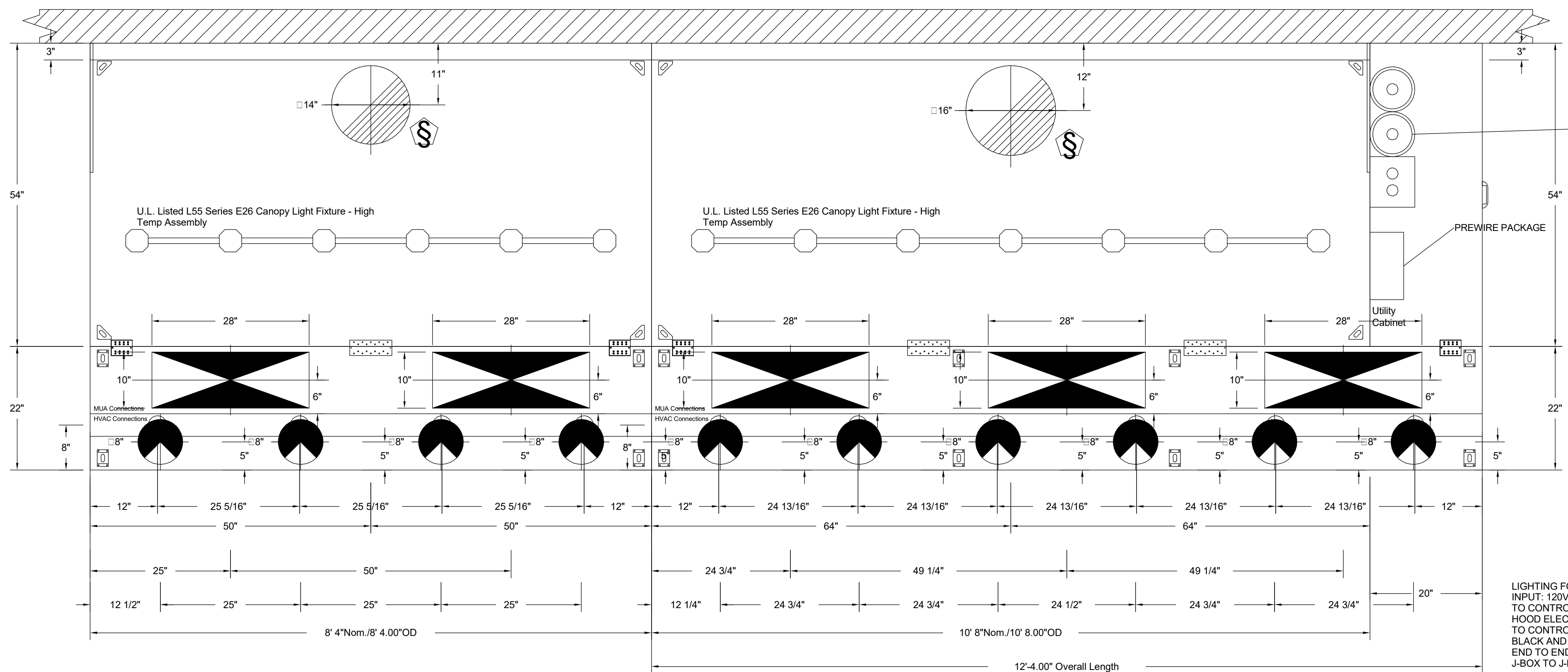
HOOD INFORMATION

HOOD NO	TAG	OPTION	
		FIELD WRAPPER	FIELD WRAPPER
1	MAIN LEFT	FIELD WRAPPER 10.00" HIGH FRONT, LEFT.	LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
2	MAIN RIGHT	FIELD WRAPPER 10.00" HIGH FRONT, RIGHT.	RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
3	GRILL	FIELD WRAPPER 10.00" HIGH FRONT, LEFT, RIGHT.	LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
4	BACK	FIELD WRAPPER 17.00" HIGH FRONT, LEFT, RIGHT.	RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.



PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG	DIA	CFM	SP
1	MAIN LEFT	Front	100"	22"	6"	MUA	10"	28"	569	0.151"	
							MUA	10"	28"	569	0.151"
							AC	8"	127	0.051"	
							AC	8"	127	0.051"	
2	MAIN RIGHT	Front	148"	22"	6"	MUA	10"	28"	554	0.143"	
							MUA	10"	28"	554	0.143"
							MUA	10"	28"	554	0.143"
							AC	8"	125	0.049"	
							AC	8"	125	0.049"	
							AC	8"	125	0.049"	
							AC	8"	125	0.049"	
							AC	8"	125	0.049"	
4	BACK	Front	138"	14"	6"	MUA	8"	36"	645	0.185"	
							MUA	8"	36"	645	0.185"
							MUA	8"	36"	645	0.185"
							MUA	8"	36"	645	0.185"



PLAN VIEW - Hood #1 (MAIN 8' 4.00\"/>

PLAN VIEW - Hood #2 (MAIN 10' 8.00\"/>

FOR QUESTIONS, CALL THE CHARLOTTE, NORTH CAROLINA OFFICE
EVAN ZIPPERER
PHONE: 919-719-7636
EMAIL: reg@captivaire.com

CAPTIVE-AIRE HOODS ARE ETL LISTED AND LABELED IN COMPLIANCE WITH

 NFPA #96
 NSF
 UL 710 & UL710 STANDARDS
 E.T.L. LISTED 3054804-001

LIGHTING FOR ACPSP Job # 4276312 - Hoods #1, #2
 INPUT: 120V AC, 1 Phase, 50/60Hz, 3.5 Watts per light.
 TO CONTROL LIGHTS WITH HOOD LIGHT SWITCH, WIRE PER HOOD ELECTRICAL CONTROL PANELS. SCHEMATIC TO CONTROL LIGHTS WITH BUILDING LIGHT SWITCH, WIRE BLACK AND WHITE WIRE TO A 120VAC SERVICE. END TO END ACPSPS REQUIRE 120VAC FIELD WIRING FROM J-BOX TO J-BOX. REPLACE LIGHTS WITH LED LIGHTS ONLY.

Firebirds - Huntersville, NC (TANK)
 HUNTERSVILLE, NC, 28078

2/19/2021
 4276312
 evan.zipperer
 3/4" = 1'-0"
MASTER DRAWING

CONSTRUCTION DOCUMENTS
12/04/2020

No.	Description	Date
2	REV #2 - CaptiveAire Revision	03/12/2021

MECHANICAL - KITCHEN EQUIPMENT DRAWINGS

M407

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4276312
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MASTER DRAWING
2

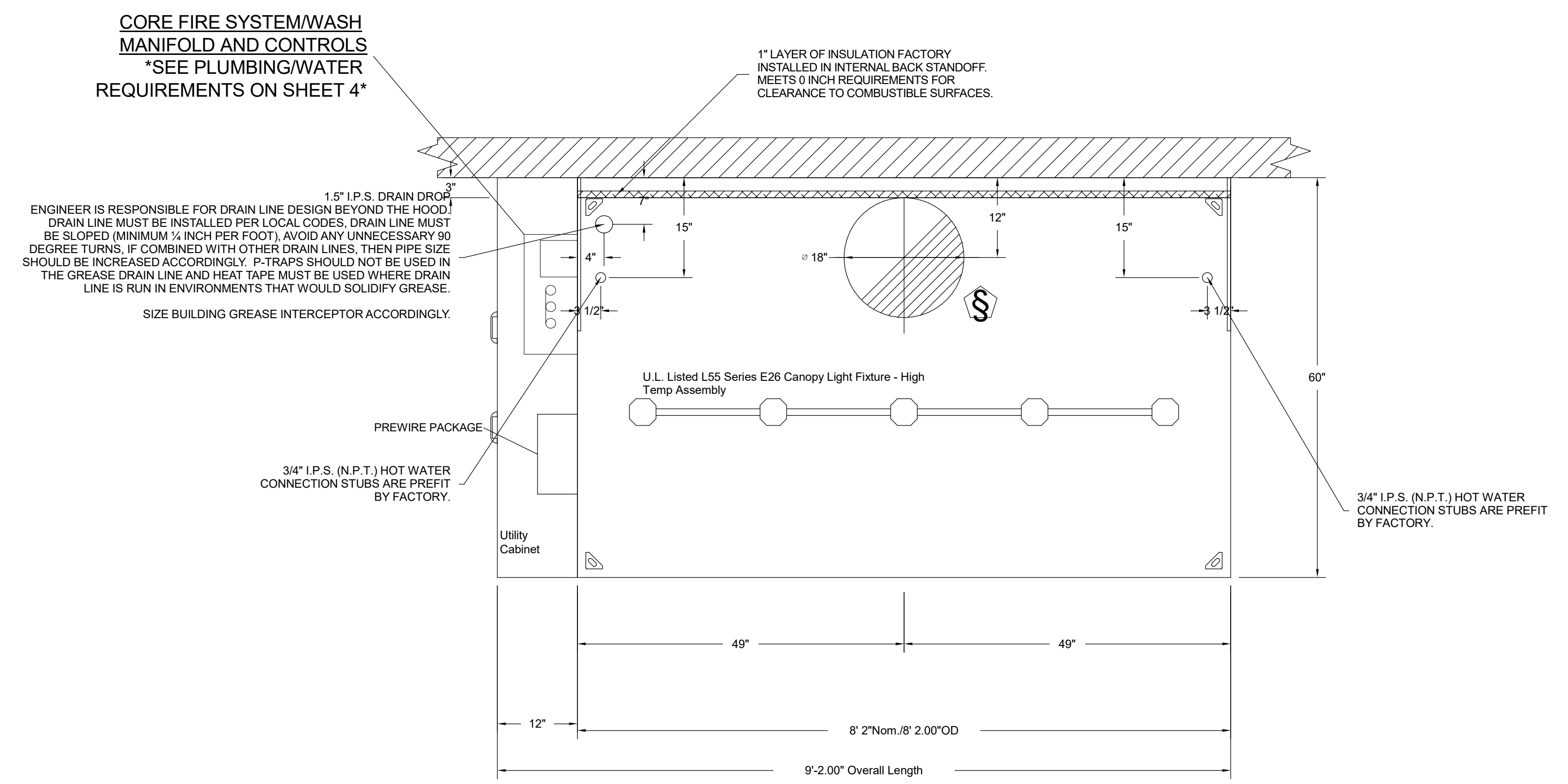
CONSTRUCTION DOCUMENTS
12/04/2020

No.	Description	Date
2	REV #2 - CaptiveAire Revision	03/12/2021

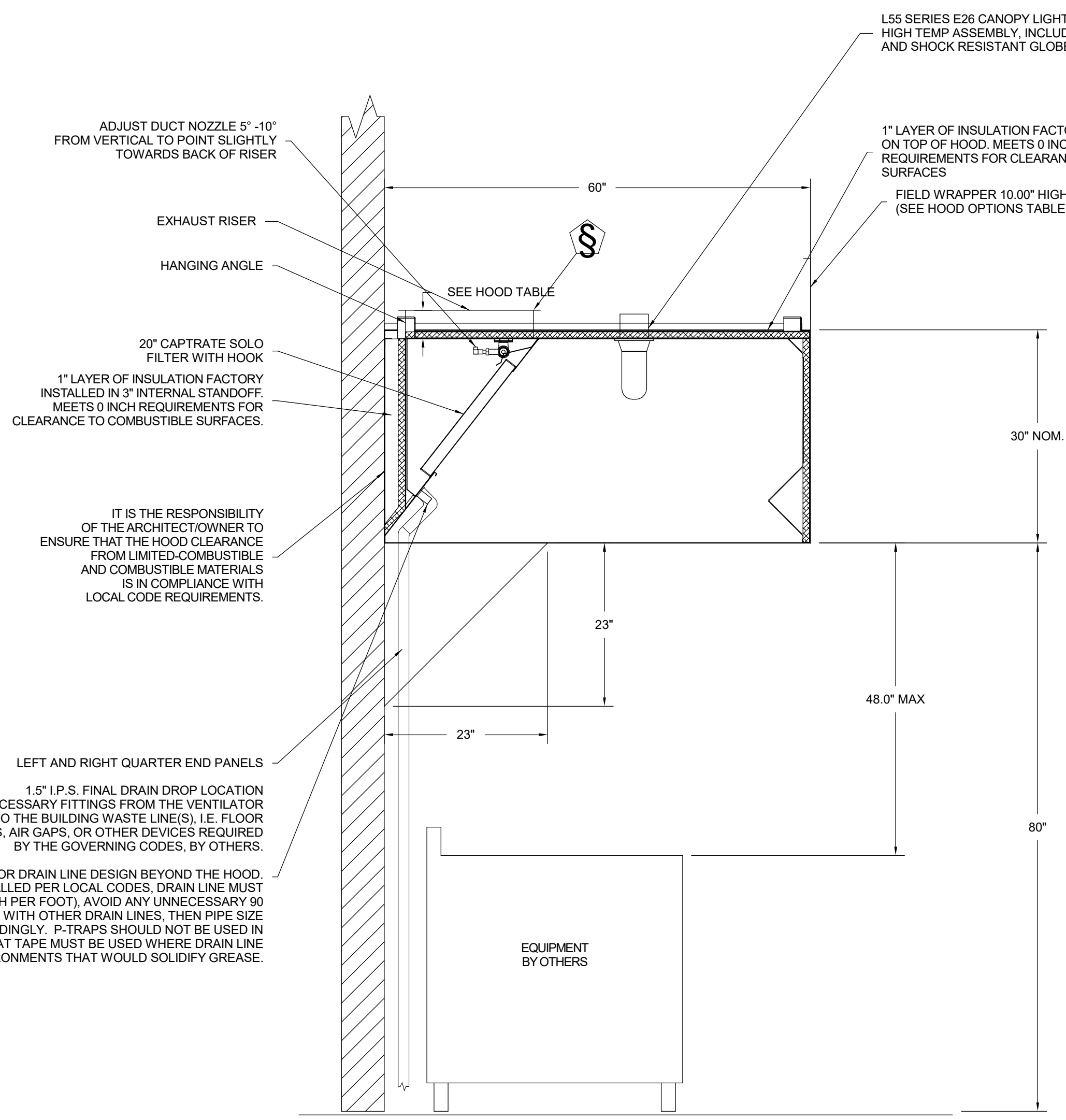
MECHANICAL - KITCHEN EQUIPMENT DRAWINGS

M408

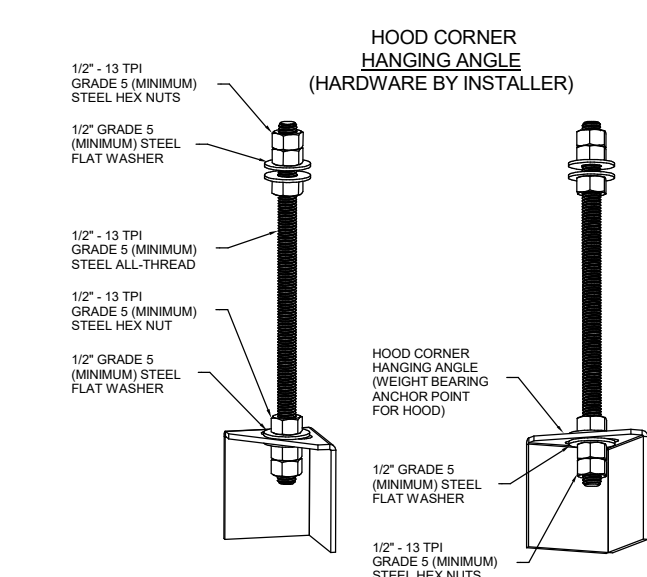
project address | name
 client
 designers
 revisions
 seal
 sheet number | title



PLAN VIEW - Hood #3
8' 2" NOM./8" 2.00" OD
60.30ND-2



SECTION VIEW - MODEL
1600ND-B3
(GRILL)



CORE PROTECTION FIRE SYSTEM SPECIFICATION

The CORE restaurant fire suppression system is a pre-engineered, duct and plenum water spray system in conjunction with a wet chemical, cartridge operated, regulated pressure type with a fixed nozzle agent distribution network. It is listed with ETL to UL Standard 300. The system is capable of automatic detection and actuation and/or remote manual actuation. The detection portion of the fire suppression system allows for automatic detection by means of an electric thermal detector located in the hood duct connection. The FSF103 Pull station is provided to allow for manual activation of the fire system. A Microprocessor based control board supervises all devices that are critical for proper operation. This includes the ductwork sensors, manual pull stations, cartridges, and regulated releases. Also, the control board monitors all additional CORE protection system and will alert the user if any one device encounters an issue. With the electric fire detection, a battery backup system is provided. The battery powers the automatic detection and pull station circuits, as well as monitoring those devices.

The CORE Protection Fire System is ETL Listed under Report number 3132231SAT-004; meets requirements of NFPA 96 (Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment); NFPA 17A (Standard on Wet Chemical Extinguishing Systems).

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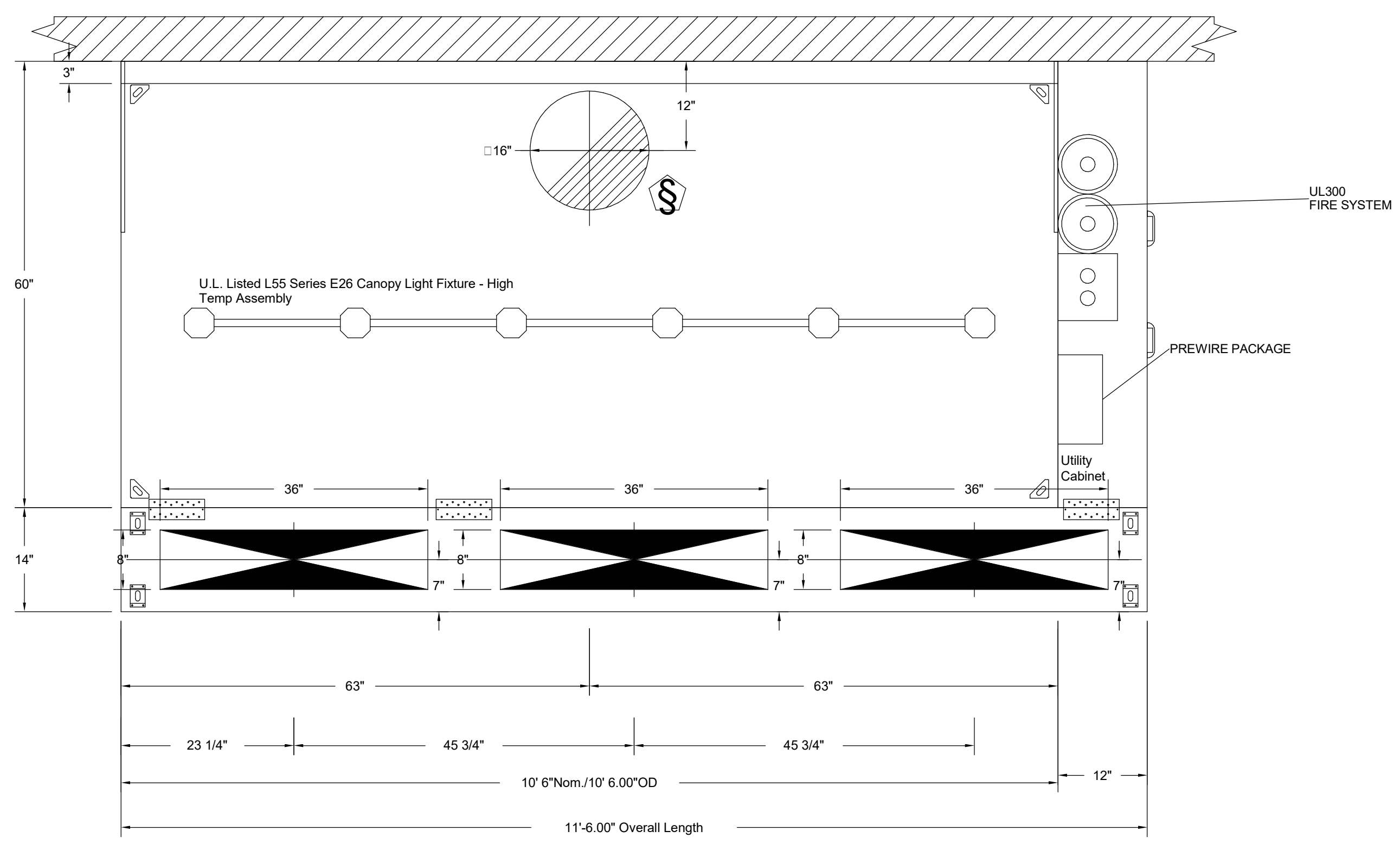
2/19/2021
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 evan.zipperer
 3/4" =
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MASTER DRAWING

CONSTRUCTION DOCUMENTS
12/04/2020

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MECHANICAL - KITCHEN EQUIPMENT DRAWINGS

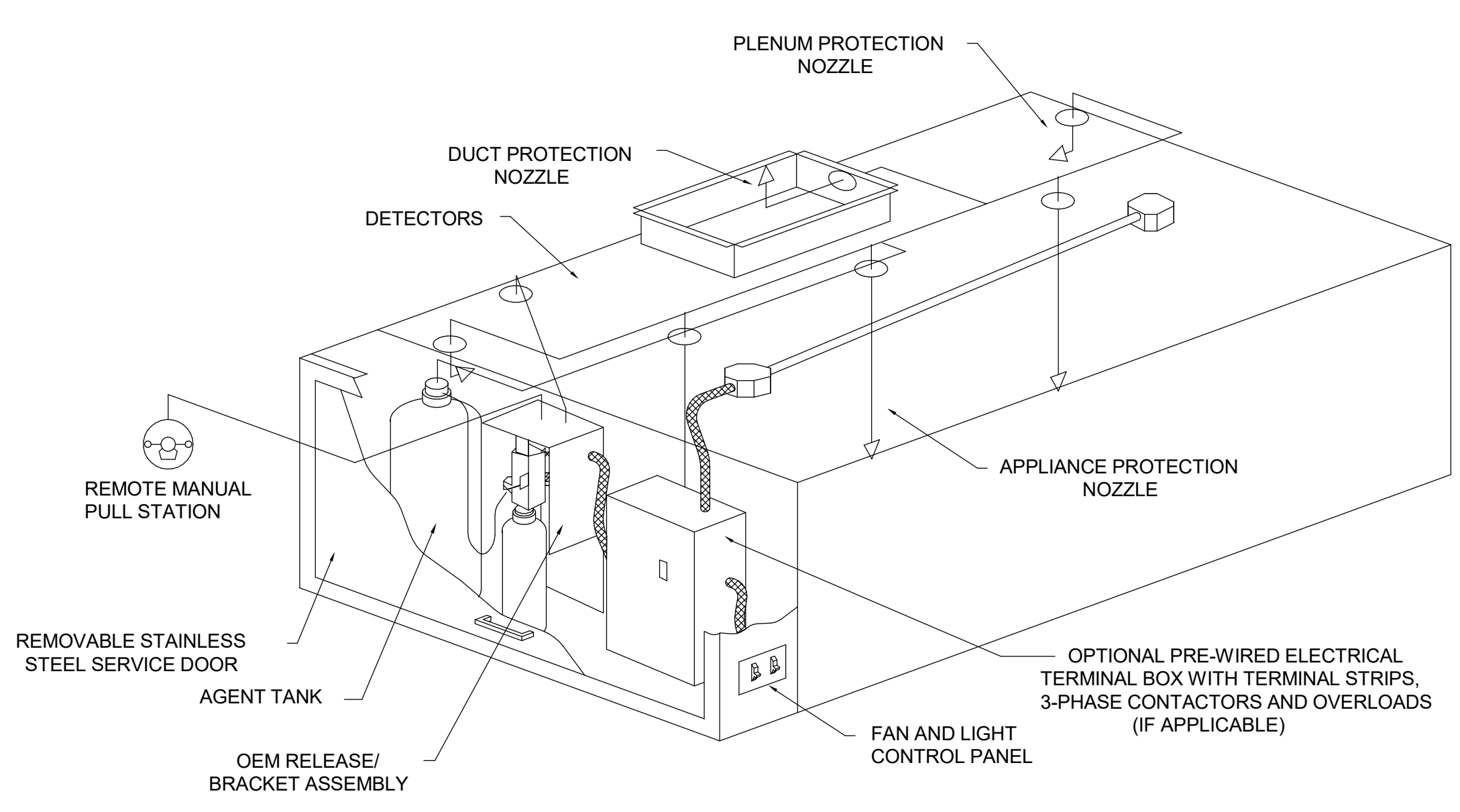
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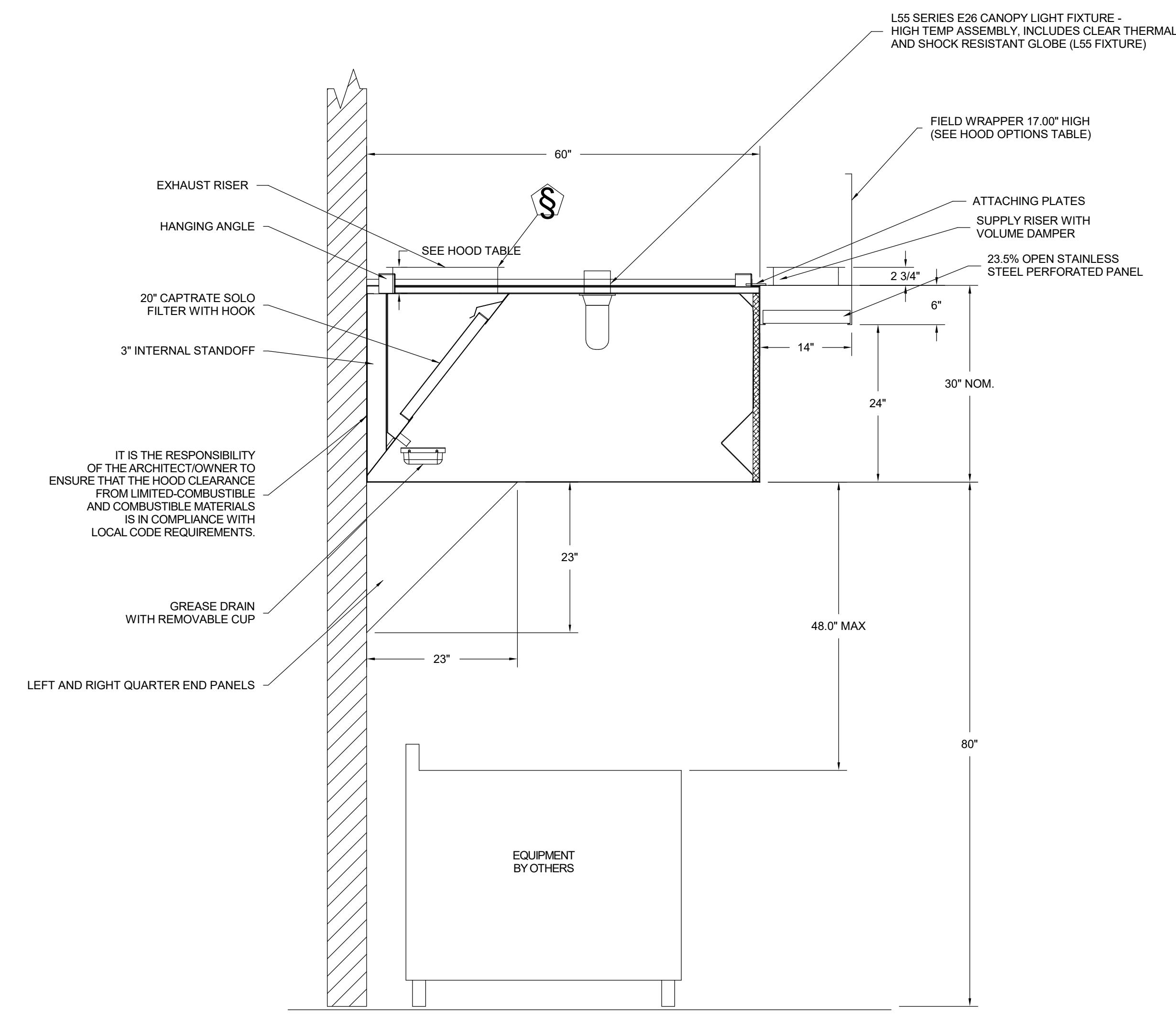
PLAN VIEW - Hood #4
10' FROM 2" LONG
60.30ND-2-PSP-F

FIRE SYSTEM INFORMATION -

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1	276312	GAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	5	FIRE CABINET RIGHT	RIGHT, HOOD 2
2		CORE PROTECTION	0	0	FIRE CABINET LEFT	LEFT, HOOD 3
3		GAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	3	FIRE CABINET RIGHT	RIGHT, HOOD 4



TYPICAL UL300 FIRE SYSTEM



SECTION VIEW - MODEL
60.30ND-2-PSP-F
(BACK)

CAPTIVE

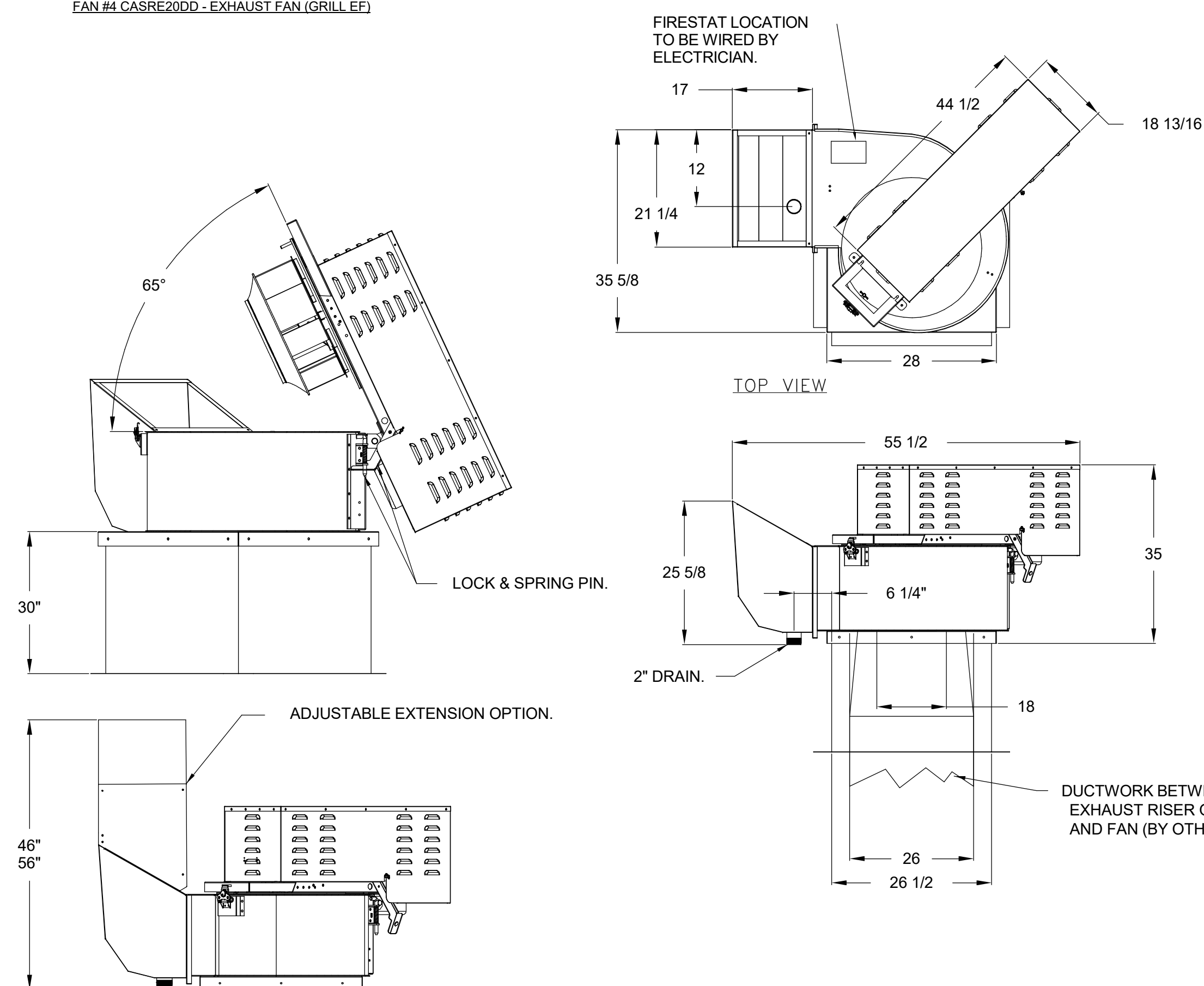
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3/4" = 1'-0"
MASTER DRAWING

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FAN #4 CASRE200D - EXHAUST FAN (GRILLE)



FEATURES:

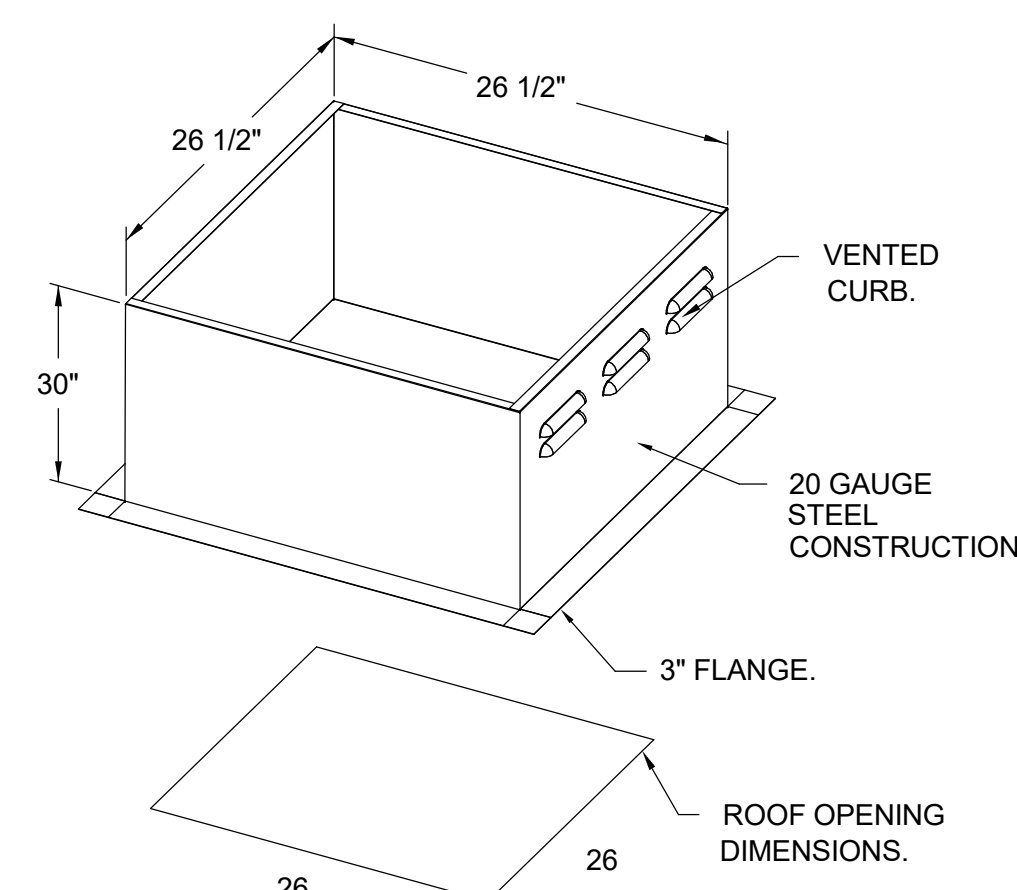
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL762 AND ULC-S645.
- HIGH HEAT OPERATION DIRECT DRIVE 300°F (149°C).
- HEAT SLINGER.
- GREASE CLASSIFICATION TESTING.
- TILT OUT WHEEL.
- LOCKING PIN FOR POWER PACK.
- MOTOR WEATHER COVER.
- INTERLOCKED DISCONNECT SWITCH.
- NEMA 4X SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST BELT & DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

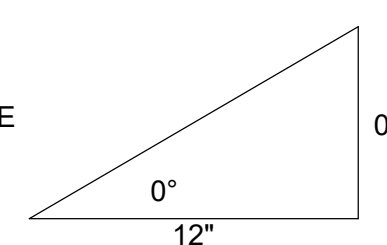
OPTIONS

- UTILITY SET GREASE CUP.
- REX20 - DISCHARGE EXTENSION ASSEMBLY WITH HARDWARE.
- FIRE STAT (800 DEGREE) MOUNTED IN EXHAUST FAN.
- RE300D - HIGH TEMPERATURE HEAT & SMOKE OPTION - 572°F CONTINUOUS.
- FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS.
- UPBLAST FAN WHEEL ACCESS PORT.
- 2 YEAR PARTS WARRANTY.

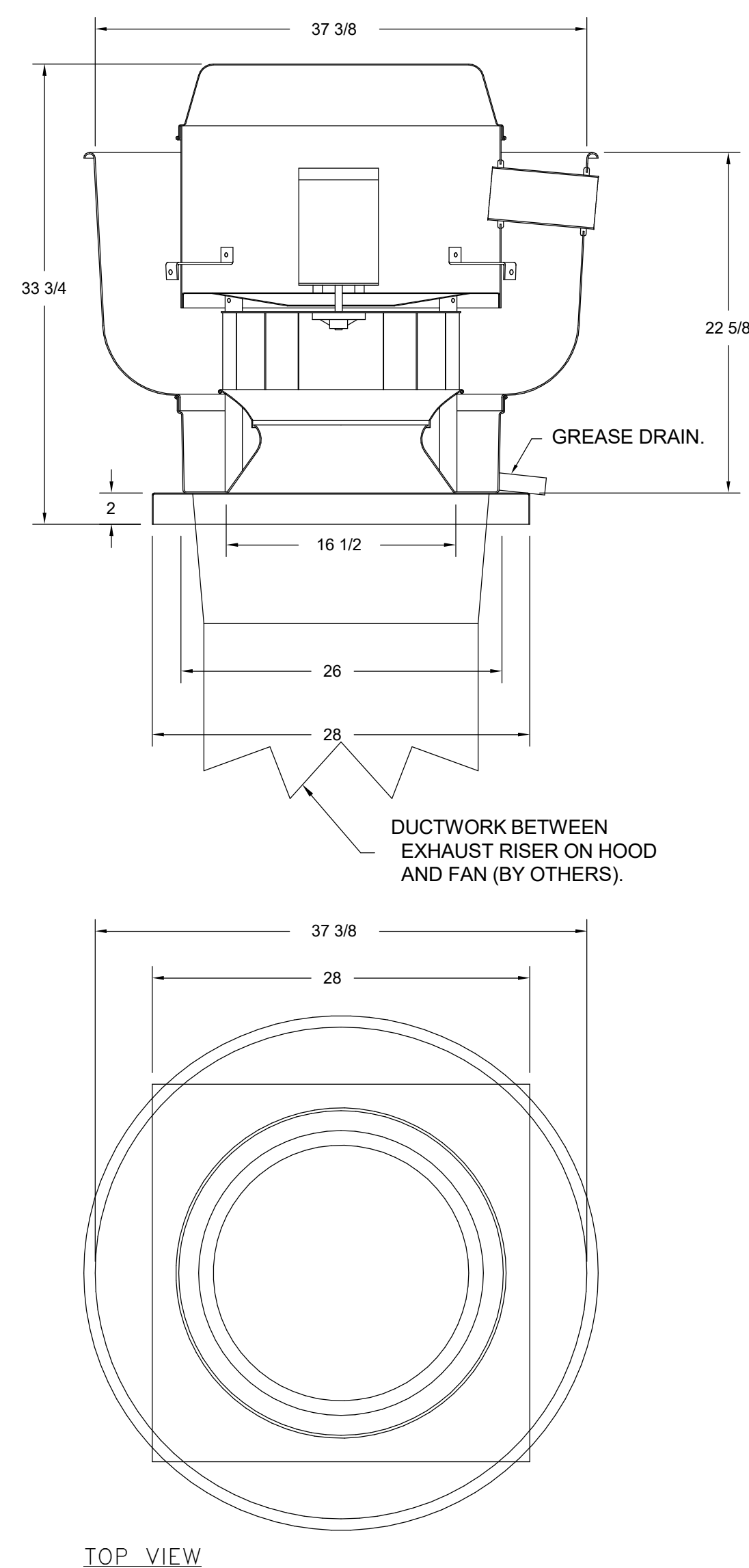


PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.



FAN #5 DU180HFA - EXHAUST FAN (BACK ED)



FEATURES:

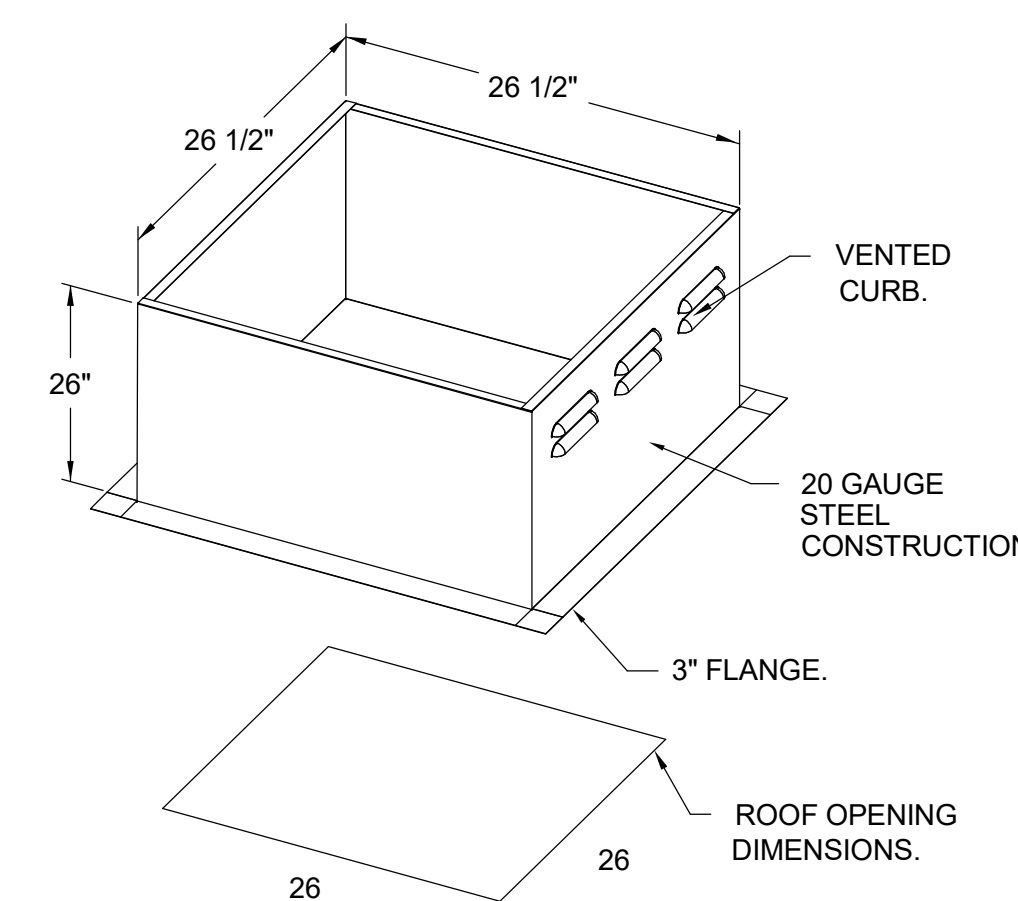
- DIRECT DRIVE CONSTRUCTION (NO BELT/S-PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

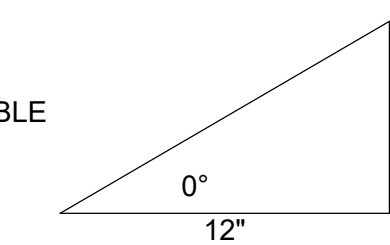
OPTIONS

- GREASE BOX.
- FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS.
- 2 YEAR PARTS WARRANTY.

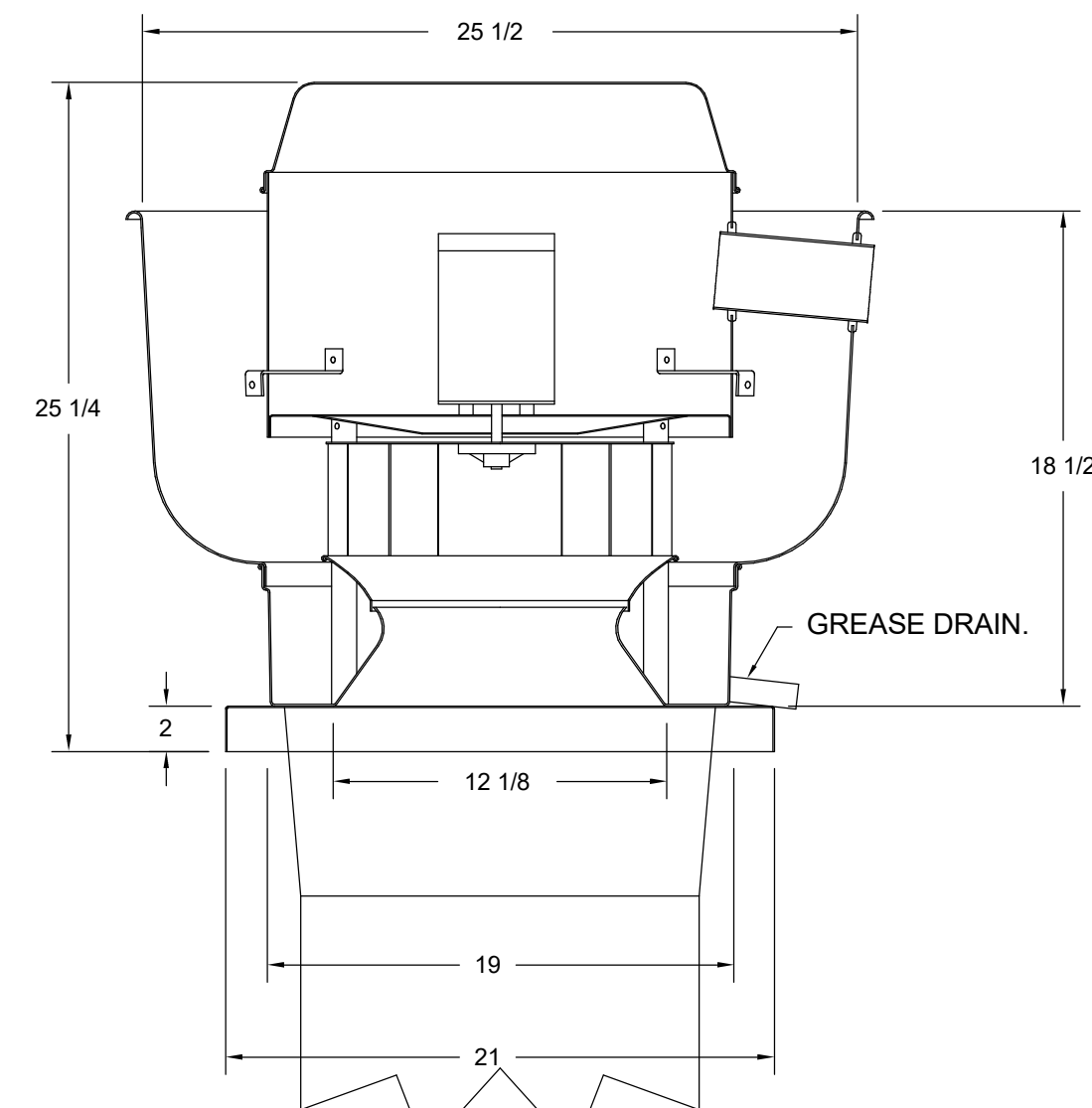


PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

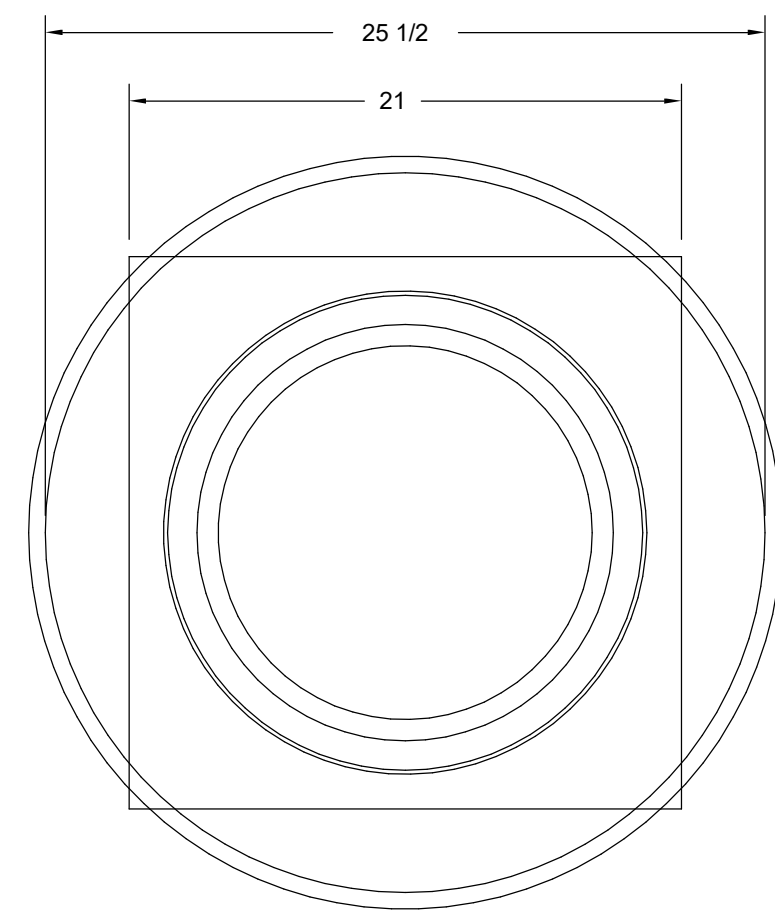
SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE.



FAN #7 DU33HEA - EXHAUST FAN (DISH EF)



DUCTWORK BETWEEN EXHAUST RISER ON HOOD AND FAN (BY OTHERS).



TOP VIEW

FEATURES:

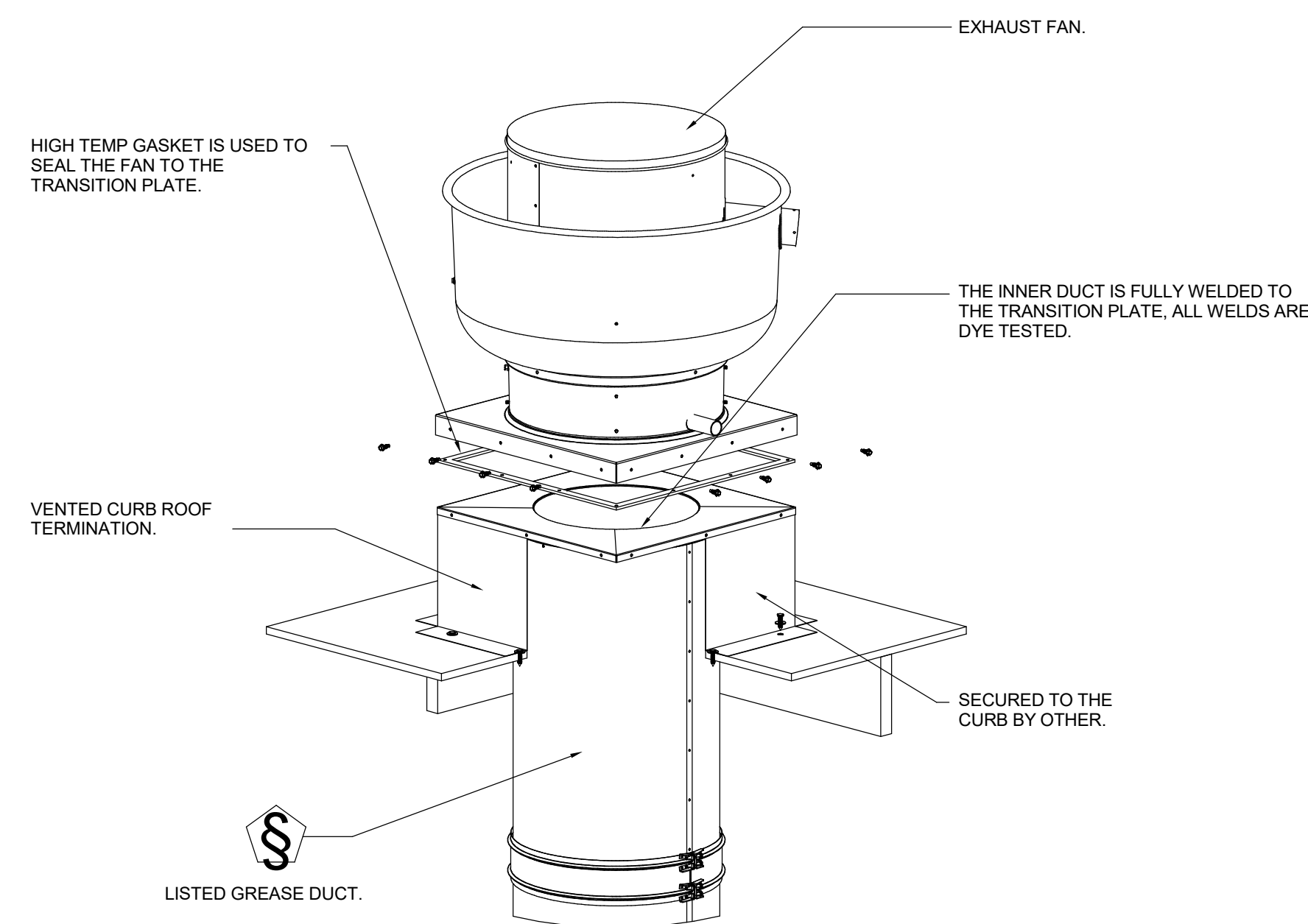
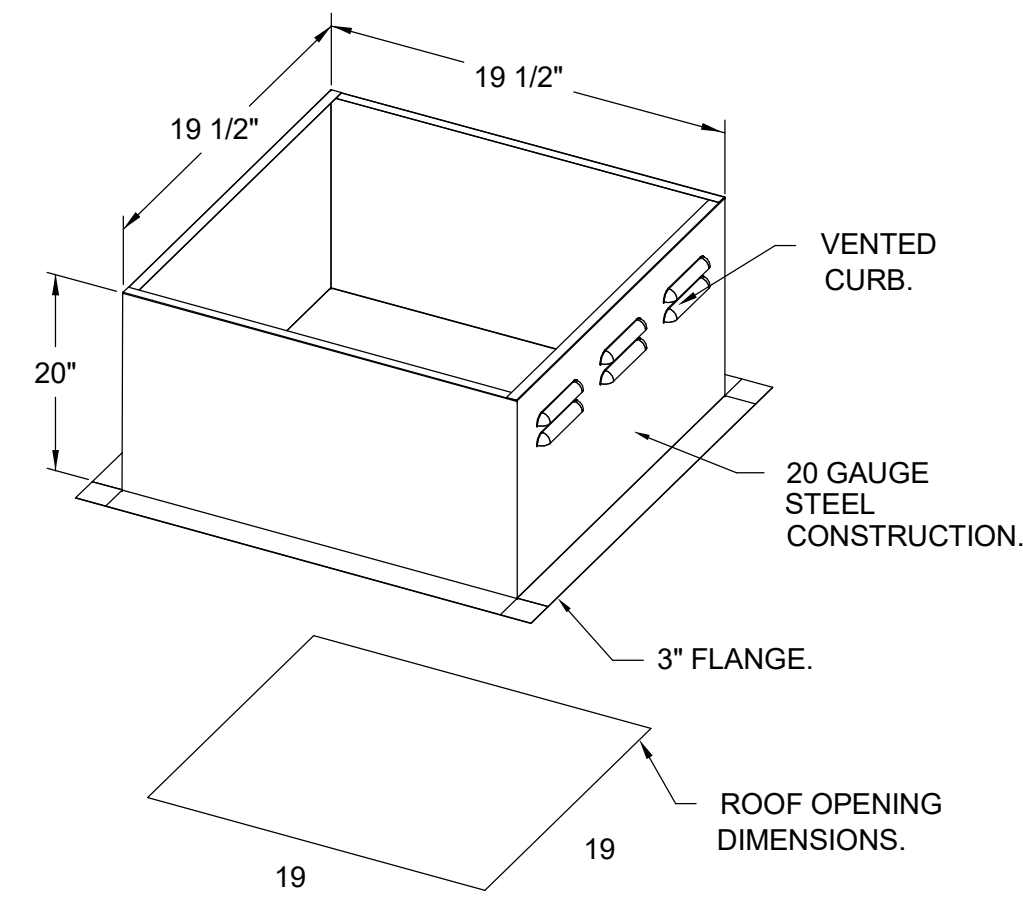
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL782 AND UL-C-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE/UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- 2 YEAR PARTS WARRANTY.



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FIREBIRDS
WOOD FIRED GRILL

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 Certification No. C-2330
 Project Number: 2020096
 Drawn By: Author Checked By: Checker

CONSTRUCTION DOCUMENTS
 12/04/2020

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MECHANICAL - KITCHEN EQUIPMENT DRAWINGS
M413
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