

SECTION 15732 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data and Shop Drawings.
- B. Comply with ASHRAE 15.
- C. EER: Equal to or greater than prescribed by the energy code adopted by the Authority Having Jurisdiction.
- D. Warranties: Submit a written warranty, signed by the manufacturer, agreeing to the repair or replacement of components that fail within 5 years of Substantial Completion.

PART 2 - PRODUCTS

2.1 PACKAGED UNITS, 5 TO 20 TONS

- A. Factory assembled and tested, consisting of compressors, condensers, evaporator coils, condenser and evaporator fans, refrigeration and temperature controls, filters, and dampers.
 - 1. Refer to Rooftop Heating/Cooling Unit Schedule on drawing M600 for capacities, and manufacturers.
 - 2. Evaporator Fans: Belt or direct driven, forward curved centrifugal.
 - 3. Exhaust/Relief Fans: Direct drive, forward curved centrifugal or propeller.
 - 4. Condenser Fans: Direct drive propeller.
 - 5. Refrigerant Coils: Aluminum fins and copper coil.
 - 6. Compressors: Serviceable hermetic or fully hermetic, with safety controls, hot gas bypass, and timed off controls.
 - 7. Heat Exchangers: Gas fired, with gas controls, electronic ignition, high limit cutout, and forced draft proving switch.
 - 8. Economizer controls (Comparative Enthalpy, 100% capacity).
 - 9. Smoke Detectors: Photoelectric in supply and/or return as called for in schedule on sheet M600.
 - 10. Operating Controls: Two stage heating and two stage cooling on units 7-1/2 tons and over.
 - 11. Roof curb.
 - 12. Control Wiring from T-stat to rooftop unit: Shall be 18ga / 7 conductor, rated for plenum applications.
 - 13. Control Wiring from T-stat to remote sensor: Shall be a separate 18ga / 2 conductor shielded, rated for plenum applications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install units level and plumb and firmly anchored.
- B. Connect gas piping to burner with pipe same size as gas train inlet, and provide union with sufficient clearance for burner removal and service.
- C. Install ducts to termination in roof mounting frames. Terminate ducts through roof structure.
- D. Connect units to wiring systems and to ground.

END OF SECTION 15732

SECTION 15810 - DUCTS AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data for fire and smoke dampers.
- B. Comply with NFPA 90A for systems serving spaces more than 25,000 cu. ft. in volume or building Types II, IV, and V construction more than 3 stories in height.
- C. Comply with NFPA 90B for systems serving spaces in 1 or 2 family dwellings or serving spaces less than 25,000 cu. ft..
- D. Comply with NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," for kitchen hood ducts.
- E. Comply with UL 181 and UL 181A for ducts and closures.
- F. Testing, Adjusting, and Balancing Agency Qualifications: AABC certified (to be furnished by Tenant).

PART 2 - PRODUCTS

2.1 DUCTS

- A. Spiral Duct: Spiral Lock Seam, without insulation, G90 galvanized finish, ASTM A-653/G24
 - 1. Basis of Design Manufacturers: Lindab SPIROsafe, alternates to the basis of design must be submitted for review.
 - 2. Fittings: Factory produced standing seam construction with internal sealing. Fittings with a major axis of 36" or smaller shall be 20 gauge. Fittings with a major axis of 37"-48" shall be 18 gauge.
- B. Galvanized Steel Sheet: Forming steel, ASTM A 653/653M, G90 coating designation.
- C. Duct Liner: ASTM C 1071, Type II, with an airstream surface coated with a temperature resistant coating. Thickness: 1-1/2 inch. R-value : 8.
 - 1. Adhesive: ASTM C 916, Type I.
 - 2. Mechanical Fasteners: Galvanized steel pin, length as required to penetrate liner plus a 1/8 inch projection maximum into the airstream.
- D. Joint and Seam Tape: Comply with UL 181A.
- E. Joint and Seam Sealant: Comply with UL 181A.
- F. Rectangular Metal Duct Fabrication: Comply with SMACNA's "HVAC Duct Construction Standard" for metal thickness, reinforcing types and intervals, tie rod applications, and joint types and intervals.

2.2 ACCESSORIES

- A. Volume-Control Dampers: Factory fabricated volume control dampers, complete with required hardware and accessories. Single blade and multiple opposed blade, standard leakage rating, and suitable for horizontal or vertical applications.
- B. Fire Dampers: Factory-fabricated fire dampers, complete with required hardware and accessories. UL labeled according to UL 555, "Fire Dampers".
- C. Flexible Connectors: Flame retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.
- D. Flexible Ducts: Factory fabricated, insulated, round duct, with an outer jacket enclosing 2 inch thick, glass fiber insulation, R-value: 6.0, around a continuous inner liner.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Duct System Pressure Class: Construct and install each duct system with 2 inch positive and negative duct pressure classifications.
- B. Conceal ducts from view in finished and occupied spaces. Except where noted as exposed.
- C. Avoid passing through electrical equipment spaces and enclosures.
- D. Support and connect metal ducts according to SMACNA's "HVAC Duct Construction Standard".
- E. Install duct accessories according to applicable portions of details of construction as shown in SMACNA standards.
- F. Install liner and/or insulation on ductwork per the material schedule on sheet M010.
- G. Install volume control dampers in lined duct with methods to avoid damage to liner and to avoid erosion of duct liner.
- H. Install fire and smoke dampers according to manufacturer's UL approved written instructions.
- I. Install fusible links in fire dampers.
- J. Provide saddle taps at tees for exposed ductwork.

3.2 TESTING, ADJUSTING, AND BALANCING

- A. The Tenant will supply an independent balance agent to to balance and adjust the HVAC installation. The balance agent will be responsible for any pulley or belt changes required.
- B. The GC is to have trained staffed available during the balancing to correct issues noted by the balance agent.
- C. The balance agent is to balance airflow within distribution systems, including submains, branches, and terminals to indicated quantities +/- 10%. The hood exhaust system shall be balanced to a tolerance of -0+10% and the make-up air system to a tolerance of -10+0%.
- D. The balance agent is to supply a copy of the balance report to the Tenant, engineer and general contractor for review.

END OF SECTION 15810

SECTION 15855 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: None.

PART 2 - PRODUCTS

2.1 OUTLETS AND INLETS

- A. All air terminal devices:
 - 1. Refer to Grills, Registers, and Diffusers Schedule for equipment schedule
 - 2. Manufacturer: As scheduled (NO SUBSTITUTIONS)
 - 3. Material: As scheduled.
 - 4. Finish: As scheduled.
 - 5. Mounting: As scheduled.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate location and installation with duct installation and installation of other ceiling and wall mounted items.
- B. Locate ceiling diffusers, registers, and grilles, as indicated on the architectural "reflected ceiling plans." Unless otherwise indicated, locate units in center of acoustical ceiling panels.

END OF SECTION 15855

HVAC MATERIAL SCHEDULE		
CATEGORY	APPLICATION	ALLOWABLE MATERIAL
DUCT	EXPOSED SUPPLY	RECT. LINED OR ROUND AS SHOWN, NO EXPOSED DUCT-SEALING MASTIC
	EXPOSED RETURN	RECTANGULAR, NO EXPOSED DUCT-SEALING MASTIC
	EXPOSED GEN. EXHAUST	RECTANGULAR OR ROUND AS SHOWN, NO EXPOSED DUCT-SEALING MASTIC
	CONCEALED, SUPPLY	RECT. OR ROUND AS SHOWN, LINED OR INSULATED
	CONCEALED, RETURN	RECT. OR ROUND AS SHOWN, LINED OR INSULATED
	CONCEALED, GEN. EXHAUST	RECT. OR ROUND AS SHOWN
	CONCEALED, TYPE I HOOD EXHAUST	RECTANGULAR 16 GA. BLACK IRON W/ WRAP OR UL 1978 FACTORY-MANUFACTURED DUCT W/ WRAP (SUBMIT SHOP DRAWINGS FOR FACTORY-MANUFACTURED DUCT PRIOR TO ORDERING FOR APPROVAL)

HVAC GENERAL NOTES

- A. GENERAL NOTES APPLY TO HVAC SHEETS.
- B. WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.
- C. CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.
- D. COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
- E. DRAWINGS FOR THE MECHANICAL WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWING SHALL NOT BE SCALED FOR EXACT MEASUREMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, OFFSETS, ACCESSORIES, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- F. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF INTERNAL FREE AREA.
- G. PERFORATED CEILING DIFFUSERS SHALL BE 4-WAY UNLESS NOTED OTHERWISE.
- H. COORDINATE ROOF WORK WITH THE OWNER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
- I. UNLESS NOTED OTHERWISE RECTANGULAR DUCT ELBOWS GREATER THAN 45° SHALL BE MITERED ELBOWS WITH DOUBLE-THICKNESS TURNING VANES AND RECTANGULAR DUCT ELBOWS 45° OR LESS SHALL BE RADIUSED ELBOWS WITH AN INSIDE RADIUS OF AT LEAST 1/2 THE WIDTH OF THE DUCT.
- J. REPLACE AIR FILTERS WITH NEW, CLEAN MERV 8 AIR FILTERS AT TURNOVER.
- K. THE TERM "FURNISH" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
- L. PROVIDE LABELING CALLED FOR IN THE HVAC DRAWINGS USING ENGRAVED PHENOLIC PLATES.
- M. PROVIDE P3000 12 GA. UNISTRUT WITH PG FINISH FOR DUCT SUPPORTS AND OTHER UNISTRUT IN AREAS EXPOSED TO VIEW. SLOTTED UNISTRUT AND OTHER UNISTRUT WITH HOLES IS NOT ACCEPTABLE.

HVAC ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- CD CEILING DIFFUSER
- CU CONDENSING UNIT
- (E) EXISTING
- EF EXHAUST FAN
- ER EXHAUST REGISTER
- EXT'G EXISTING
- HD HOOD
- MUA MAKEUP AIR UNIT
- OBD BLADE DAMPER
- RG RETURN GRILLE
- RTU ROOFTOP UNIT
- SR SUPPLY REGISTER
- VSC VARIABLE SPEED CONTROL
- COZAS TENANT'S CO2 ALARM SUPPLIER
- GC GENERAL CONTRACTOR
- HES TENANT'S HVAC EQUIPMENT SUPPLIER
- HS TENANT'S HOOD SUPPLIER
- KES TENANT'S KITCHEN EQUIPMENT SUPPLIER
- TAB TENANT'S TEST AND BALANCE VENDOR
- TCC TENANT'S CABLING CONTRACTOR
- TDC TENANT'S DUCT CLEANER
- TEMS TENANT'S ENERGY MANAGEMENT SYSTEM SUPPLIER
- TLS TENANT'S LIGHT/LAMP SUPPLIER
- TMB TENANT'S MENU BOARD SUPPLIER
- TMS TENANT'S MILLWORK SUPPLIER
- TP TENANT'S PHONE SUPPLIER
- TRS TENANT'S RAILING SUPPLIER
- TSV TENANT'S SIGN VENDOR
- TUV TENANT'S UV SANITIZER SUPPLIER
- WCS TENANT'S WALK-IN COOLER SUPPLIER
- WHS TENANT'S WATER HEATER SUPPLIER

HVAC SYMBOLS

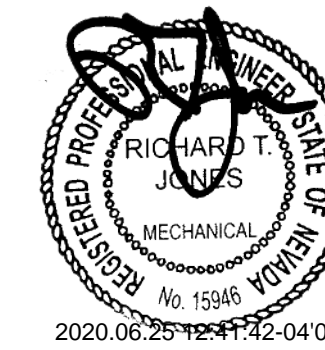
- CEILING DIFFUSER
- CEILING-MOUNTED RETURN OR EXHAUST REGISTER
- SUPPLY REGISTER
- RETURN GRILLE
- FLEXIBLE DUCT
- MITERED CORNER WITH TURNING VANES
- DUCTWORK INTERNAL FREE DIMENSIONS (WIDTH/HEIGHT) RECTANGULAR TO ROUND DUCT TRANSITION
- DUCT-MOUNTED SMOKE DETECTOR
- MOTOR-OPERATED DAMPER
- MANUAL VOLUME DAMPER
- GREASE DUCT CLEANOUT
- MITERED CORNER WITHOUT TURNING VANES
- GRIDPOINT THERMOSTAT
- GRIDPOINT ZONE SENSOR MODULE
- GRIDPOINT SUPPLY PROBE
- PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
- CONNECT TO EXISTING
- EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET M600 FOR EQUIPMENT INFORMATION
- AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET
- GRILL, REGISTER, OR DIFFUSER TAG: TAG NECK SIZE AIRFLOW [CFM]

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Contents:

HVAC SPECIFICATIONS

M010

VIROGUARD SCHEDULE

TAG	QUANTITY	DESCRIPTION	DUCT CONNECTION SIZE	FAN	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN MANUFACTURER
VG-1	1	VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM	18" X 18"	CAPTIVE-AIRE NCA24HPFA	TDC	GC	ENVIROMATIC

AIR DOOR SCHEDULE

TAG	OPENING WIDTH	AIRFLOW			ELECTRICAL			FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
		MAX FPM	AVG FPM	CFM	MOCP	FLA	V/P/H			MANUFACTURER	MODEL	
AD-1	36"	3600	2116	1036	20 A	3.4 A	120/1/60	HES	GC	BERNER	ALC08-1036A	

GRILLS, REGISTERS, AND DIFFUSERS SCHEDULE

TAG	DESCRIPTION	FACE SIZE	MATERIAL	FINISH	MOUNTING	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		NOTES
								MANUFACTURER	MODEL	
BS1	BATHROOM AIR PURIFICATION UNIT	5.44" X 16"	ALUMINUM	STAINLESS STEEL	GYP CEILING	TUV	GC	RGF ENVIRONMENTAL GROUP	BRU ASSEMBLY	SEE ELECTRICAL SHEETS FOR CONNECTION INFORMATION
CD1	PERFORATED CEILING DIFFUSER	24" X 24"	ALUMINUM	WHITE	LAY-IN CEILING	GC	GC	NAILOR	4320A TYPE L	PROVIDE INTEGRAL OBD
CD2	PERFORATED CEILING DIFFUSER	12" X 12"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4320A TYPE S	PROVIDE INTEGRAL OBD, REMOVE 4-WAY DEFLECTOR
CD3	PERFORATED CEILING DIFFUSER	20" X 20"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4320A TYPE S	PROVIDE INTEGRAL OBD
ER1	PERFORATED CEILING EXHAUST	12" X 12"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4330R TYPE S	PROVIDE INTEGRAL OBD
RG1	PERFORATED CEILING RETURN	48" X 24"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4330R TYPE L	
RG2	PERFORATED CEILING RETURN	48" X 24"	ALUMINUM	WHITE	GYP CEILING	GC	GC	NAILOR	4330R TYPE S	
SR1	ADJUSTABLE TURBO NOZZLE	SEE NECK SIZE	ALUMINUM	WHITE	WALL	GC	GC	SEIHO	NT16	PROVIDE FACE-ACCESSIBLE OBD

FAN SCHEDULE

TAG	DRIVE TYPE	EXHAUST FLOW [CFM]	E.S.P. [in W.C.]	WEIGHT [lbs]	ELECTRICAL		FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
					MOTOR POWER	V/P/H			MANUFACTURER	MODEL	
EF-1	BELT	3200 CFM	1.20 in-wg	300	2 HP	208/3/60	HS	GC	CAPTIVE-AIRE	NCA24HPFA	FURNISHED WITH DISCONNECT AND VENTED ROOF CURB
EF-2	DIRECT	150 CFM	0.60 in-wg	100	0.18 HP	120/1/60	HS	GC	CAPTIVE-AIRE	DR12HFA	FURNISHED WITH DISCONNECT, VARIABLE SPEED CONTROLLER, BACKDRAFT DAMPER AND ROOF CURB

MAKEUP AIR UNIT WITH EVAPORATIVE COOLING SCHEDULE

TAG	DESCRIPTION	AIRFLOW		HEATING CAPACITY				EVAPORATIVE COOLING CAPACITY				APPROXIMATE WEIGHT [LBS]	ELECTRICAL		FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS	
		TOTAL [CFM]	E.S.P. [in. W.C.]	INPUT [MBH]	OUTPUT [MBH]	MAXIMUM TURNDOWN	EAT [DEG. F]	DB	WB	DB	WB		MOTOR POWER	V/P/H			MANUFACTURER	MODEL		
MAU-1	MAKEUP AIR UNIT	1950	0.8	78	71	12.5:1	27 °F	106 °F	68 °F	84 °F	68 °F	0.5	850	2 HP	208/3/60	THS	GC	CAPTIVE-AIRE	A1-D.250-G10	FURNISHED WITH DISCONNECT, ROOF CURB, AND EVAPORATIVE COOLER INTAKE

CONDENSING UNIT SCHEDULE

TAG	DESCRIPTION	NOMINAL CAPACITY [TONS]	NUMBER OF COMPRESSORS	NUMBER OF CIRCUITS	REFRIGERANT TYPE	REFRIGERANT CHARGE	WEIGHT	ELECTRICAL			FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
								MOCP	FLA	V/P/H			MANUFACTURER	MODEL	
CU-1	WALK-IN COOLER REMOTE CONDENSING UNIT	--	1	1	R-404A		200	15 A	6.5 A	208/3/60	WCS	GC	HARFORD	PCL99MOP-3	FURNISHED WITH WALK-IN COOLER
CU-2	ICE MAKER - REMOTE CONDENSER	--	0	1	R-404A	11 lbs 7.4 oz	100			120/1/60	KES	GC	-	-	FURNISHED WITH ICE MAKER
CU-3	ICE MAKER - REMOTE CONDENSER	--	0	1	R-404A	11 lbs 7.4 oz	100			120/1/60	KES	GC	-	-	FURNISHED WITH ICE MAKER

KITCHEN HOOD SCHEDULE

TAG	DESCRIPTION	MAX COOKING TEMP.	EXHAUST PLENUM								PERFORATED SUPPLY PLENUMS								NUMBER OF LIGHT FIXTURES	APPROXIMATE WEIGHT [lbs]	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS	
			DUCT COLLARS				SP [in. W.C.]	SUPPLY PLENUM LENGTH	SUPPLY PLENUM WIDTH	MAU PLENUM			AC PLENUM		MANUFACTURER	MODEL										
			NO.	WIDTH	LENGTH	LENGTH				NO.	WIDTH	LENGTH	AIRFLOW [CFM]	DUCT COLLARS			AIRFLOW [CFM]	DUCT COLLARS								
HD-1	TYPE I CANOPY HOOD WITH PERFORATED MAU AND AC SUPPLY PLENUMS	600°F	3200	0.86	2	10"	15"	14'-3"	4'-3"	0.2	15'-3"	22"	1950	3	10"	28"	800	7	8"	10	1200	HS	GC	CAPTIVE-AIRE	5424 ND-2-ACP5P-F	MAT'L: 18 GA. TYPE 430 SS. PROVIDE WITH 16" TALL HE SS FILTERS, INTEGRAL UTILITY CABINET, ANSUL SYSTEM, DUCT COLLAR TEMPERATURE SENSOR, PREWIRE PACKAGE, SPARE FIRE SYSTEM DRY CONTACT, AND 4-POLE 20A CONTACTOR

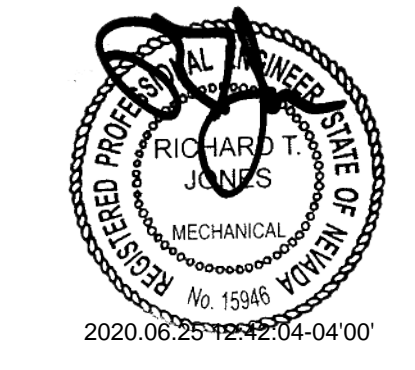
ROOFTOP UNIT SCHEDULE

TAG	DESCRIPTION	NOMINAL CAPACITY [TONS]	EER	AIRFLOW			NET COOLING CAPACITY				HEATING CAPACITY			# OF COMPRESSORS	# OF CIRCUITS	REFRIG. TYPE	REFRIG. CHARGE	APPROX. WEIGHT [lbs]	ELECTRICAL			FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS	
				TOTAL [CFM]	OA [CFM]	ESP [IN. W.C.]	TOTAL [MBH]	SENSIBLE [MBH]	EAT [DEG. F]	COND. EAT [DEG. F]	INPUT [MBH]	OUTPUT [MBH]	EAT [DEG. F]						MOCP	FLA	V/P/H			MANUFACTURER	MODEL		
RTU-1	KITCHEN ROOFTOP UNIT	8.5	12.5	3400	600	0.8	85	72	81	65	110	110	88	90	2	2	R-410A	6.3/4.9	1500	50 A	42.0 A	208/3/60	HES	GC	TRANE	YHC102	FURNISHED WITH COMP. ENTHALPY ECON., BAROMETRIC RELIEF, SUPPLY SMOKE DETECTOR W/ REMOTE KEYED ANNUNCIATOR/RESET, M.O.D., MERV-8 FILTERS, CURB, HAIL GUARD, TOOLLESS HINGED ACCESS PANELS, DISCONNECT, & UNIT-MOUNTED CONVENIENCE RECEPTACLE
RTU-2	DINING ROOM ROOFTOP UNIT	12-1/2	12.1	5000	1000	0.8	128	120	83	62	110	150	120	84	2	2	R-410A	25 LBS	1900	80 A	65.0 A	208/3/60	HES	GC	TRANE	YHD150	FURNISHED WITH COMP. ENTHALPY ECON., BAROMETRIC RELIEF, SUPPLY SMOKE DETECTOR W/ REMOTE KEYED ANNUNCIATOR/RESET, M.O.D., MERV-8 FILTERS, CURB, HAIL GUARD, TOOLLESS HINGED ACCESS PANELS, DISCONNECT, & UNIT-MOUNTED CONVENIENCE RECEPTACLE

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AIR BALANCE SCHEDULE

Tag	Supply Flow [CFM]	Return Flow [CFM]	Exhaust Flow [CFM]	Subtotal [CFM]
EF-1	0	0	3200	-3200
EF-2	0	0	150	-150
MAU-1	1950	0	0	1950
RTU-1	3400	2800	0	600
RTU-2	5000	4000	0	1000
Net Pressurization [CFM]				200

CONTROL FUNCTIONS

- THE MAIN COOKING EXHAUST FAN AND MAKE-UP AIR UNIT SHALL BE INTERLOCKED TO OPERATE TOGETHER. THIS CONTROL CIRCUIT IS ACTIVATED BY A SWITCH AND INCLUDES A FIRE PROTECTION OVERRIDE.
- THE TEMPERATURE IN EACH ZONE IS CONTROLLED BY SPACE TEMPERATURE SENSORS CONNECTED TO THE THERMOSTATS LOCATED IN THE OFFICE. ALL ZONES SHALL OPERATE WITH CONTINUOUS FAN OPERATION DURING OCCUPIED TIMES AND INTERMITTENTLY AS NEEDED TO MAINTAIN SET POINTS DURING UNOCCUPIED TIMES. OUTSIDE AIR DAMPERS SHALL BE OPEN CONTINUOUSLY WHEN EITHER IN OCCUPIED MODE OR WHEN THE HOOD SYSTEM IS ON AND SHALL BE CLOSED DURING UNOCCUPIED PERIODS.
- THE THERMOSTATS SHALL DETERMINE OCCUPIED/UNOCCUPIED STATUS BASED ON THE SCHEDULE IN THE ENERGY MANAGEMENT SYSTEM.

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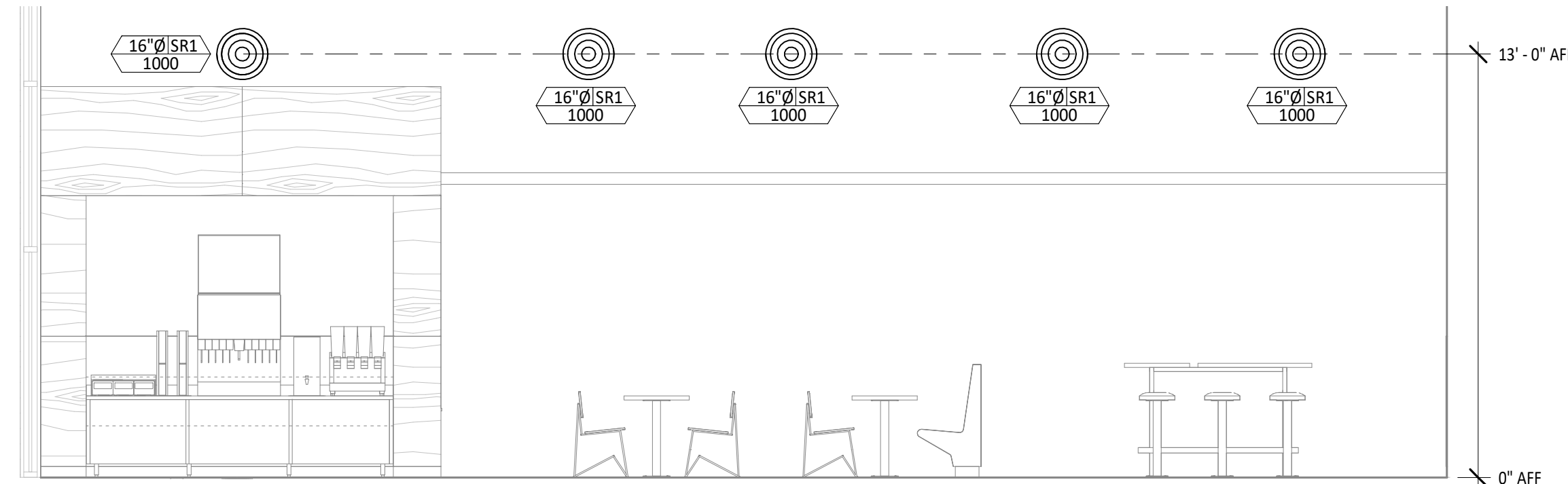
Revisions:

Drawn: ZMW Checked: MKT/JLD

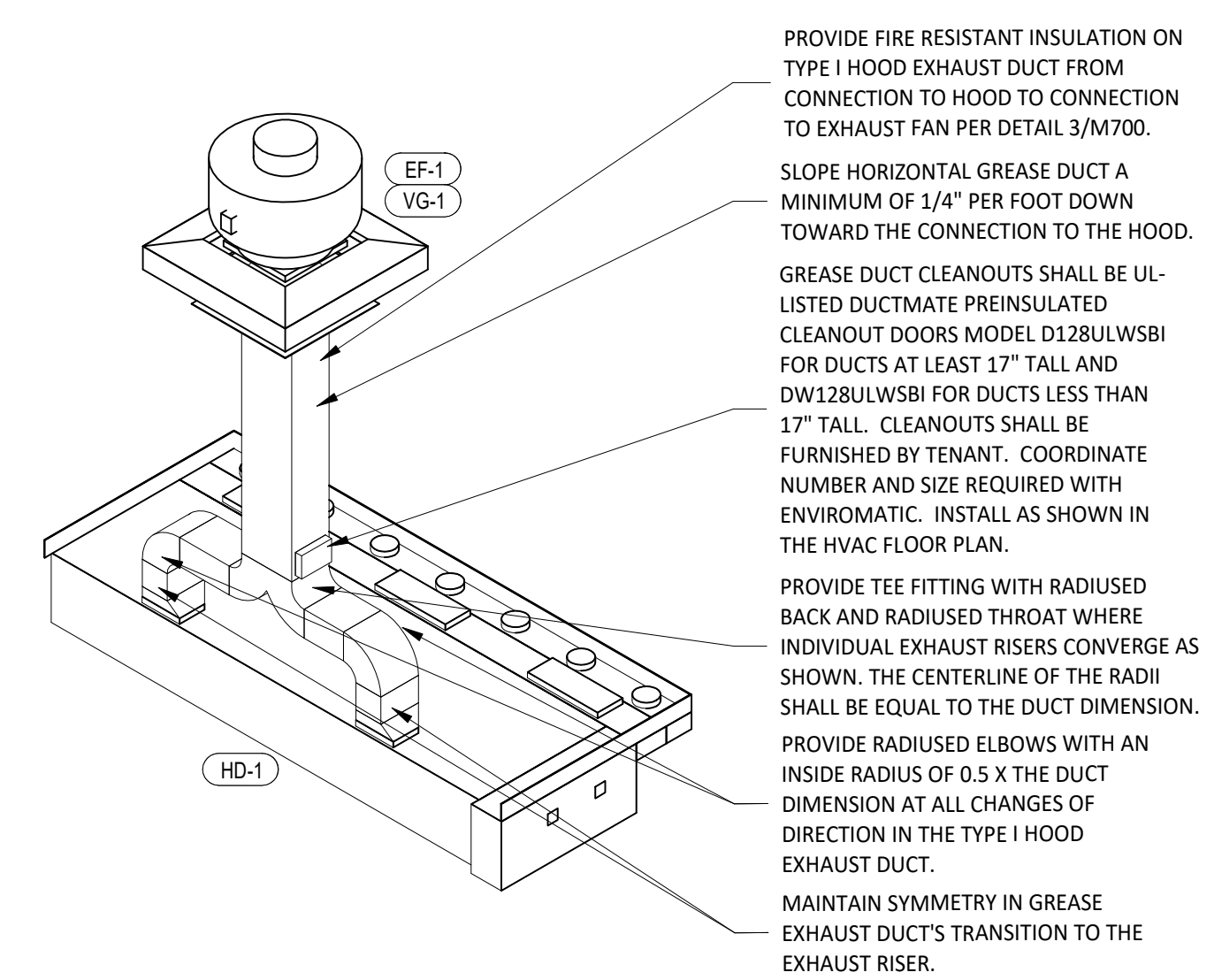
Project No: 2001037

Contents: HVAC SCHEDULES

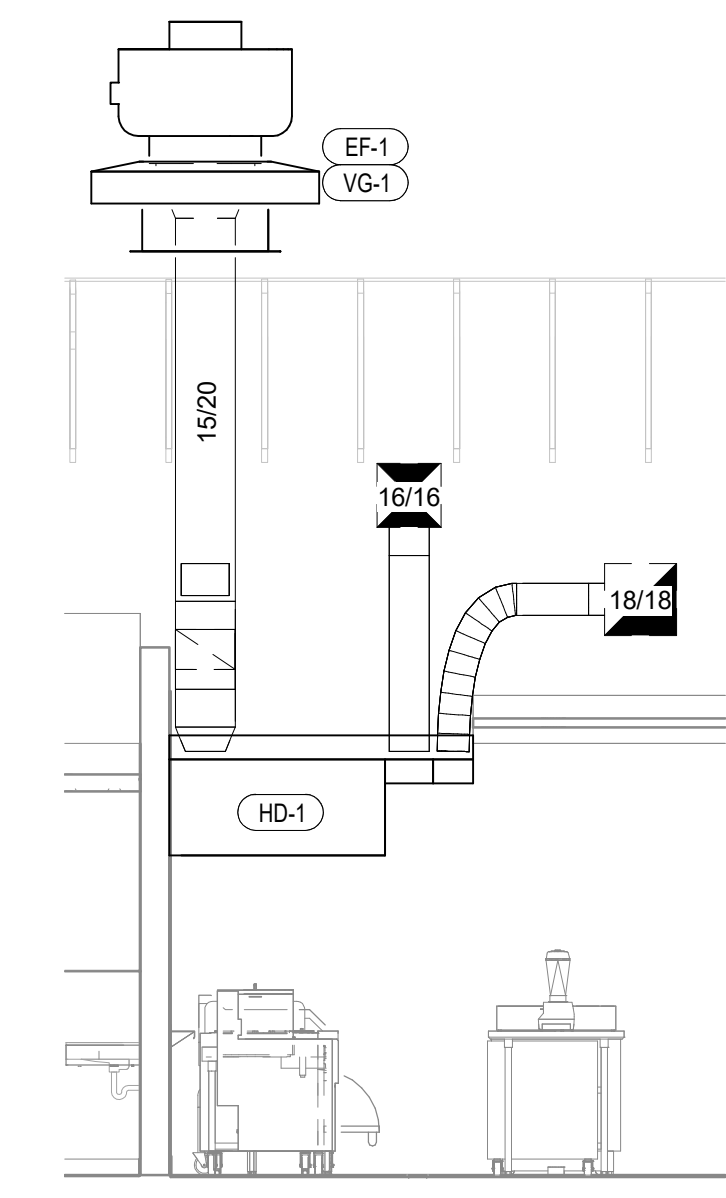
M600



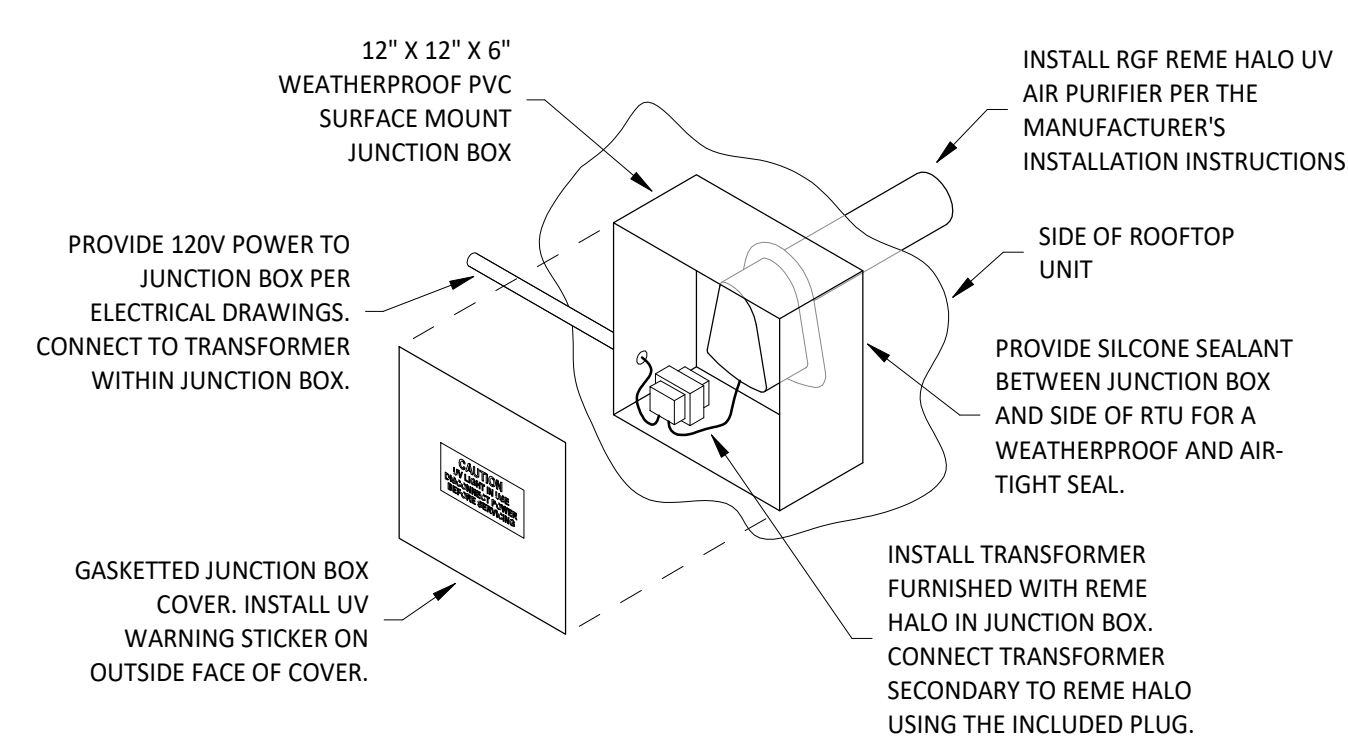
9 HVAC DINING ROOM SECTION
1/4" = 1'-0"



8 HOOD EXHAUST ISOMETRIC
N.T.S.

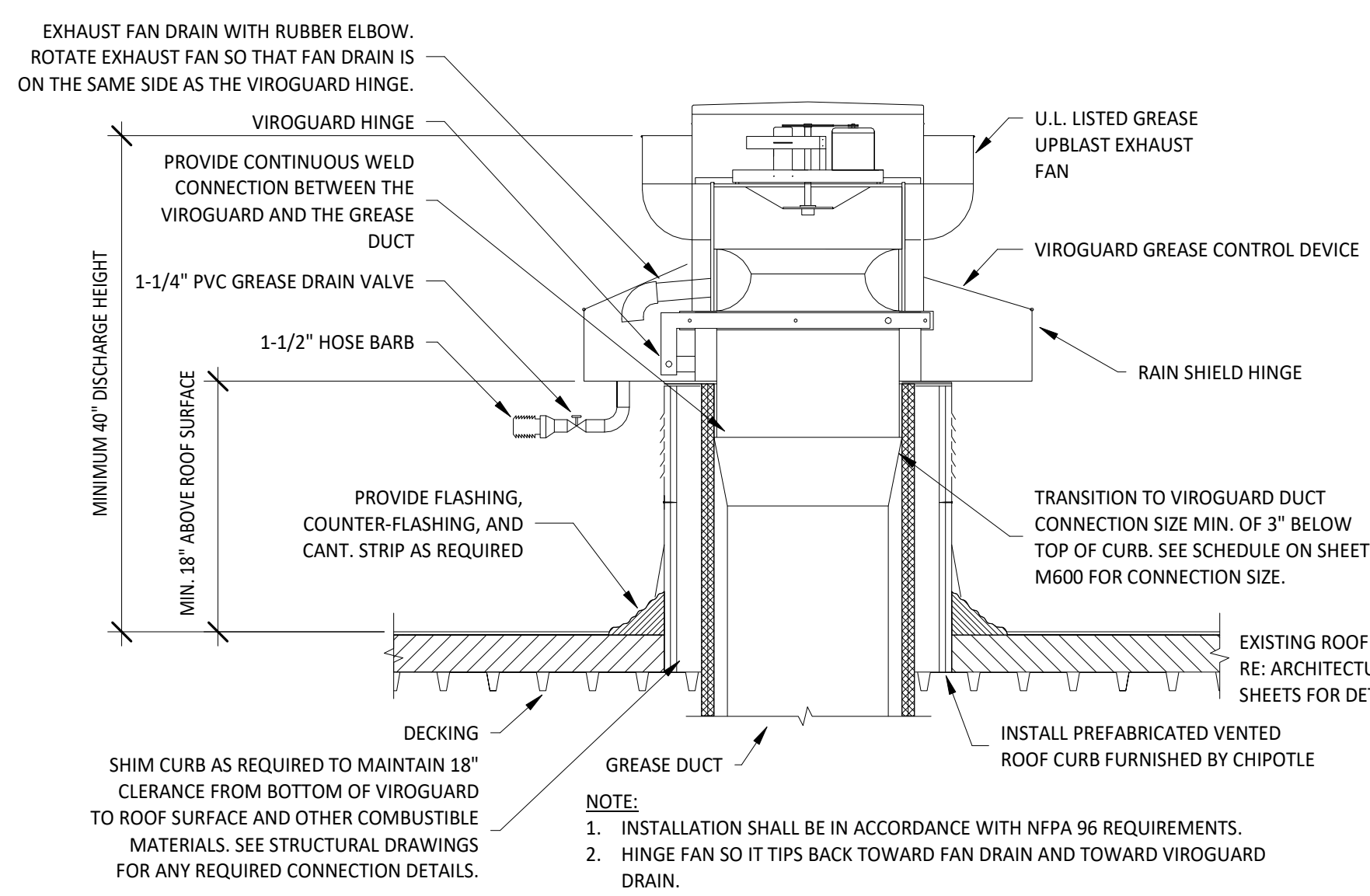


7 DUCT SECTION AT HOOD
1/4" = 1'-0"

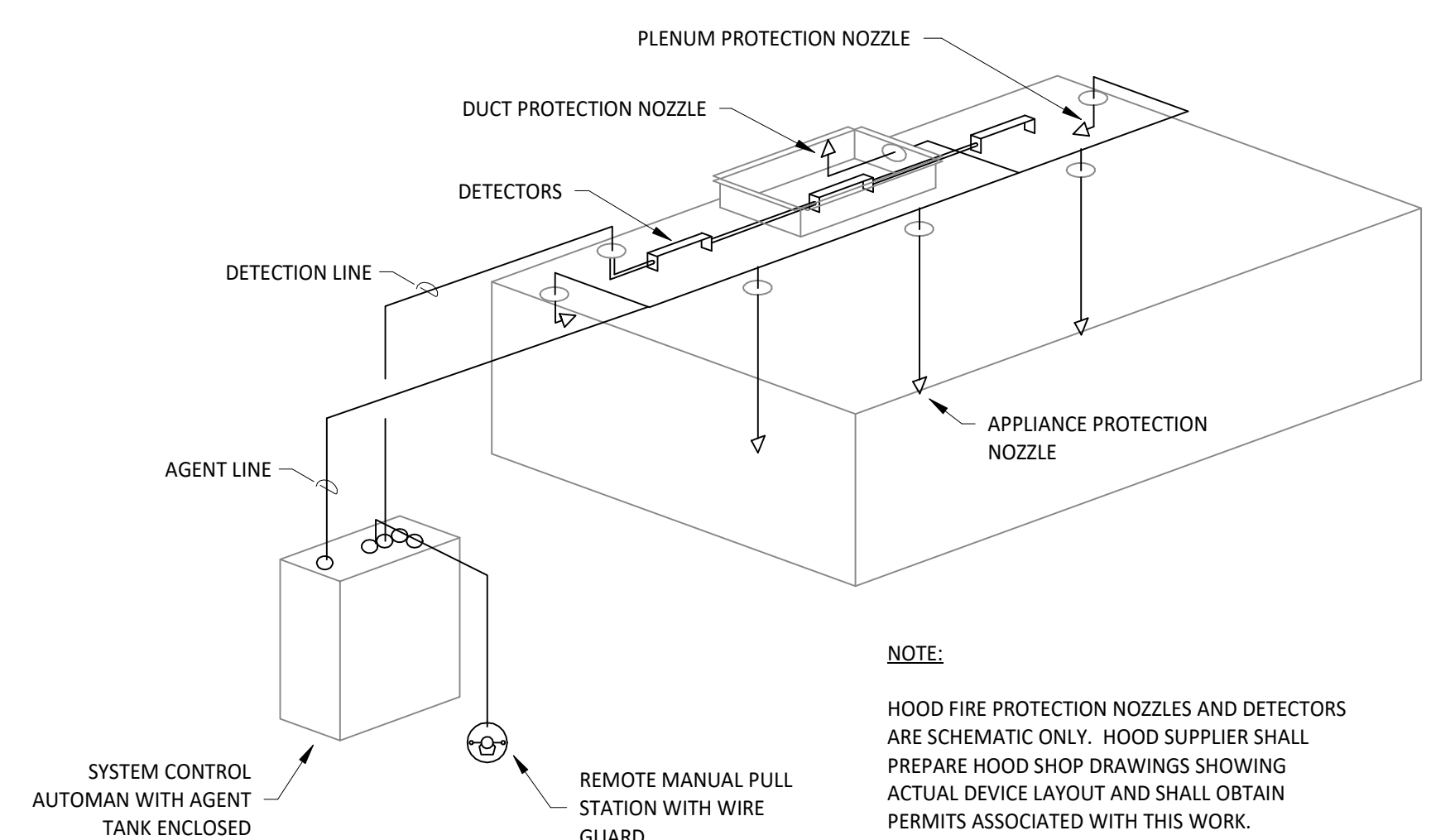


INSTALLATION LOCATION
INSTALL AIR PURIFIER WITH JUNCTION BOX ON OUTSIDE FACE OF ROOFTOP UNIT AND WITH UV LAMP TUBE EXTENDING INTO THE INTERIOR OF THE ROOFTOP UNIT. FIELD VERIFY EXACT LOCATION TO AVOID DAMAGING, TOUCHING, OR INTERFERING WITH ANY RTU INTERIOR COMPONENTS. INSTALLATION LOCATION SHALL BE AS FOLLOWS:
TRAME: INSTALL INTO THE SUPPLY AIR STREAM THROUGH THE REMOVABLE PANEL COVERING THE HORIZONTAL DISCHARGE SUPPLY AIR OPENING.
YORK: INSTALL INTO THE SUPPLY AIR PLENUM FROM THE BACK SIDE OF THE UNIT JUST ABOVE THE HEAT EXCHANGER.

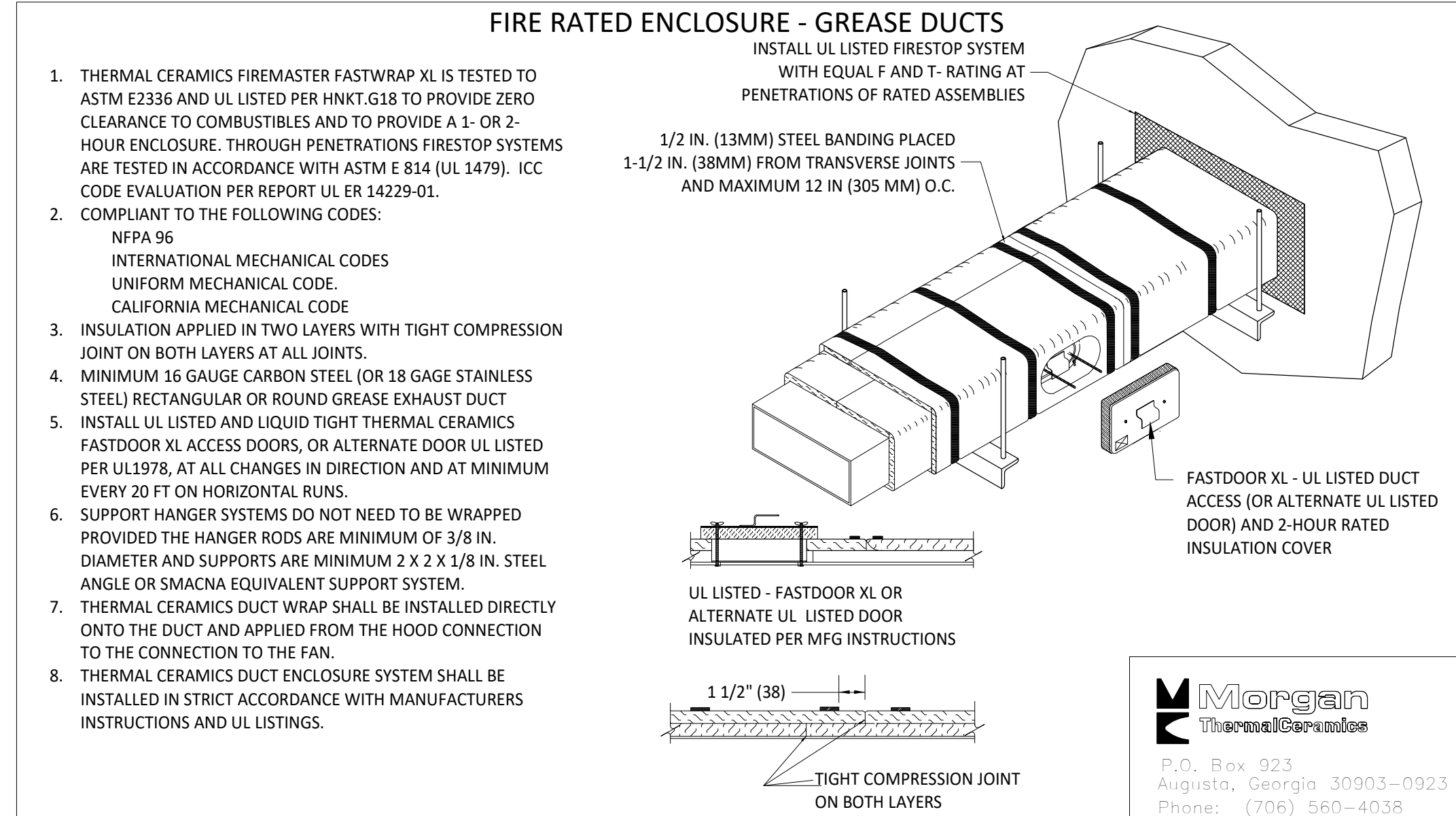
6 UV AIR PURIFIER INSTALLATION
N.T.S.



5 GREASE EXHAUST FAN
N.T.S.



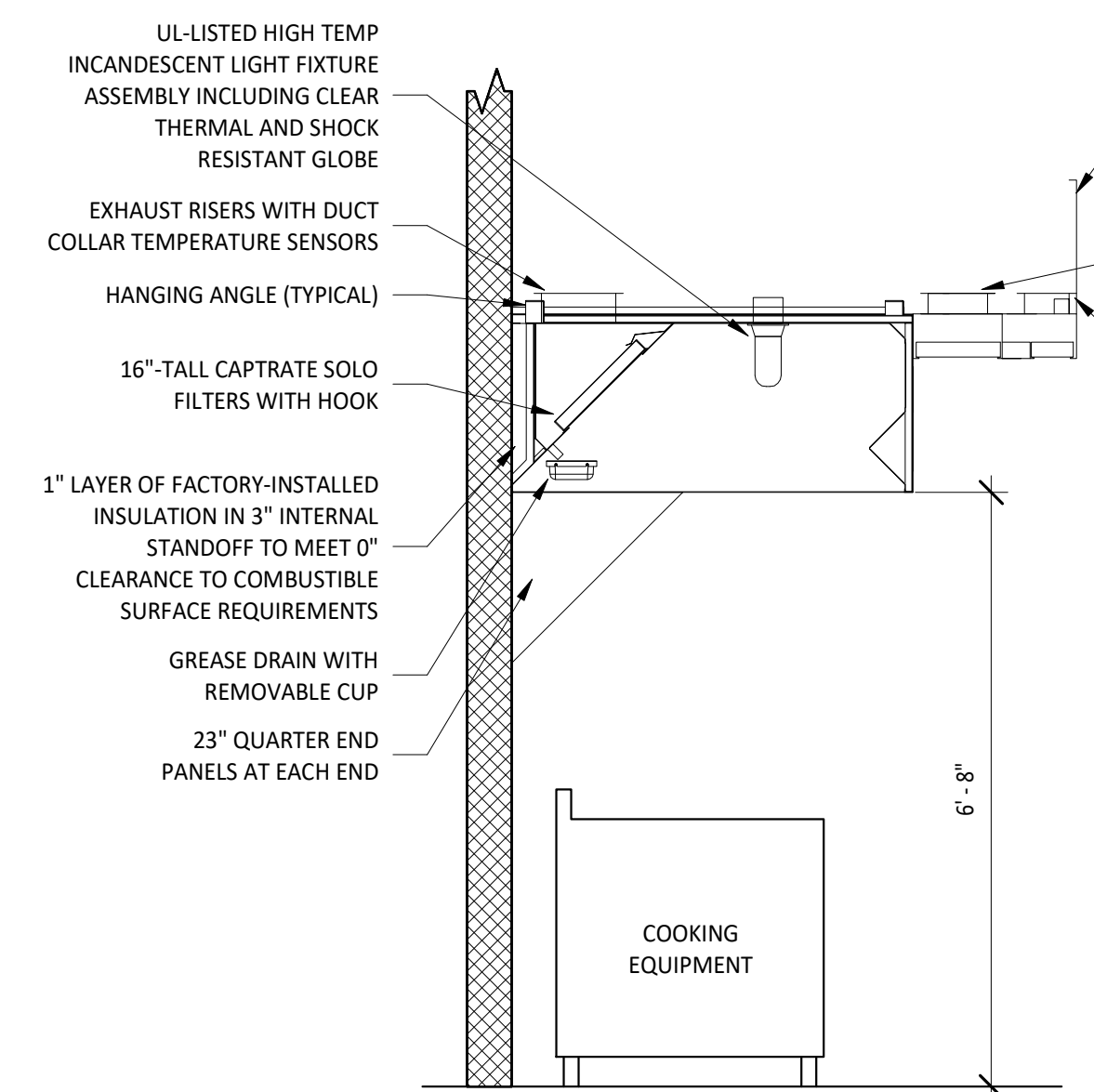
4 FIRE SUPPRESSION SYSTEM SCHEMATIC
N.T.S.



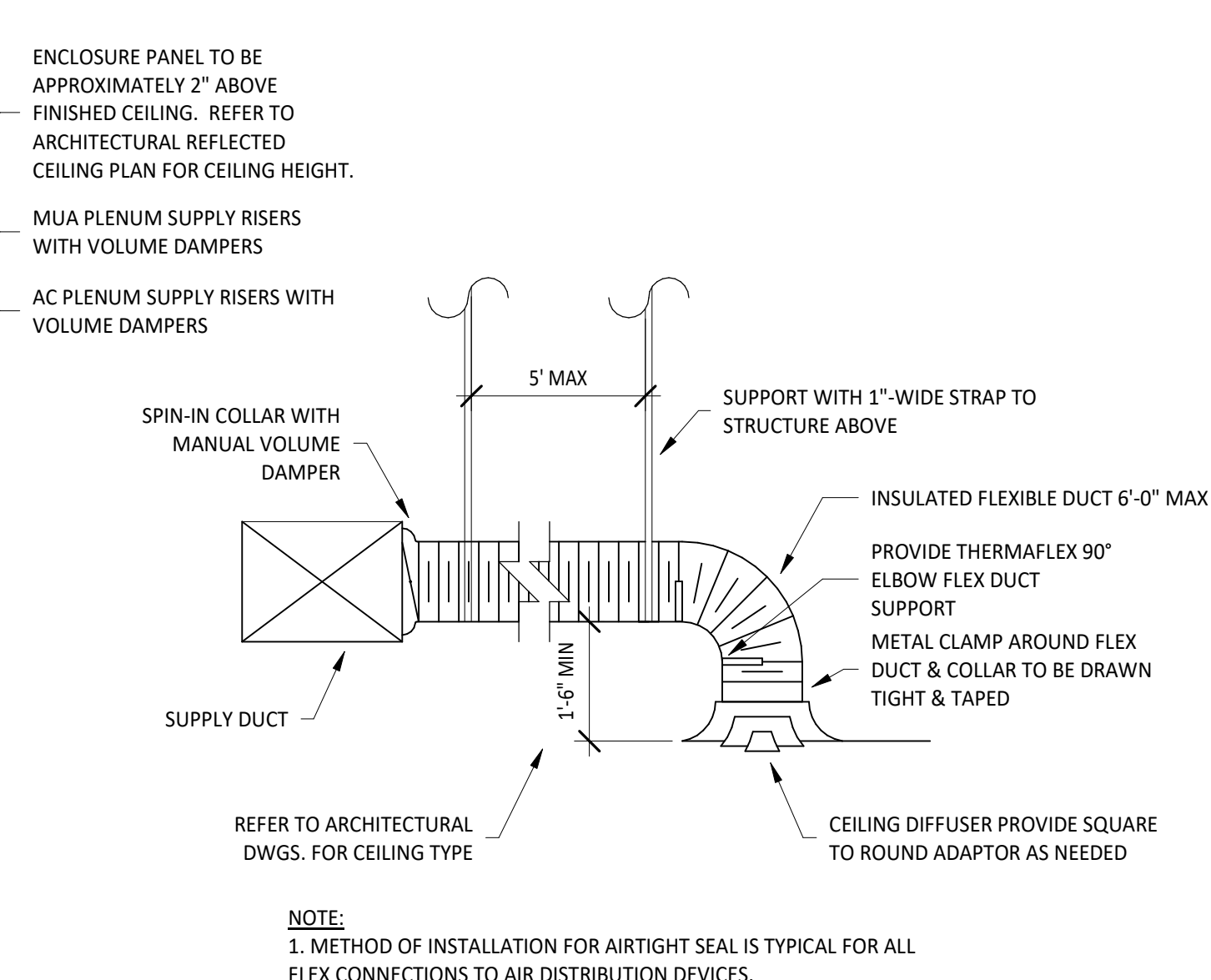
1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNKT-G18 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1- OR 2-HOUR ENCLOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC CODE EVALUATION PER REPORT UL ER 14229-01.
2. COMPLIANT TO THE FOLLOWING CODES:
NFPA 96
INTERNATIONAL MECHANICAL CODES
UNIFORM MECHANICAL CODE
CALIFORNIA MECHANICAL CODE
3. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
4. MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT
5. INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS, OR ALTERNATE DOOR UL LISTED PER UL1978, AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT ON HORIZONTAL RUNS.
6. SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8 IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 2 X 1/8 IN. STEEL ANGLE OR SMACNA EQUIVALENT SUPPORT SYSTEM.
7. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO THE FAN.
8. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.

Morgan Thermal Ceramics
P.O. Box 923
Augusta, Georgia 30903-0923
Phone: (706) 560-4038

3 FIREMASTER DUCT WRAP - UL HNKT-G18
N.T.S.

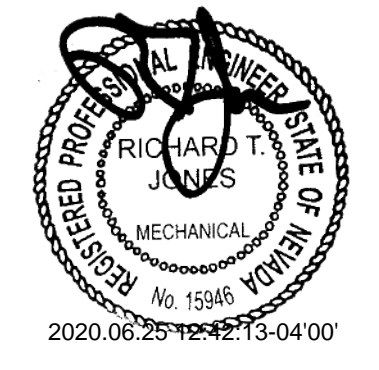


2 HOOD SECTION VIEW
N.T.S.



1 DIFFUSER CONNECTION
N.T.S.

Consultant:
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Contents:
HVAC DETAILS

M700