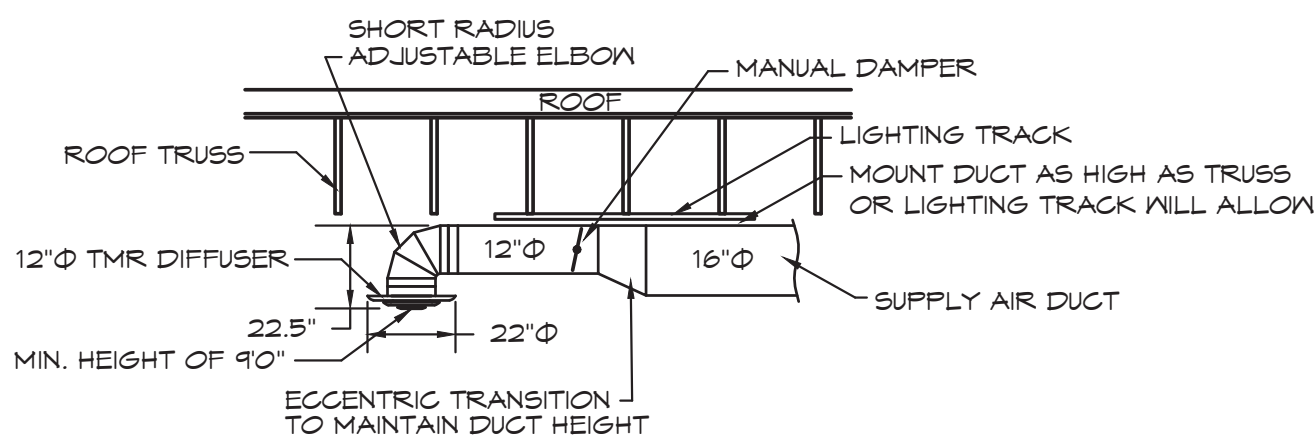
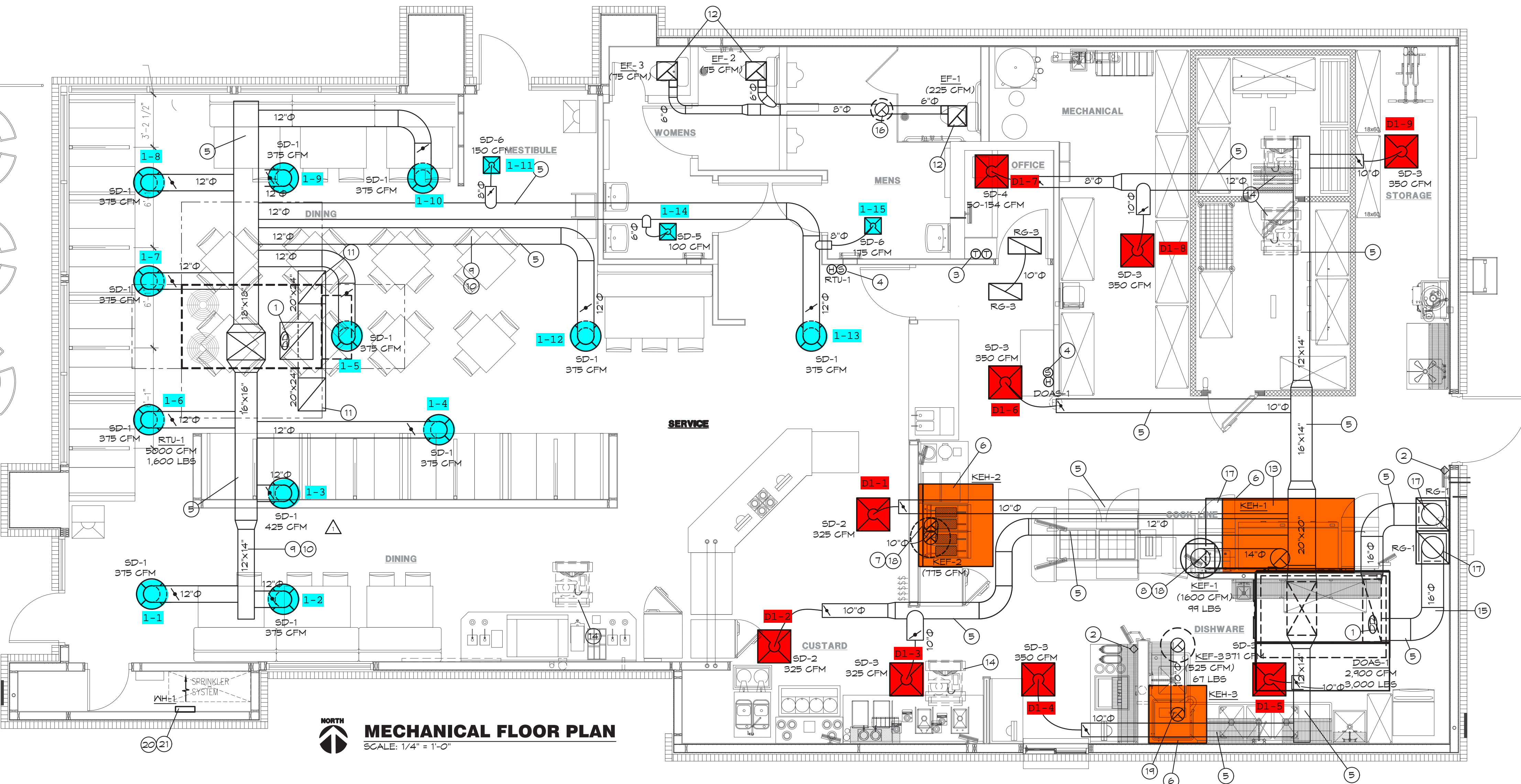


**MECHANICAL SYMBOLS**

- (SD) NEW SUPPLY DIFFUSER
- (RG) NEW RETURN AIR GRILLE
- EXHAUST GRILLE/FAN
- REMOTE TEMPERATURE/HUMIDITY SENSORS
- THERMOSTAT, MOUNTED AT 48" AFF
- DUCT-MOUNTED SMOKE DETECTOR
- NEW DUCTWORK
- 32"x14" SIZE OF RECTANGULAR DUCT
- 6"Ø SIZE OF ROUND DUCT
- FLEXIBLE DUCTWORK
- FLOOR PLAN NOTE DESIGNATION
- S.A. SUPPLY AIR
- R.A. RETURN AIR
- EXH. EXHAUST AIR
- TRANSITION IN DUCT SIZE
- ELBOW WITH TURNING VANES
- MANUAL VOLUME DAMPER
- MANUAL VOLUME DAMPER
- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW
- RTU-1 SCHEDULED MECHANICAL EQUIPMENT



**DINING ROOM DIFFUSER DETAIL**  
SCALE: NONE



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

**AIR BALANCE SCHEDULE**

SUPPLY AIR UNIT	OUTSIDE AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	SUPPLY AIRFLOW (CFM)	OA/SA %	EXHAUST AIR UNIT	EXHAUST AIRFLOW (CFM)
RTU-1	900	4100	5000	18.0%	KEF-1	1600
DOAS-1	2,900	0	2,900	100.0%	KEF-2	775
					KEF-3	525
					EF-1, EF-2, EF-3	375
TOTAL	3,800	4,100	7,900	48.1%	TOTAL	3,275
RESULTING BUILDING PRESSURIZATION						525 CFM

THE BUILDING HVAC SYSTEM SHALL BE BALANCED BY NATIONAL TAB Hired by the OWNER. CONTACT Dan Hertenstein - National TAB at: 816-215-1549 - DAN@NATIONALTAB.COM

THE RTU SUPPLY FANS SHALL OPERATE IN SINGLE ZONE VAV MODE WITH 2 STAGES OF FAN CONTROL. LOW SPEED SHALL BE USED DURING PERIODS OF LOW COOLING LOAD AND VENTILATION ONLY OPERATION PER 2019 IECC REQUIREMENTS.

THE ECONOMIZER DAMPERS SHALL HAVE TWO POSITIONS DEPENDENT ON THE FAN SPEED TO MAINTAIN CONSTANT OUTDOOR AIR VOLUME AND BUILDING PRESSURE. REFER TO THE BUILDING AIR BALANCE SCHEDULE ON SHEET M2.

THE UNIT SHALL HAVE ITS FRESH AIR HEATING OPTION ENABLED TO HEAT VENTILATION AIR TO A NEUTRAL VALUE DURING COLD WEATHER OPERATION. REFER TO THE MANUFACTURERS PROGRAMMING DOCUMENTATION FOR SETUP INSTRUCTIONS.

**OUTDOOR AIR CALCULATIONS**

UNIT	Area (sqft)	OCCUPANCY CLASSIFICATION	Occupant Density #/1000 sqft	People outdoor airflow rate in breathing zone, (Rp) cfm/person	Area outdoor airflow rate in breathing zone, (Ra) cfm/sqft	Exhaust airflow rate cfm/sqft	Breathing zone outdoor airflow (Vbz)	Zone air distribution effectiveness (Ez)	Zone outdoor airflow (cfm)
RTU-1	804	Dining rooms	10	7.5	0.18		623	0.8	719
DOAS-1	173	Corridors	0	0	0.06		10	0.8	13
Total									742

**MECHANICAL PLAN NOTES:**

- LOCATION OF DUCT MOUNTED SMOKE DETECTOR. PROVIDE REMOTE ENUNCIATOR AUDIO/VISUAL. VERIFY LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. REFER TO SPEC SHEET MPO FOR ADDITIONAL INFORMATION.
- LOCATION OF MANUAL PULL STATION. INSTALL PER THE MANUFACTURERS REQUIREMENTS.
- LOCATION OF RTU THERMOSTATS. GC TO LABEL EACH THERMOSTAT.
- LOCATION OF RTU TEMPERATURE SENSOR MOUNTED 7'-0" AFF.
- ALL DUCTWORK IS INTENDED TO BE ROUTED THROUGH OR BETWEEN TRUSSES. COORDINATE EXACT ROUTING WITH TRUSSES DURING INSTALLATION.
- EXHAUST HOOD PROVIDED BY OTHERS. INSTALLED BY THIS CONTRACTOR PER THE MANUFACTURERS INSTRUCTIONS.
- TRANSITION AND CONNECT 10"Ø GREASE DUCT TO EXHAUST HOOD WITH AS SHOWN. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- TRANSITION AND CONNECT 14"Ø GREASE DUCT TO COLLAR ON EXHAUST HOOD. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES, AND 5'-0" FROM PARAPET WALLS. REFER TO DETAIL ON SHEET M2. ALL GREASE DUCT IS TO BE INSTALLED WITH DUCT WRAP AND ACCESS DOORS AS DETAILED AND PER THE MANUFACTURERS REQUIREMENTS FOR 0" CLEARANCE TO COMBUSTIBLES.
- EXPOSED DUCTWORK SHALL BE OF PAINTLOCK CONSTRUCTION AND PAINTED PER THE DIRECTION OF ARCHITECT.
- COORDINATE DUCT ROUTING WITH LIGHTING.
- RETURN AIR DUCT LOCATED BETWEEN ROOF TRUSSES. OPEN END OF DUCTWORK TURNED UP TOWARD STRUCTURE WITH A MINIMUM 8" CLEARANCE TO DECK.
- SUPPORT EXHAUST FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- HOOD SHALL BE PROVIDED WITH FACTORY PRE-WIRE PACKAGE AND A FIRE-ENGINEERED UL-300 FIRE SUPPRESSION SYSTEM. SEE HOOD DRAWINGS FOR DETAILS.
- MOUNT CONDENSING UNIT ON ROOF AS DETAILED AND AS REQUIRED BY THE MANUFACTURER. CONNECT REFRIGERANT PIPING AS REQUIRED BY THE MANUFACTURER. SEE ARCHITECTURAL PLANS FOR MOUNTING DETAIL.
- RETURN DUCT TO BE ROUTED BETWEEN JOISTS, AS HIGH AS STRUCTURE WILL ALLOW.
- ROUTE 10"Ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. MAINTAIN 10'-0" CLEARANCE TO ALL OUTDOOR AIR INTAKES.
- PROVIDE LOCKING QUADRANT DAMPER AND ROUND TO SQUARE TRANSITION FOR RETURN GRILLE CONNECTION.
- INSTALL CAPTIVE AIR WBE WINDBAND EXTENSION FOR KEF-1 AND KEF-2 PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.
- TRANSITION AND CONNECT 10"Ø ALUMINUM DUCT TO CONDENSATE HOOD. ROUTE DUCT UP AND CONNECT TO EXHAUST FAN. OFFSET AS NECESSARY TO MISS ROOF STRUCTURE, AND TO MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES AND 5' FROM PARAPET WALLS.
- SURFACE MOUNT HEATER PER THE MANUFACTURERS REQUIREMENTS.
- INSTALL BOTTOM OF WALL HEATER 14" A.F.F.

**MECHANICAL GENERAL NOTES:**

- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
- DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE A 1/2 INCH ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- ALL EXPOSED DUCT WORK SHALL BE PAINTED. REFER TO ARCHITECTURAL PLANS FOR DETAILS.

#	Revisions:
1	ADDENDUM #1 3/20/21
2	ADDENDUM #2 5/03/21

Project #: 200701

RE-PERMIT DOCUMENTS

05/05/2022



ROOFTOP UNIT SCHEDULE																				
MARK	MFGR	MODEL NO.	NOM. TONS	EVAP. CFM	EXT. STATIC P. IN. WG. (NOTE 2)	COOLING			HEATING (GAS)		ELECTRICAL			MINIMUM OUTDOOR AIR (CFM)	TOTAL WEIGHT (LBS)	IEER	FREQN	REMARKS		
						TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH INPUT	BTUH OUTPUT	VOLT/Φ/HZ	BLOWER MOTOR						MIN. MCA (AMPS)	MIN. MOCF (AMPS)
RTU-1	LENNOX	LGH150H4M	12.5	5,000	1.0	154,800	116,100	95	80/67	240,000	192,000	208/3/60	5 HP	T1	90	900	1,600	12.2	R-410a	1,2,3,4,5,6,7

ALTERNATE RTU MANUFACTURER																				
MARK	MFGR	MODEL NO.	NOM. TONS	EVAP. CFM	EXT. STATIC P. IN. WG. (NOTE 2)	COOLING			HEATING (GAS)		ELECTRICAL			MINIMUM OUTDOOR AIR (CFM)	TOTAL WEIGHT (LBS)	IEER	FREQN	NOTES		
						TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH INPUT	BTUH OUTPUT	VOLT/Φ/HZ	BLOWER MOTOR						MIN. MCA (AMPS)	MIN. MOCF (AMPS)
RTU-1	TRANE	YHD150G3R	12.5	5,000	1.0	149,000	105,400	105	80/67	250,000	175,000	208/3/60	3 HP	65	90	900	1,600	13.5	R-410a	1,2,3,4,5,6,7

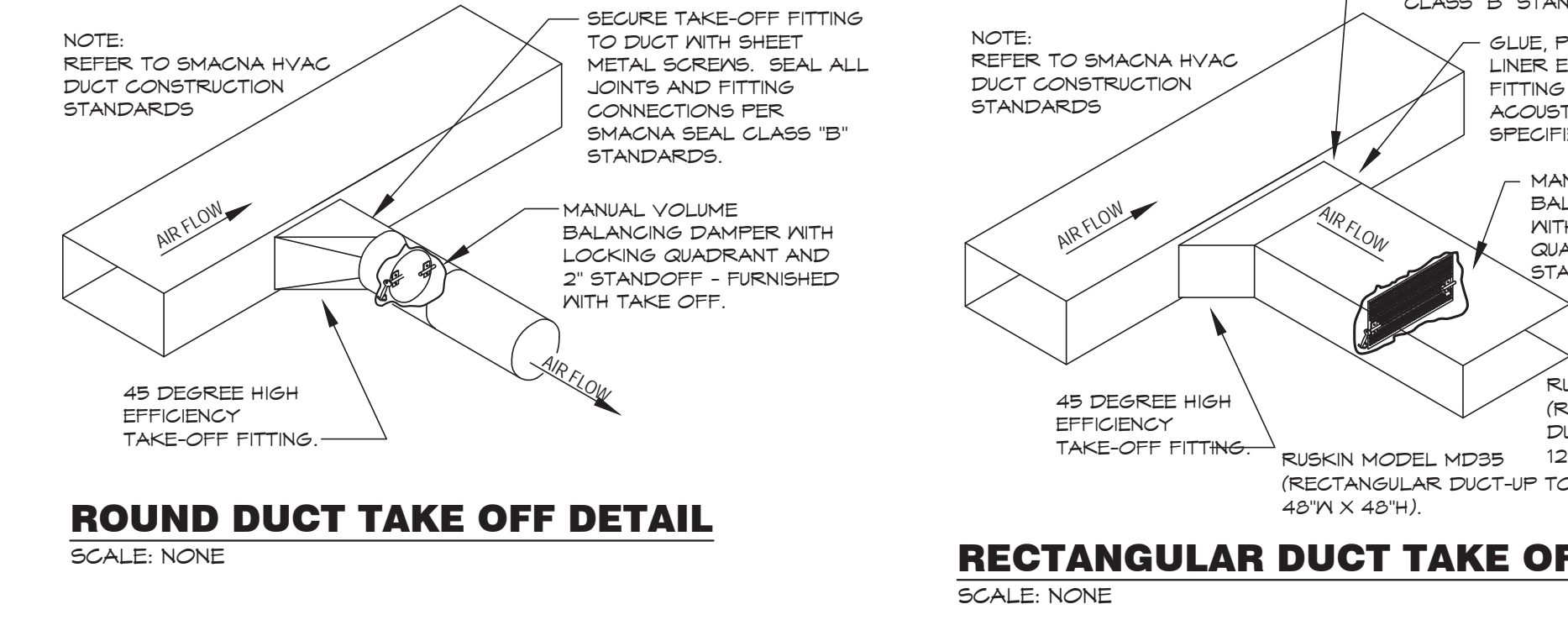
- NOTES:
- PROVIDE DIGITAL CONTROLS, HIGH PERFORMANCE OUTDOOR AIR ECONOMIZER WITH DRY BULB CONTROL W/ FDD, BAROMETRIC RELIEF DAMPER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, DRAIN PAN OVERFLOW SWITCH, FRESH AIR TEMPERING KIT, 2 SPEED FAN CONTROL FOR SINGLE ZONE VAV OPERATION, HINGED ACCESS DOORS, SMOKE DETECTOR MOUNTED IN RETURN, AND STANDARD COOLING DOWN TO 0°F FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR ALL UNITS.
  - EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.
  - PROVIDE COMMERCIAL 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT WITH ECONOMIZER OUTPUT AND REMOTE, TEMPERATURE SENSOR FOR EACH UNIT (HONEYWELL VISION PRO 8000 OR EQUAL), ECONOMIZER/OUTDOOR AIR DAMPER IS TO CLOSE DURING UNOCCUPIED HOURS.
  - PROVIDE 18" HIGH (AT LOWEST POINT) PRE-FABRICATED INSULATED ROOF CURB.
  - PROVIDE HAIL GUARDS FOR EACH UNIT.
  - PROVIDE FACTORY INSTALLED UNIT MOUNTED CIRCUIT BREAKERS.
  - MECHANICAL CONTRACTOR SHOULD CLEAN OR PROVIDE ALL NEW FILTERS ON DAY OF TURNOVER.
  - HOT GAS REHEAT OPTION WITH SPACE MOUNTED HUMIDITY SENSOR.

EXHAUST FAN SCHEDULE									
MARK	MFGR	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	NOTES
						VOLT/Φ/HZ	PHV		
EF-1	COOK	GC-182	225	0.25	1,400	120/1/60	167 W	CEILING EXH.	1
EF-2		GC-146	75		900		30.3 W		1
EF-3		GC-146	75		900		30.3 W		1

- NOTES:
- PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, AND ROOF CAP.

DIFFUSER SCHEDULE						
MARK	MFGR	MODEL	NECK SIZE	FACE SIZE	FINISH	REMARKS
SD-2		TMS/3	10"Φ	24"x24"		
SD-3		PAR/3				RETURN - NO DEFLECTOR
SD-4		T3SQ4	8"Φ			THERMAL VAV DIFFUSER
SD-5		TMS/3	6"Φ	12"x12"		WITH O.B. DAMPER AND TRM KIT
SD-6			8"Φ	12"x12"		WITH TRM KIT
RG-1	AMER. LOUVER CO.	STRATUS	20"x20"	24"x24"		SEE NOTE 1.
RG-2	TITUS	PAR/3	10"x22"	12"x24"		

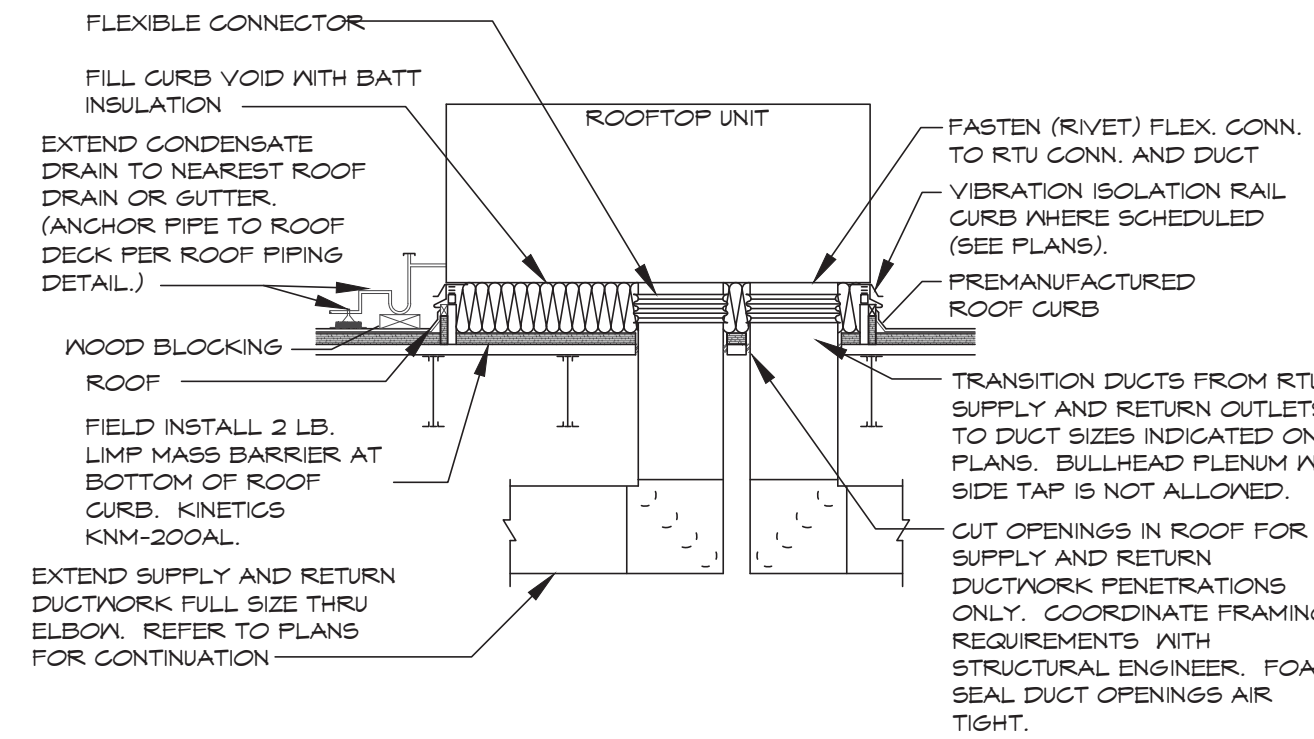
- NOTES:
- RETURN GRILLE TO BE PLASTIC FILTER RETURN, FILTER TO BE AMERICAN AIR FILTER (AAF) FRONTLINE GREEN 1", WITH AAF AMERIFRAME SIZE 20X20X1.



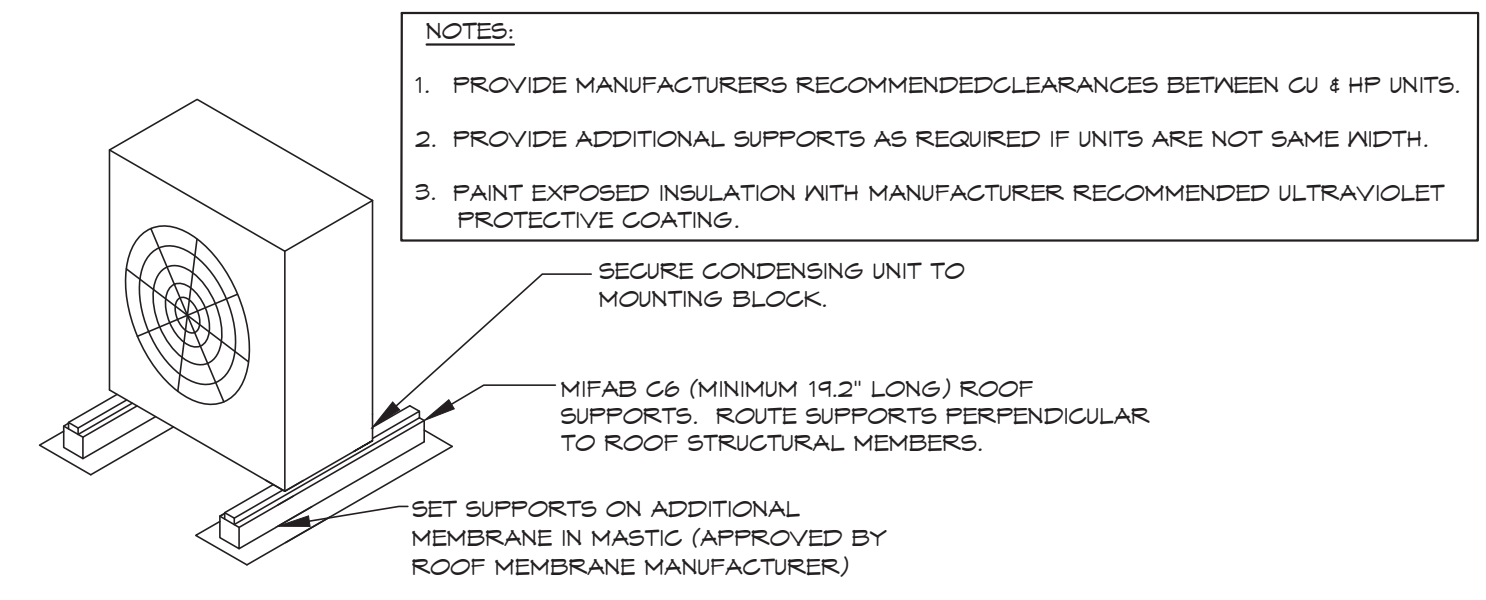
NATIONAL ACCOUNT INFORMATION														
FREDDY'S FROZEN CUSTARD HAS NATIONAL ACCOUNT AGREEMENTS FOR ROOF TOP UNITS WITH LENNOX AND TRANE. NO ALTERNATE MANUFACTURERS ARE ALLOWED.														
FOR LENNOX EQUIPMENT CONTACT: DAVE EBNER, LENNOX INDUSTRIES NATIONAL ACCOUNT MANAGER, (651) 223-1582, Dave.Ebner@Lennoxind.com; FOR LENNOX SUPPORT, CALL 800-367-6285														
FOR TRANE EQUIPMENT EQUAL TO THE UNITS SPECIFIED CONTACT: TOM ROOD, TRANE ACCOUNT MANAGER - NATIONAL ACCOUNTS, (800) 729-9115 TOM.ROOD@TRANE.COM														

ELECTRIC WALL HEATER SCHEDULE									
MARK	MFGR	MODEL NO.	BTUH	ELECTRICAL		NOTES			
				VOLT/Φ/HZ	WATTS				
WH-1	RAYMALL	AFA115D	5,120	120/1/60	1.5 KW	1,2			

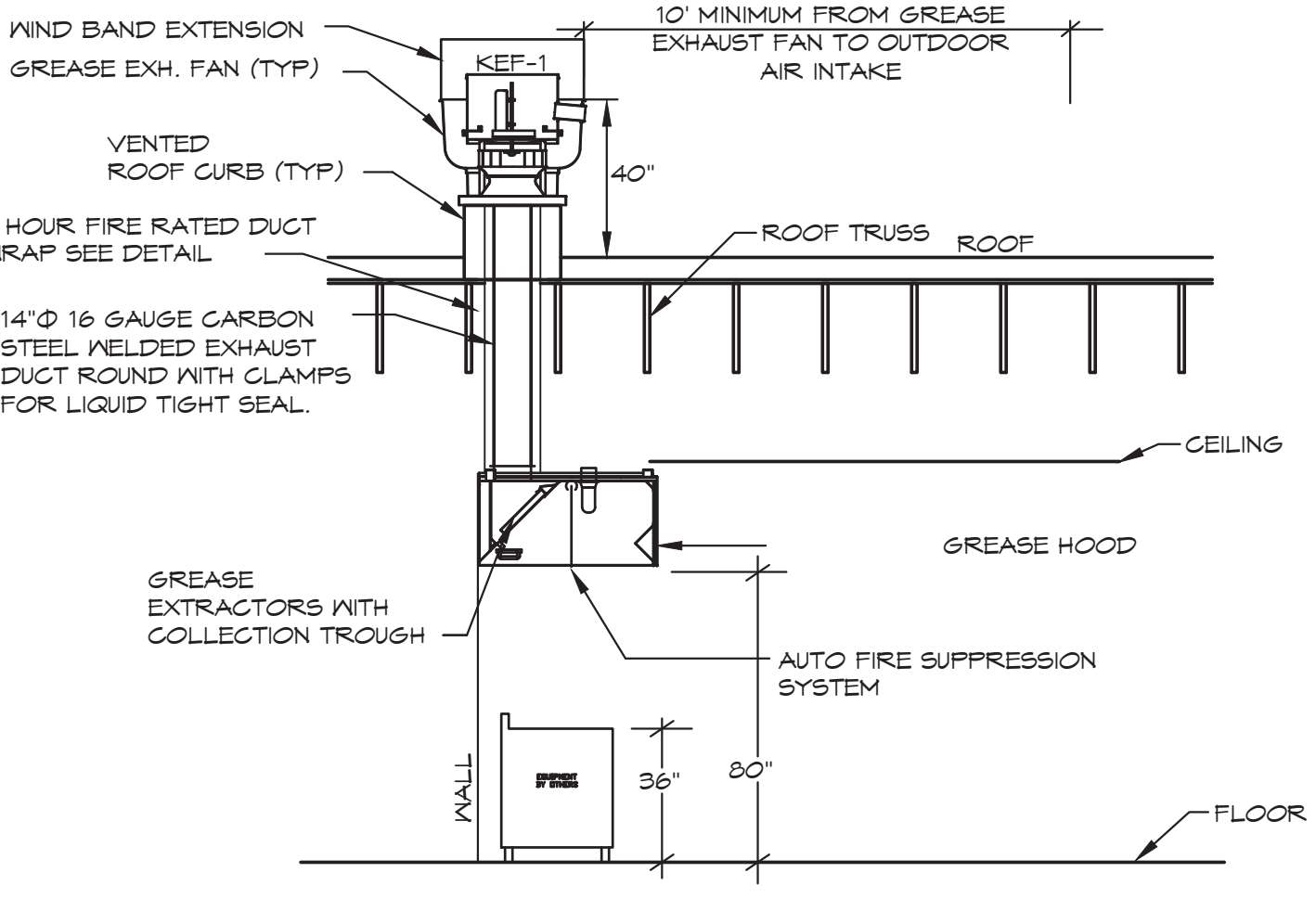
- NOTES:
- UNITS SHALL BE SURFACE MOUNTED.
  - PROVIDE INTEGRAL DISCONNECT & INTEGRAL THERMOSTAT.



DOWNFLOW ROOF TOP UNIT DETAIL  
SCALE: NONE



ROOF CONDENSING UNIT MOUNTING DETAIL  
SCALE: NONE



GREASE HOOD DETAIL  
SCALE: NONE

**FireMaster® FastWrap® XL**

Grease and HVAC Duct Enclosure System  
1 or 2 Hour Shaft Alternative / Zero Clearance to Combustibles

TWO LAYER INSTALLATION (Grease Duct per ASTM E2336 and CANULC S144)

SINGLE LAYER INSTALLATION OPTIONS (2-Hour rated HVAC Duct per UL 181N V-19)

LEGEND	
1	Two Layers of XL Insulation for ASTM E2336 and CANULC S144 Grease Duct Enclosures
2	One Layer of XL Insulation for 2-Hour Air Ventilation Duct Enclosures
3	Steel banding minimum 1/2" (13) wide by 0.015" (0.4) thick
4	Tight butt joints (no overlap) at perimeter and longitudinal joints, both layers for grease ducts
5	Min. 3" (75) overlap on perimeter and between adjacent elements
6	Optional 6" XL collar
7	Hangers - size dependent weight of assembly (see datasheet Section G)
8	Trapeze Supports - size dependent weight of assembly (see datasheet Section G)
9	Steel Rectangular or Round Duct (size, gage and construction dependent per Listed Design)

The integrity of Thermal Ceramics duct systems is limited to the quality of the installation.  
AL001-19

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**SAI**  
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5/3/2022  
BRIANA QUISSSELL  
REGISTERED PROFESSIONAL ENGINEER  
PE-2004000629

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**Freddy's KCMO**  
Remodel  
Freddy's Frozen Custard & Steaksburgers  
13628 Washington St  
Kansas City, MO 64145

#	Revisions:
1	ASSEMBLY #1 3/5/2021
2	ASSEMBLY #2 3/5/2021

Project #: 200701

RE-PERMIT DOCUMENTS

05/05/2022

**MECHANICAL SCHEDULES**  
**M-2**