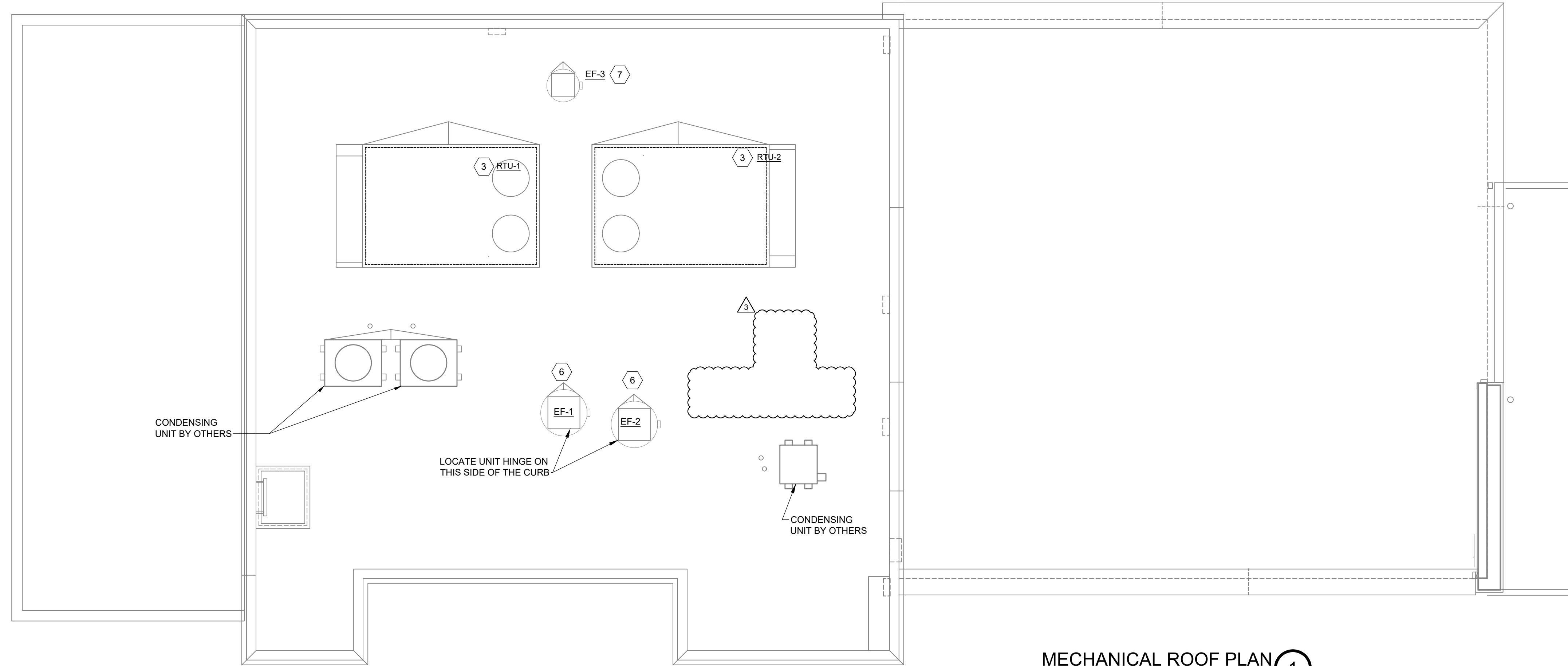


GENERAL NOTES

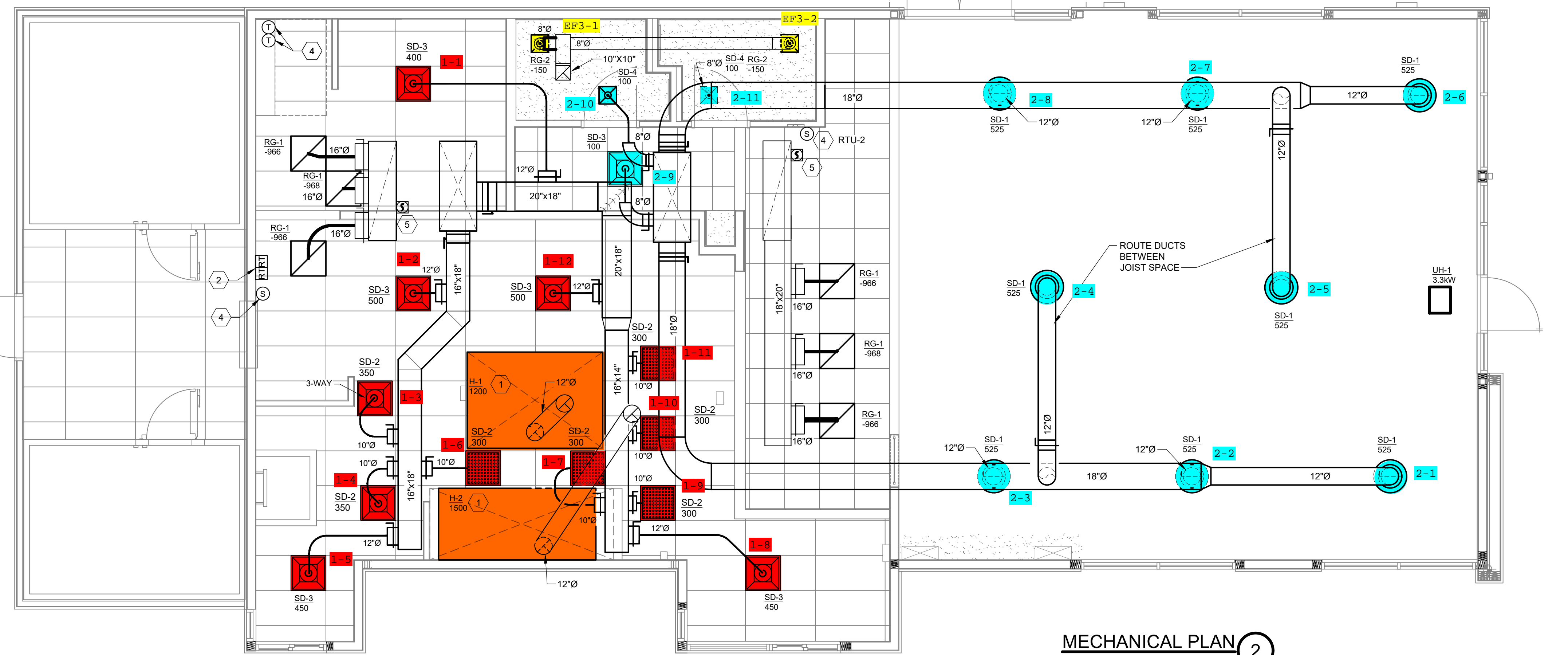
1. PROVIDE WARRANTY TO INCLUDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT, WHICHEVER IS LATER.
2. COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES, INCLUDING NFPA-90A, NFPA-96 AND NFPA-101.
3. DUCTWORK SHALL BE MANUFACTURED AND INSTALLED PER SMACNA 1" PRESSURE CLASS GUIDELINES AND DETAILS. DUCTWORK SIZES SHOWN INDICATE INSIDE CLEAR DIMENSIONS. CONCEALED DUCTWORK SHALL BE INSULATED WITH 2" THICK DUCT WRAP (R-8 MIN), INSULATE CEILING MOUNTED DIFFUSERS BACKS. VAPOR BARRIER SHALL BE MAINTAINED CONTINUOUS AND SEAMS SHALL BE SEALED. DUCTWORK SHALL BE INSTALLED ABOVE SUSPENDED CEILING WHERE PROVIDED. EXPOSED DUCTWORK SHALL BE G90 GALVANIZED STEEL, CLEAN OFF MARKS, APPLIED STICKERS AND RESIDUAL OIL. VINEGAR WASH BEFORE PAINTING OF DUCT.
4. CONNECT ALL DUCTS TO FANS AND OTHER AIR DISTRIBUTION EQUIPMENT USING MECHANICAL FASTENERS WITH SEALS, MASTIC OR GASKETS.
5. SUPPLY AND RETURN AIR DUCT DROPS FROM HVAC EQUIPMENT SHALL BE ISOLATED FROM UNIT VIBRATION WITH FLEXIBLE DUCT CONNECTORS.
6. INSULATED FLEXIBLE DUCT MAY BE USED IN MAXIMUM LENGTHS AS SPECIFIED FROM RIGID METAL DUCT TO DIFFUSER CONNECTION. FLEXIBLE DUCT SHALL BE CLASS 1 FLEXIBLE AIR DUCT WITH INSULATION AND VAPOR BARRIER, AND SHALL MEET UL 181.
7. WHERE PLENUM DIFFUSERS ARE CHOSEN WITH INTEGRAL BALANCING DAMPERS SPIN-IN CONNECTIONS MAY EXCLUDE DAMPERS.
8. CONTRACTOR SHALL RECEIVE AND INSTALL ROOF MOUNTED CONDENSING UNITS. PROVIDE MOUNTING RAILS. REFER TO STRUCTURAL PLANS FOR LOCATIONS OF ROOF MOUNTED EQUIPMENT, CURBS, AND RAIL DETAILS. EQUIPMENT SHALL BE MECHANICALLY FASTENED TO RAILS. RAILS SHALL BE FASTENED TO STRUCTURE. STRUCTURE, CONNECTIONS, AND SUPPORTS SHALL MEET STRUCTURAL WIND LOAD REQUIREMENTS. CONSULT STRUCTURAL ENGINEER AS NEEDED TO DETERMINE REQUIREMENTS.
9. CURBS SHALL BE ONE PIECE WELDED AND INSULATED 18 GAUGE STEEL, WITH RIGID INSULATION GLUED TO INSIDE OF CURB. REFER TO DETAIL 08-M2.0 FOR ADDITIONAL INFORMATION.
10. RETURN DUCTWORK FROM HVAC EQUIPMENT SHALL BE LINED WITH 1" DUCT LINER.
11. PROVIDE STENCIL LABELS ON HVAC EQUIPMENT AND EXHAUST FANS. LABELS SHALL HAVE 2" HIGH LETTERS ON UNIT SIDE ACCESS PANEL. ALL EXPOSED GAS PIPING AND FITTINGS SHALL BE PAINTED WITH SAFETY YELLOW PAINT DESIGNED FOR BLACK IRON.
12. ENSURE GAS LINES AND CONDENSATE DRAIN LINES DO NOT IMPEDE HVAC EQUIPMENT DOORS/PANELS. FOLLOW MANUFACTURER GUIDELINES FOR REQUIRED CLEARANCES.
13. REFER TO "H" AND "W" SHEETS FOR SPECIFIC HOOD AND FAN INFORMATION AND FIELD WIRING DIAGRAMS. CONTRACTOR SHALL PROVIDE LOW VOLTAGE WIRING FROM FAN CONTROL PANEL TO HVAC EQUIPMENT, REMOTE SENSORS AND SMOKE DETECTORS. CONTRACTOR SHALL PROGRAM THERMOSTAT FOLLOWING WENDY'S STANDARDS. REFER TO PROGRAMMING INSTRUCTIONS PROVIDED WITH MODULAR PANEL SYSTEM.
14. CONTRACTOR SHALL TEST, CHECK, AND BALANCE HVAC EQUIPMENT, EXHAUST HOODS, AND EXHAUST FANS. SET EXHAUST FANS AND DIFFUSERS TO SPECIFIED CFMS. CONTRACTOR SHALL COMPLETE WENDY'S REQUIRED TEST FORMS FOR HVAC EQUIPMENT, HOODS, AND FAN CONTROL SYSTEM.
15. CONTRACTOR SHALL COMPLETE ROOFTOP UNIT START UP HVAC EQUIPMENT FORMS AND RETURN TO MANUFACTURER TO SCHEDULE EQUIPMENT OPERATION CHECK (EOC), CONSULT CONTACT OR ALLOW 5 BUSINESS DAYS TO SCHEDULE EOC. CONTRACTOR IS RESPONSIBLE FOR CORRECTING DEFICIENCIES NOTED IN THE EOC PRIOR TO START OF TESTING AND BALANCING.
16. CONTRACTOR SHALL VERIFY THAT BUILDING IS WEATHER TIGHT, HVAC EQUIPMENT POWERED AND CALIBRATED, THERMOSTATS PROGRAMMED, FANS OPERATIONAL, EOC COMPLETE, DIFFUSERS AND CEILING TILE INSTALLED, EXHAUST FAN SPEEDS CALIBRATED, AND NEW FILTERS INSTALLED IN HVAC EQUIPMENT PRIOR TO TESTING AND BALANCING. CONTRACTOR SHALL CORRECT OPERATIONAL OR PERFORMANCE DEFICIENCIES FOUND DURING TESTING AND BALANCING.
17. KITCHEN EQUIPMENT DISTRIBUTORS SHALL INSTALL REFRIGERANT PIPING FOR ROOF MOUNTED CONDENSING UNITS TO FOOD SERVICE EQUIPMENT INCLUDING THERMOSTATIC EXPANSION VALVES, SOLENOID VALVE, TEMPERATURE CONTROL WIRING, SIGHT GLASS, FILTER DRIERS, PRESSURE CONTROLS, CRANKCASE HEATERS, LOW AMBIENT CONTROLS, AND WEATHERPROOF HOUSINGS. TRAP AND SLOPE CONDENSATE LINES PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE HEAT TRACING ON CONDENSATE LINES INSIDE FREEZER. CONTRACTOR SHALL PROVIDE PIPE CURB ASSEMBLY FOR ROOF PENETRATIONS. REFER TO ARCHITECTURAL ROOF PLAN FOR ADDITIONAL INFORMATION AND DETAILS FOR PIPE CURB ASSEMBLY AND RAIL INSTALLATION.
18. COMPLETE SMOKE CAPTURE TEST(S), AS REQUIRED, IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE IMC 507, ASHRAE 154 VENTILATION FOR COMMERCIAL COOKING OPERATIONS, AND HOOD MANUFACTURER STANDARDS. KITCHEN EQUIPMENT SHALL BE AT OPERATING TEMPERATURES WITH HVAC EQUIPMENT OPERATIONAL. TEST USING SMOKE CANDLES OR SMOKE PUFFERS. SMOKE BOMBS SHALL NOT BE USED.
19. FOR ALL EQUIPMENT WITH SYMBOL TAGS ON PLANS, REFER TO ASSOCIATED EQUIPMENT SCHEDULES FOR REQUIREMENTS. TAGGED EQUIPMENT IS RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE UNLESS OTHERWISE NOTED.
20. CONTRACTOR IS RESPONSIBLE FOR PROVIDING MANUAL BALANCE DAMPERS IN DUCT BRANCHES IN ACCESSIBLE LOCATION ABOVE CEILING.

CODED NOTES:

1. INSTALL GREASE EXHAUST HOOD, SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. TRANSITION FROM HOOD COLLAR TO DUCT SIZE SHOWN. TWO METHODS LISTED BELOW ARE ALLOWED FOR GREASE DUCTWORK ASSEMBLIES. PLEASE NOTE THAT BOTH OPTIONS REQUIRE CLEANOUT ACCESS DOORS AT EVERY CHANGE IN DUCT DIRECTION WITH 3 FOOT CLEARANCE IN FRONT OF ACCESS DOORS.
 - 1.1. PREFERRED METHOD: FACTORY MANUFACTURED UL2221 LISTED INSULATED GREASE EXHAUST DUCT SYSTEM WITH MANUFACTURER CLEANOUT ACCESS DOORS. REFER TO SHEET M2.0 DETAIL 01-MECHANICAL EXHAUST DUCT DETAIL. COORDINATE WITH THE GREASE DUCT MANUFACTURER IF FIRE WRAP IS REQUIRED.
 - 1.2. PROVIDE 16 GAGE CARBON STEEL GREASE EXHAUST DUCTWORK WELDED LIQUID TIGHT UP TO EXHAUST FAN. WRAP GREASE DUCT WITH COMPOSITE GREASE DUCT ENCLOSURE ASSEMBLY PER SHEET M2.0 DETAIL 01-MECHANICAL EXHAUST DUCT DETAIL. INSTALL EXHAUST DUCT WRAP PER MANUFACTURER'S INSTRUCTIONS. PROVIDE "FAST DOOR XL" GREASE DUCT CLEANOUT ACCESS DOORS (C.O.D) MANUFACTURED BY THERMAL CERAMICS (OR EQUIVALENT) AT EVERY CHANGE OF DIRECTION IN THE DUCT. PROVIDE MINIMUM 3 FEET CLEARANCE IN FRONT OF ACCESS DOORS. INSULATE ACCESS DOORS TO MAINTAIN RATINGS OF GREASE DUCT ENCLOSURE PER FIRE PROTECTION INSULATION MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE COMBINATION AUDIO/VISUAL ALARM AND REMOTE TEST STATION (SYSTEM SENSOR RTS2). MOUNT 54" ABOVE FINISHED FLOOR AND PROVIDE LABEL NAMEPLATE WITH 1/2" HEIGHT LETTERING (BLACK ON WHITE) FOR WHICH UNIT IT MONITORS. INSTALLATION SHALL MEET ALL CRITERIA AS PRESCRIBED IN NFPA 90A AND NFPA 72.
3. PROVIDE ROOFTOP UNIT AND CURB COORDINATED WITH STRUCTURE. SHIM UNIT AND CURB LEVEL FOR PROPER CONDENSATE DRAINAGE. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS. TRANSITION TO DUCT SIZES SHOWN. SECURE EQUIPMENT TO CURBS PER MANUFACTURER'S RECOMMENDATIONS AND AS DETAILED. REFER TO DETAIL 08-M2.0 FOR ADDITIONAL INFORMATION.
4. INSTALL THERMOSTATS AND REMOTE SENSORS. THERMOSTATS AND REMOTE SENSORS ARE FURNISHED WITH FAN LIGHTING CONTROL PANEL SYSTEM. CONTRACTOR IS RESPONSIBLE FOR WIRING AND INSTALLING REMOTE SENSORS WHERE INDICATED ON DRAWINGS. MOUNT SENSOR 60" AFF.
5. PROVIDE DUCT MOUNTED SMOKE DETECTOR AND SENSING TUBE, AND INTERLOCK TO SHUT DOWN ROOFTOP UNIT ON DETECTION OF SMOKE. SMOKE DETECTOR SHALL BE SYSTEM SENSOR INNOVAIR FLEX D4240 4-WIRE PHOTOELECTRIC.
6. PROVIDE CURB AND ROOF MOUNTED EXHAUST FAN. ENSURE THAT TOP OF EXHAUST FAN IS AT LEAST 40" ABOVE ROOF SURFACE. REFER TO DETAIL 08-M2.0 FOR ADDITIONAL INFORMATION.
7. PROVIDE CURB AND ROOF MOUNTED EXHAUST FAN. REFER TO DETAIL 08-M2.0 FOR ADDITIONAL INFORMATION.



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



MECHANICAL PLAN 2
1/4" = 1'-0"

SITE NUMBER:	13349
BUILDING TYPE:	(2.0) SMART 55+65
ASSET TYPE:	FREESTANDING
CLASSIFICATION:	NEW
OWNER:	COTTI FOODS, INC.
BASE VERSION:	2020
UPGRADE CLASSIFICATION:	NEW BUILD
PROJECT YEAR:	2021
DESIGN TYPE:	(2.0) UM BRIT
DRAWING RELEASE:	SUMMER

Project No. **20-160**

750 Brookside Boulevard
Westerville, Ohio 43081
614-839-4639
614-839-2222 FAX

M Engineering

Wendy's
500 W. STONE WOOD DRIVE
BROKEN ARROW, OK. 74012

REV.	DATE	DESCRIPTION
△	08/27/21	SUMMER RELEASE
△	10/04/21	OWNER REVISION
△	10/14/21	OWNER CHANGES

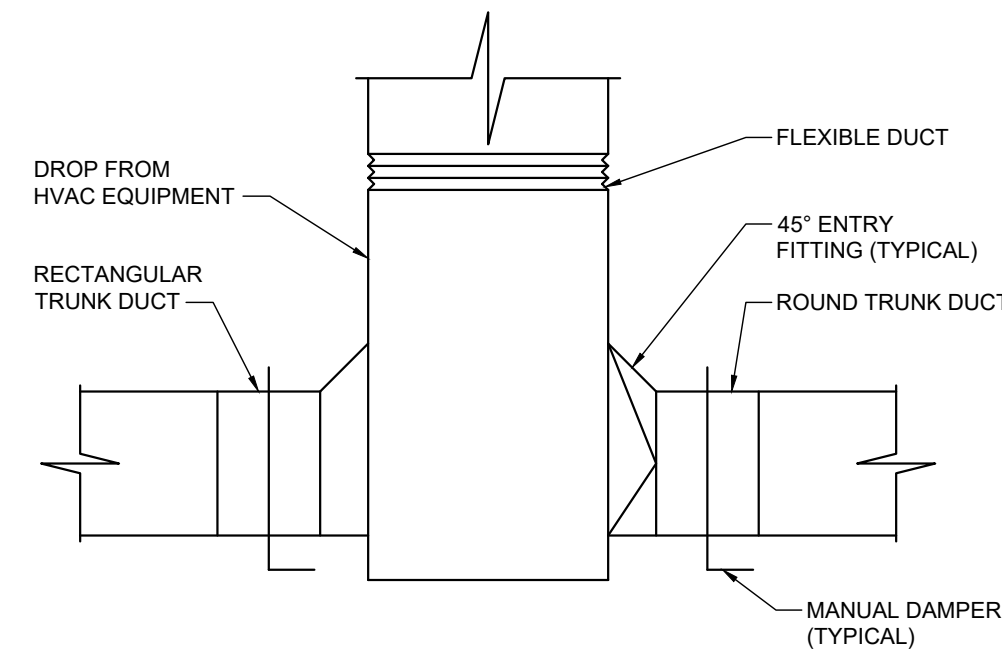
ISSUE DATE: JUNE 29, 2021
PROJECT NUMBER: 13349
DRAWN BY: BLS
CHECKED BY: BLS

Construction Set 10/12/21

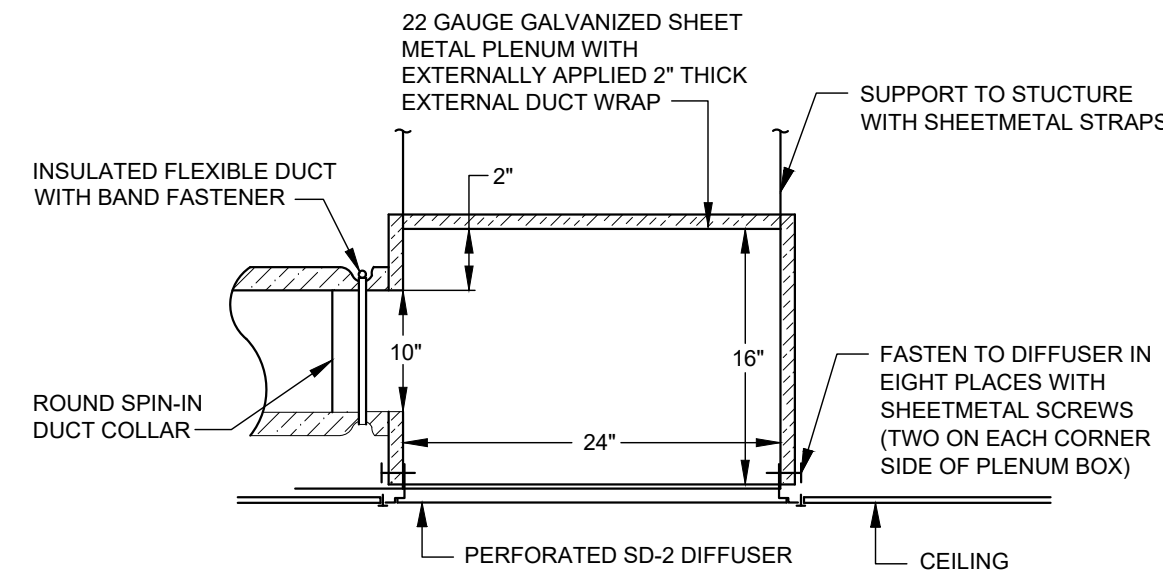
SHEET NAME: HVAC PLAN HALTON
SHEET NUMBER:

M1.1

10/22/2017 4:11:42 PM P:\21420x02\142186\1-1_LHVAC_Plan.dwg bahaffler 10/14/2021, 3:31 PM

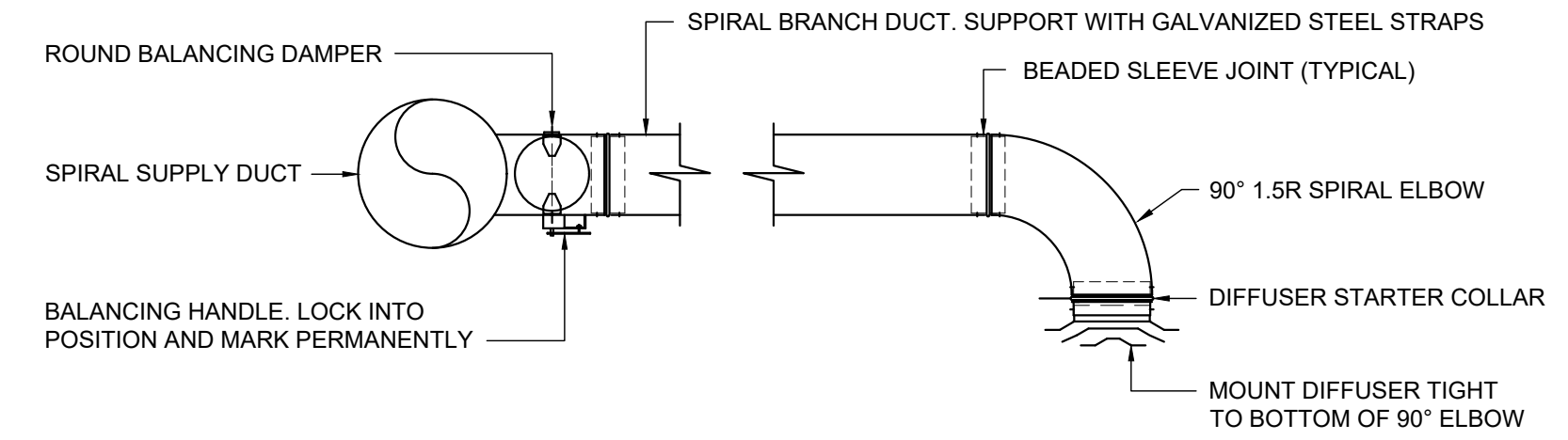


ROOFTOP EQUIPMENT DUCT DROP DETAIL 11
NOT TO SCALE



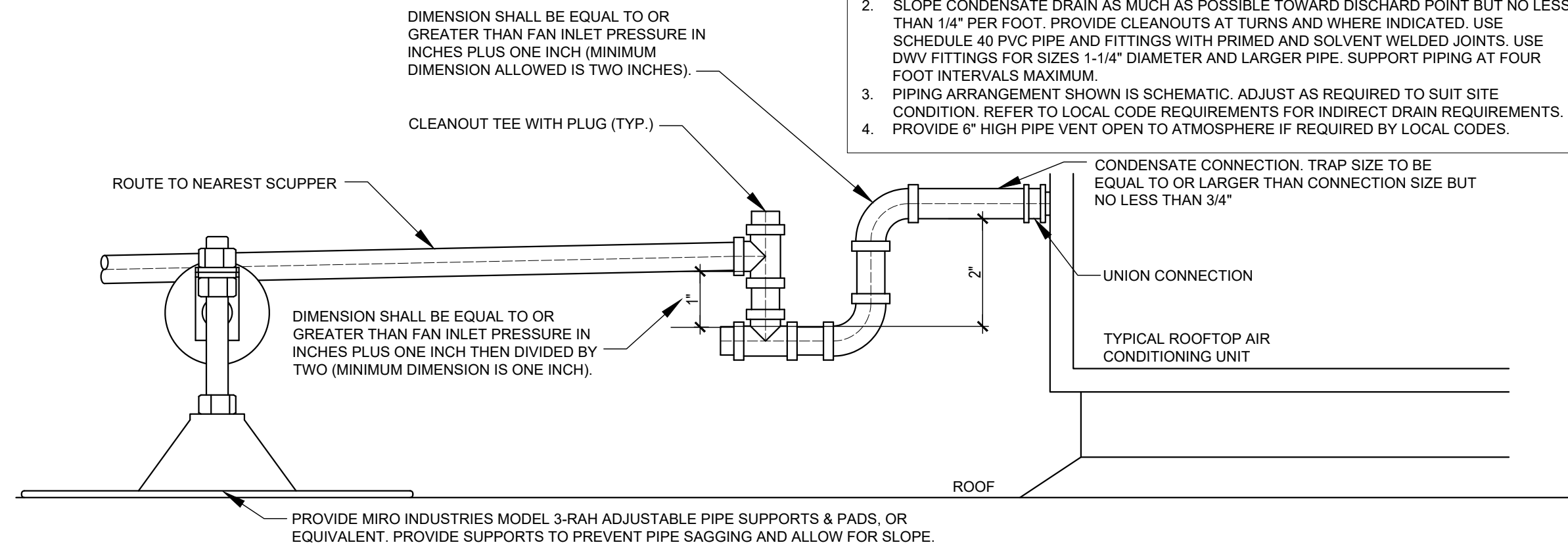
- NOTES:**
1. TOP INLETS TO PLENUM BOX ARE NOT ALLOWED.
 2. DOVETAIL COLLARS ARE NOT ALLOWED.
 3. SEAL COLLAR WITH SEAL CLASS 'A' DUCT SEALANT.
 4. DO NOT CRUSH OR MODIFY DUMP BOX SIZE TO FIT OTHER MECHANICAL EQUIPMENT IN CEILING CAVITY.

DUMP BOX DETAIL 07
NOT TO SCALE

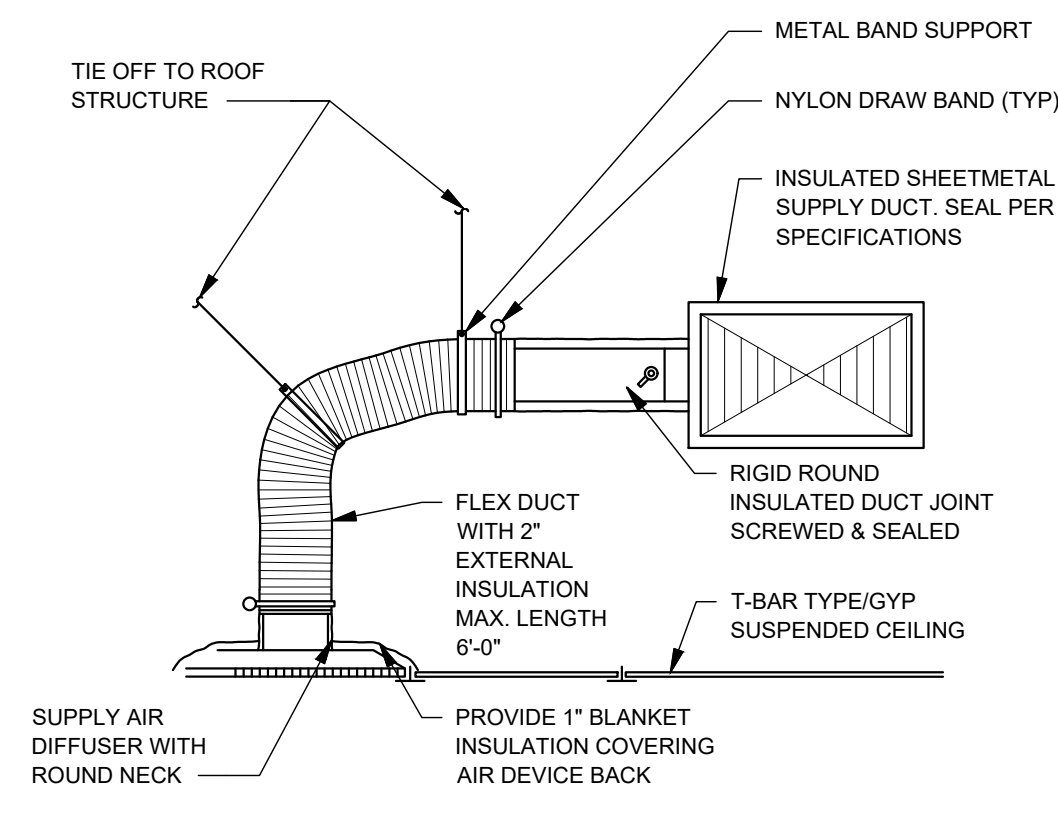


EXPOSED BRANCH DUCT INSTALLATION DETAIL 03
NOT TO SCALE

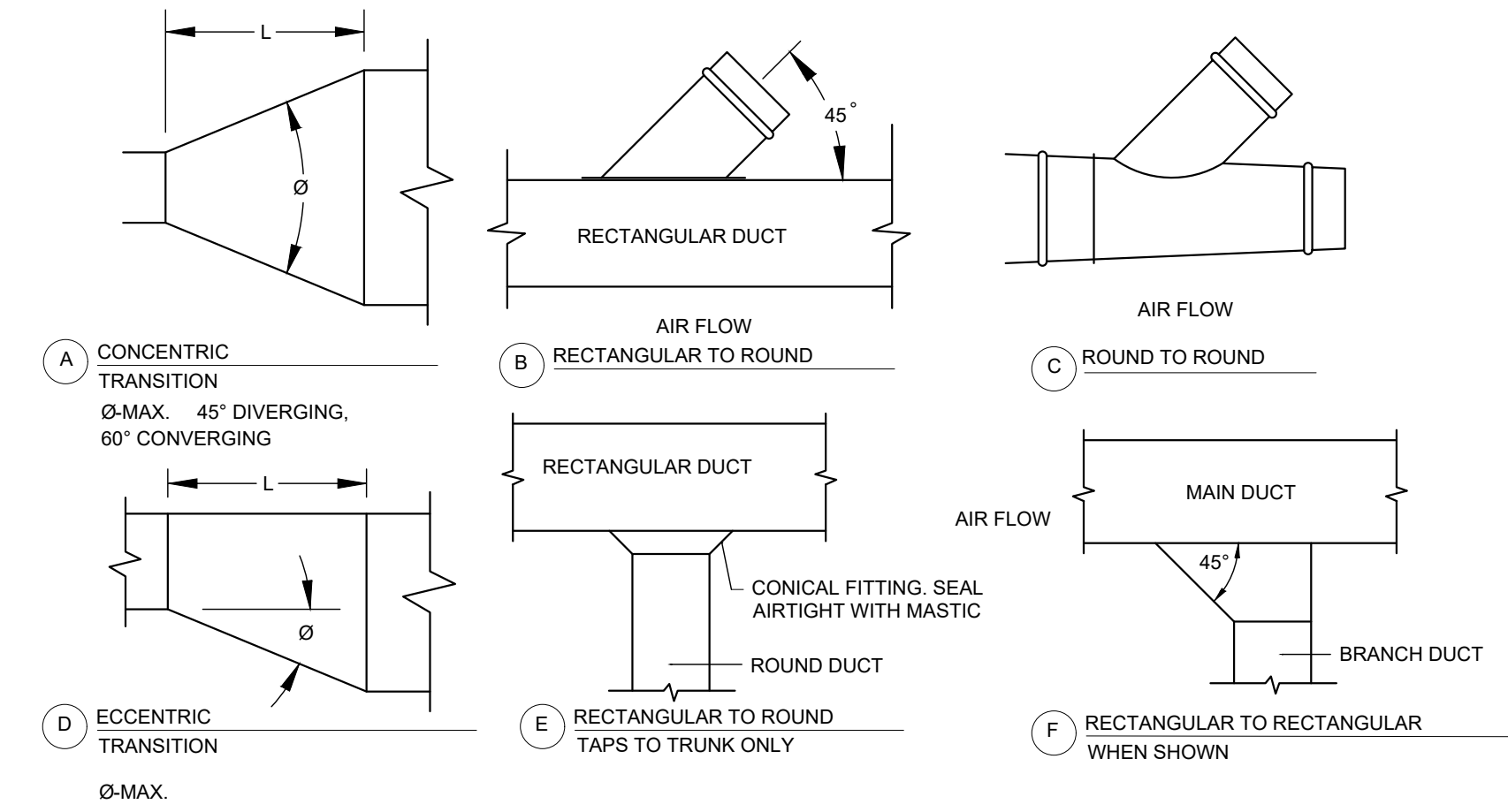
- NOTES:**
1. DETAIL IS FOR CONDENSATE DRAIN CONNECTIONS LOCATED ON FAN INLET SIDE ONLY.
 2. SLOPE CONDENSATE DRAIN AS MUCH AS POSSIBLE TOWARD DISCHARGE POINT BUT NO LESS THAN 1/4" PER FOOT. PROVIDE CLEANOUTS AT TURNS AND WHERE INDICATED. USE SCHEDULE 40 PVC PIPE AND FITTINGS WITH PRIMED AND SOLVENT WELDED JOINTS. USE DWV FITTINGS FOR SIZES 1-1/4" DIAMETER AND LARGER PIPE. SUPPORT PIPING AT FOUR FOOT INTERVALS MAXIMUM.
 3. PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED TO SUIT SITE CONDITION. REFER TO LOCAL CODE REQUIREMENTS FOR INDIRECT DRAIN REQUIREMENTS.
 4. PROVIDE 6" HIGH PIPE VENT OPEN TO ATMOSPHERE IF REQUIRED BY LOCAL CODES.



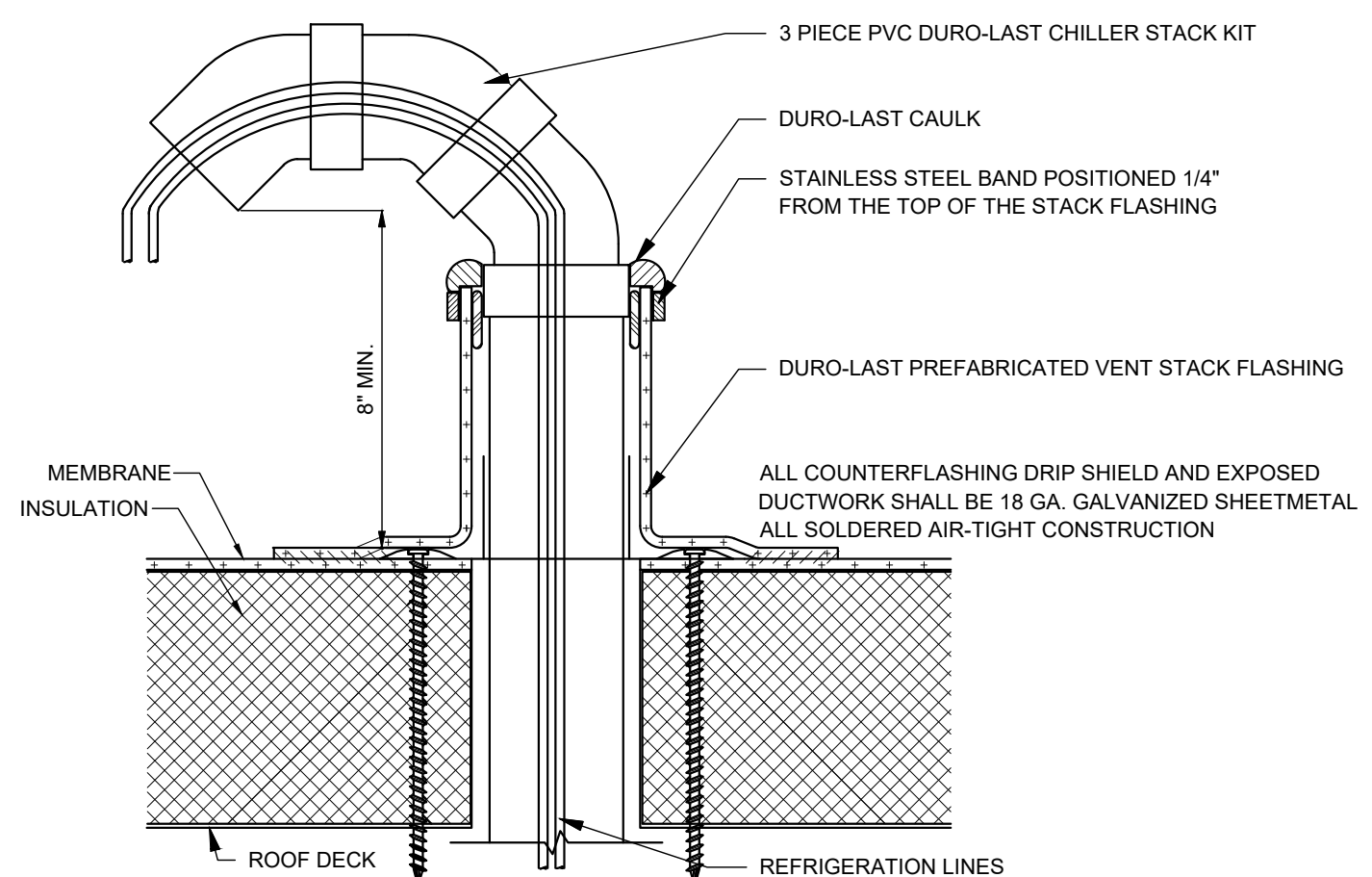
ROOFTOP UNIT CONDENSATE 10
5" = 1'-0"



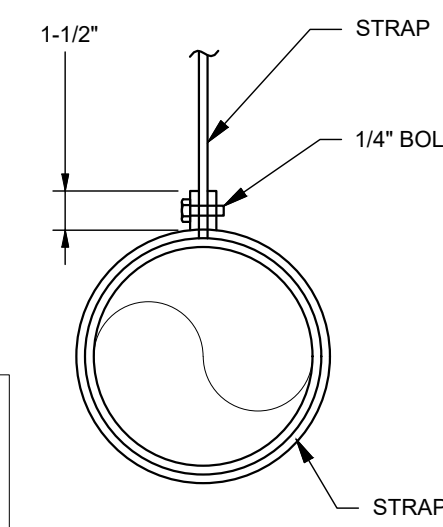
CEILING DIFFUSER DETAIL 06
NOT TO SCALE



DUCT FITTING DETAILS 02
NOT TO SCALE



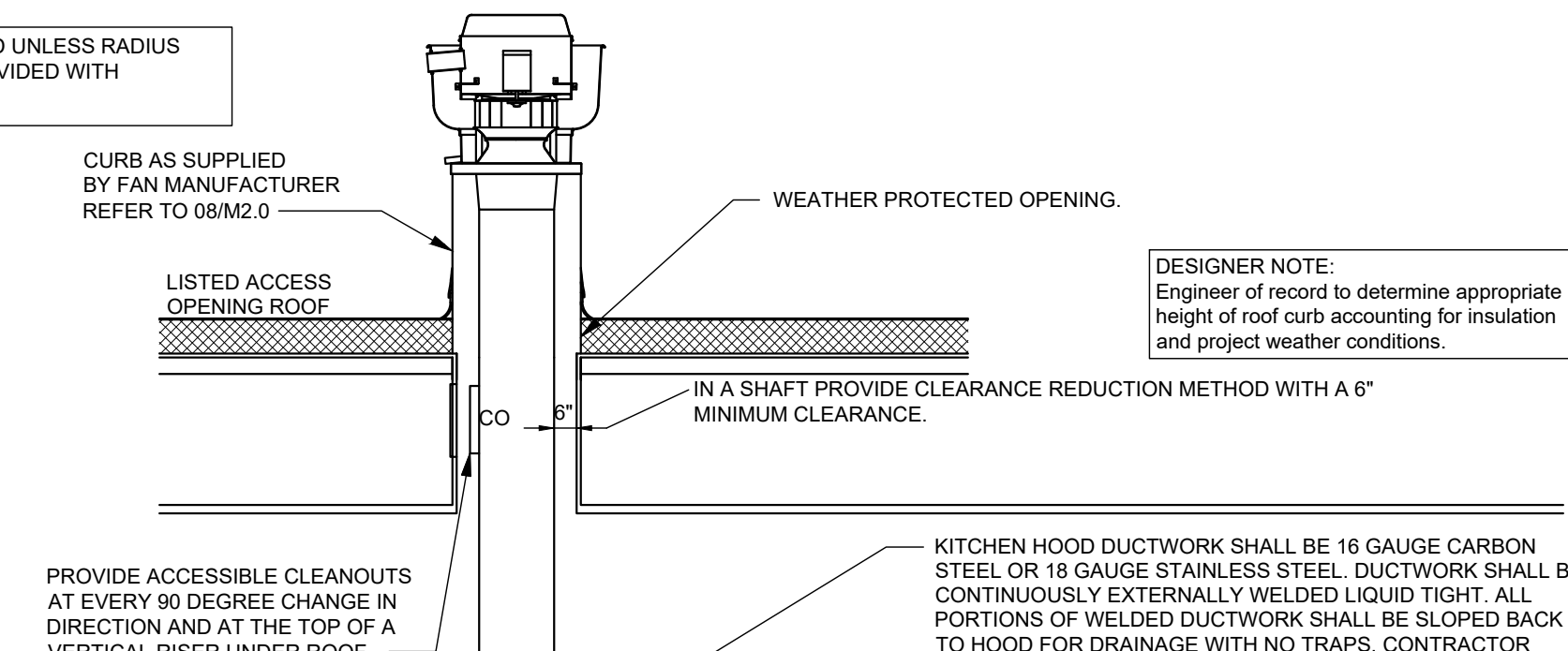
GOOSENECK WEATHERHOLD ROOF PENETRATION DETAIL 09
NOT TO SCALE



- NOTE:**
FOR DUCT SUPPORT AND SEISMIC REQUIREMENTS, REFER TO SMACNA GUIDELINES AND LOCAL CODE REQUIREMENTS.

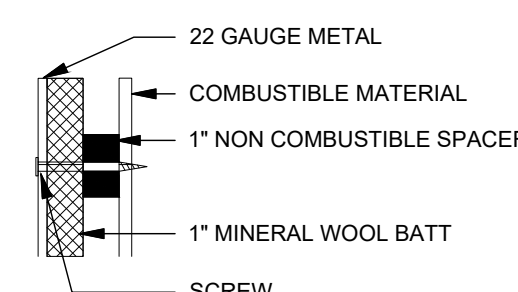
ROUND DUCT HANGER DETAIL 05
NOT TO SCALE

- NO 90° BENDS IN GREASE DUCT ALLOWED UNLESS RADIUS ELBOWS WITH ACCESS PANELS ARE PROVIDED WITH CONSTRUCTION MANAGER APPROVAL.



- CLEARANCE AND CLEARANCE REDUCTION METHODS**
NFPA 96 1-3.2 CLEARANCE NOTE:
HOODS, GREASE EXTRACTORS, DUCTS, ECOLOGY UNITS, FANS SHALL HAVE A CLEARANCE OF AT LEAST:
- 18" TO COMBUSTIBLES
 - 3" TO LIMITED COMBUSTIBLES, 6" IN SHAFT
 - 0" TO NON COMBUSTIBLES, 6" IN SHAFT

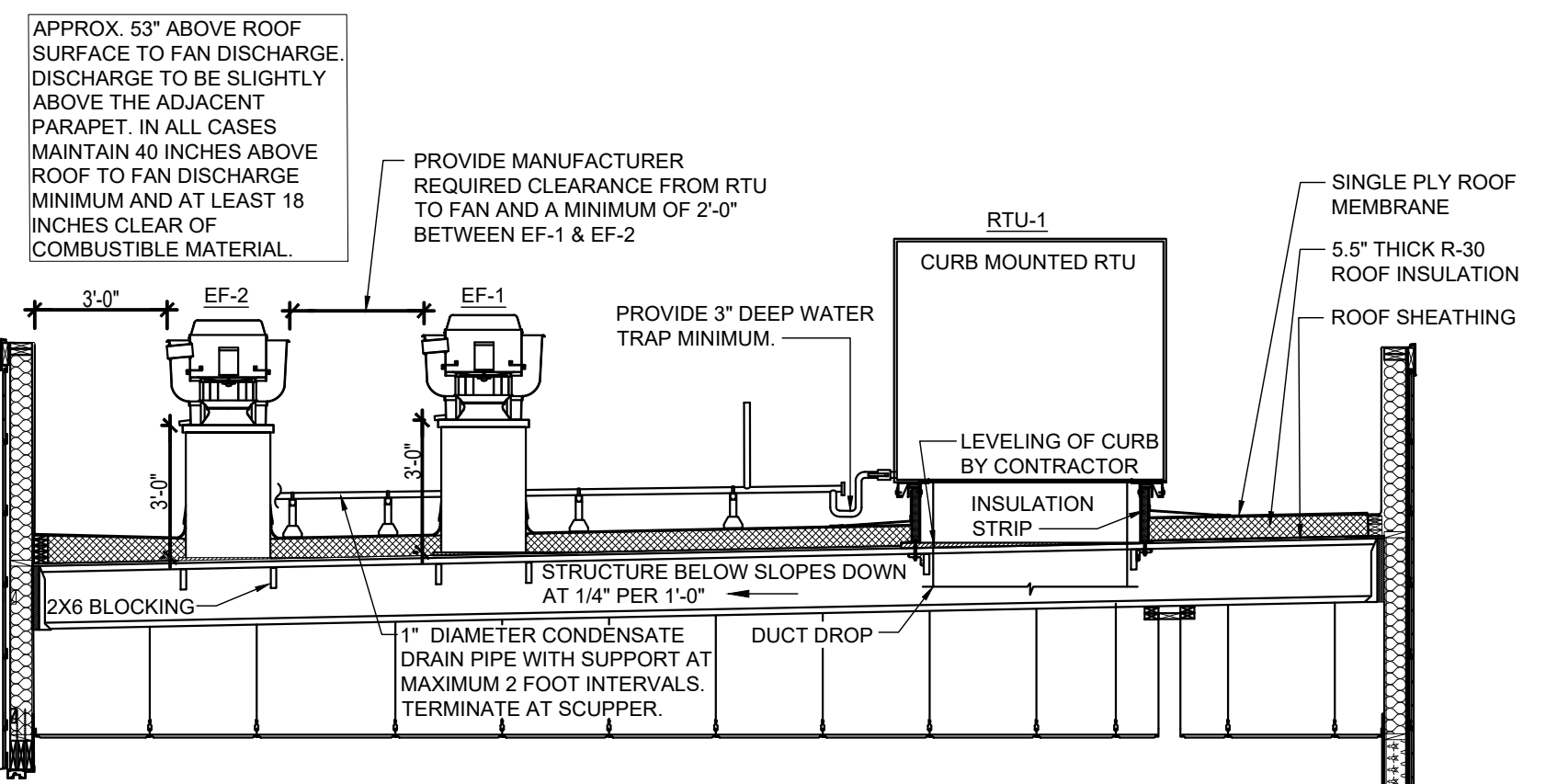
- WHERE SPACE DOES NOT ALLOW FOR NOTED CLEARANCES AS IT PERTAINS TO THE TYPE OF CONSTRUCTION, A CLEARANCE REDUCTION METHOD MAY BE APPLIED.
OPTION 1 : AS ILLUSTRATED BELOW
OPTION 2 : USE LISTED 3M FIRE CURT WRAP 615+



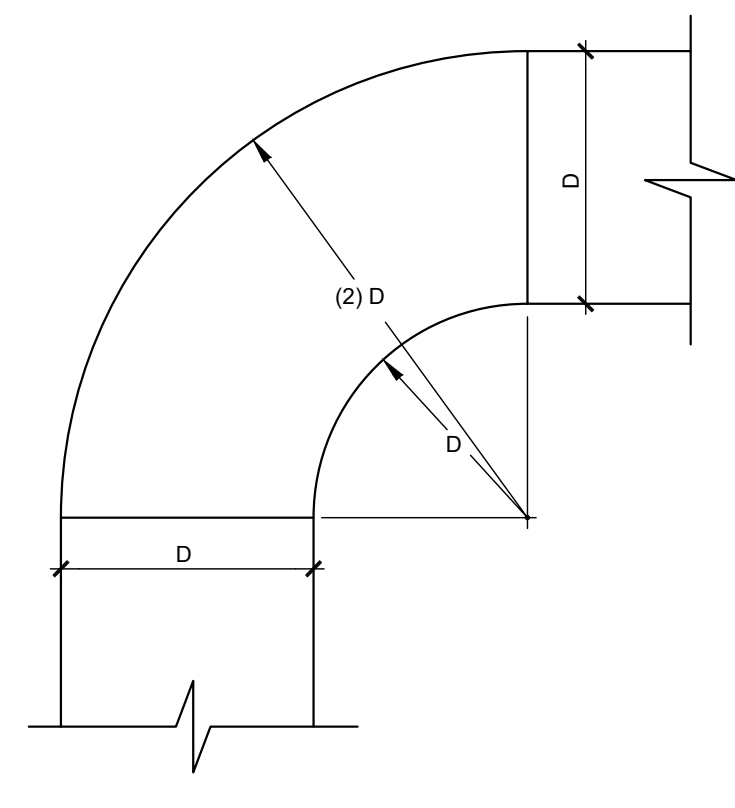
- CONTRACTOR TO PROVIDE AIR BALANCING IN DUCTWORK FOR ALL KITCHEN EXHAUST FANS.

- MANUFACTURER PREFABRICATED UL APPROVED INSULATED GREASE EXHAUST DUCT IS PERMITTED IF PROVIDED BY THE HOOD SUPPLIER AS PART OF A COMPLETE HOOD AND FAN PACKAGED SYSTEM. COMPLETE ERECTION DOCUMENTS DETAILING THE REQUIRED INSTALLATION PROCEDURES SHALL BE PROVIDED FOR THE CODE OFFICIAL AND THE INSTALLING CONTRACTOR. DUCT SHALL CONFORM TO ALL NFPA 96 REQUIREMENTS AND UL LISTING.

MECHANICAL EXHAUST DUCT DETAIL 01
NOT TO SCALE



EXHAUST FAN AND RTU CURB DETAIL 08
1/4" = 1'-0"

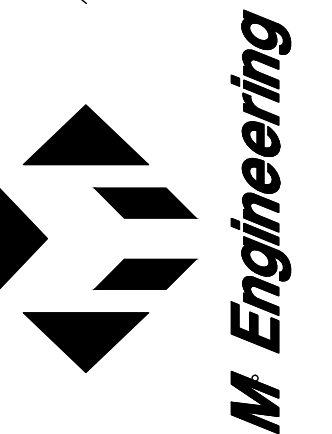


RADIUS ELBOW 04
NOT TO SCALE

SITE NUMBER: 13349
BUILDING TYPE: (2.0) SMART 55+/65
ASSET TYPE: FREESTANDING
CLASSIFICATION: NEW
OWNER: COTTI FOODS, INC.
BASE VERSION: 2020
UPGRADE CLASSIFICATION: NEW BUILD
PROJECT YEAR: 2021
DESIGN TYPE: (2.0) UM BRITE
DRAWING RELEASE: SUMMER

Project No. **20-160**

750 Brookridge Boulevard
Westerville, Ohio 43081
614-839-4639
614-839-2222 FAX



Wendy's
500 W. STONE WOOD DRIVE
BROKEN ARROW, OK. 74012

REV.	DATE	DESCRIPTION
▲	08/27/21	SUMMER RELEASE
▲		
▲		

ISSUE DATE: JUNE 29, 2021
PROJECT NUMBER: 13349
DRAWN BY: BLS
CHECKED BY: BLS

Construction
Set 10/12/21

SHEET NAME
HVAC DETAILS

SHEET NUMBER

M2.0

HVAC SYSTEM DESIGN: OUTSIDE AIR TEMPERATURE: 100°F SUMMER, 9°F WINTER

ROOFTOP UNIT SCHEDULE

MANUFACTURER	UNIT	MODEL NO.	TONS	S/A HP	FAN CFM	ESP	VOLT	HEATING INPUT	HEATING OUTPUT	TOTAL COOLING	MOC	OA CFM	NOTES	
AAON	GAS HEAT	RTU-1	RN-014-8-0-GA	12.5	2	4500	0.8	208/3/60	270 MBH	218 MBH	150 MBH	70	1600	ALL AS APPLICABLE
AAON	GAS HEAT	RTU-2	RN-014-8-0-GA	12.5	2	4500	0.8	208/3/60	270 MBH	218 MBH	150 MBH	70	1600	ALL AS APPLICABLE

UNITS ARE TO BE COMPLETE WITH THE FOLLOWING:

- FACTORY CURBS FOR CONTRACTOR TO INSTALL. CURB HEIGHTS SHALL PROVIDE FOR LOCAL SNOW ACCUMULATION. CURBS SHALL BE 14 INCHES HIGH MINIMUM. CONTRACTOR TO CONFIRM CURB HEIGHTS AND STRENGTH WITH STRUCTURAL ENGINEER TO CONFORM TO LOCAL SNOW ACCUMULATION, SEISMIC AND WIND LOADS, INCLUDING FASTENER CONSTRUCTION AND INSTALLATION METHODS.
- FACTORY MOUNTED AND WIRED NON-FUSED DISCONNECT.
- WEATHER HOOD WITH BIRD SCREEN AT UNIT OUTDOOR AIR INLET.
- SET MINIMUM OUTDOOR AIR AS SPECIFIED ABOVE. OUTDOOR AIR DAMPER SHALL FULLY CLOSE ON UNIT SHUTDOWN.
- SINGLE ZONE VARIABLE AIR VOLUME CONTROL WITH OUTDOOR AIR CFM COMPENSATION.
- FACTORY MOUNTED AND WIRED DRAIN PAN CONDENSATE OVERFLOW SWITCH.
- OUTDOOR AIR ECONOMIZER WITH SINGLE ENTHALPY CONTROL AND ECONOMIZER FAULT DETECTION AND DIAGNOSTICS. PROVIDE UNIT WITH BAROMETRIC RELIEF. PROVIDE POWER RELIEF WHERE LOCAL AHJ REQUIRES.
- FACTORY INSTALLED NON POWERED CONVENIENCE OUTLET.
- STAINLESS STEEL HEAT EXCHANGERS AND FULLY MODULATING GAS BURNERS.
- LOUVERED CONDENSER COIL HAIL GUARD.
- FACTORY INSTALLED HOT GAS REHEAT COIL FOR DEHUMIDIFICATION CONTROL.
- REFER TO DRAWINGS G2.1 FOR MANUFACTURER CONTACT INFORMATION.
- REMOVE MERV FILTERS
- ALTERNATE ROOFTOP UNITS SHALL BE RHEEM

SYMBOLS & ABBREVIATIONS LEGEND

	THERMOSTAT	AFF	ABOVE FINISHED FLOOR
	TEMPERATURE/HUMIDITY SENSOR	AHJ	AUTHORITY HAVING JURISDICTION
	REMOTE TEST STATION	CFM	CUBIC FEET PER MINUTE
	SUPPLY DUCT	EA	EXHAUST AIR
	RETURN DUCT	ESP	EXTERNAL STATIC PRESSURE
	EXHAUST DUCT	FCLC	FAN CONTROL LIGHTING CONTROL
	MANUAL BALANCE DAMPER	HZ	FREQUENCY
	SUPPLY DIFFUSER	MOC	MAXIMUM OVERCURRENT PROTECTION
	ROUND SUPPLY DIFFUSER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
	RETURN GRILLE	NC	NOISE CRITERIA
	EXHAUST GRILLE	OA	OUTSIDE AIR
	DUMP BOX DIFFUSER	OAU	OUTDOOR AIR UNIT
	SIDE WALL MOUNTED SUPPLY REGISTER	RTU	ROOFTOP UNIT
		SA	SUPPLY AIR
		TYP	TYPICAL
		WC	WATER COLUMN

COMMERCIAL KITCHEN NOTES

HVAC, FIRE PROTECTION AND PLUMBING

NEW EQUIPMENT, PIPING, ETC. SHALL BE INSPECTED AND LOCATED BEFORE AND AFTER ALL NEW CONSTRUCTION. DETAILS OF PERFORMANCE/CONDITION/SIZING AND LOCATION SHALL BE SUPPLIED TO ENGINEER AND OWNER. AIR CAPACITIES FOR SUPPLY AND EXHAUST SYSTEMS SHALL BE MEASURED AT THE GRILLES TO DETERMINE IF DESIGN AIR FLOWS NOTED ON PLANS CAN BE MET. ANY EXTRA WORK REQUIRED TO ABOVE MENTIONED SHALL BE DETERMINED PRIOR TO NEW CONSTRUCTION. CONTRACTOR TO ALLOW FOR INSPECTION IN THEIR PRICE INCLUDING WELD INSPECTIONS, AIR FLOW MEASUREMENT, SCANNING AND CAMERA SCOPE TO EXISTING BURIED DRAINS. NO EXTRAS WILL BE ALLOWED ONCE NEW CONSTRUCTION STARTS.

CONTRACTOR TO OBTAIN LATEST SPREAD SHEETS/SHOP DRAWINGS FROM KITCHEN CONSULTANT FOR APPLIANCE AND HVAC REQUIREMENTS PRIOR TO ANY ROUGH-IN WORK.

CONTRACTOR SHALL PROVIDE ALL WIRING AND CONTROLS AS NOTED ON WIRING NOTES IN EQUIPMENT SCHEDULE.

CONTRACTOR SHALL:

- CONSTRUCT ENTIRE KITCHEN HOOD EXHAUST SYSTEM TO NFPA 96 STANDARDS.
- REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGN DRAWINGS FOR HOOD LOCATION AND APPROVED KITCHEN HOOD SHOP DRAWINGS FOR EXACT LOCATION OF EXHAUST DUCT CONNECTIONS.
- REFER TO LATEST KITCHEN EQUIPMENT DRAWINGS AND APPROVED SHOP DRAWINGS FOR FINAL GAS, PLUMBING AND DRAINAGE HOOK UP SIZES AND LOCATIONS. CONTRACTOR TO REFER TO MANUFACTURERS INSTALLATION MANUALS AND RECOMMENDATIONS AND PROVIDE NECESSARY EQUIPMENT, VALVES, PIPING, ETC. TO SUIT EXACT LOCATION OF EQUIPMENT ROUGH-INS SHALL BE DETERMINED AT SITE. ANY CHANGES TO THE KITCHEN EQUIPMENT LINE UP MUST BE REPORTED TO ENGINEER, FOOD SERVICES VENDOR, AND ARCHITECT PRIOR TO INSTALLATION.
- USE ONLY APPROVED HALTON FAN AND HOOD PACKAGE.
- ROOF MOUNTED FANS SHALL BE ACCESSIBLE ON ALL SIDES ACCESSIBLE WITHOUT A LADDER. REFER TO DETAILS.

ANSUL NOTES

THIS INSTALLATION SHALL BE PROVIDED IN ACCORDANCE WITH THE R-102 INSTALLATION MANUAL AND IN ACCORDANCE WITH STATE AND LOCAL CODES. WIRE ROPE FOR THE DETECTOR AND REMOTE PULL STATION SHALL BE INSTALLED BY AN AUTHORIZED, FACTORY TRAINED DISTRIBUTOR OR SERVICE REPRESENTATIVE. THIS INSTALLATION SHALL BE INSPECTED, PUT INTO OPERATION AND CERTIFIED BY AN AUTHORIZED, FACTORY TRAINED DISTRIBUTOR OR SERVICE REPRESENTATIVE. ELECTRICAL CONTACTS AND WIRING FOR APPLIANCE SHUT OFF SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. ANSUL R-102 RESTAURANT FIRE SUPPRESSION SYSTEMS HAVE BEEN TESTED AND ARE LISTED BY UNDERWRITERS' LABORATORIES INC. AS PRE-ENGINEERED SYSTEMS. SHALL COMPLY WITH RELEVANT ANSUL INSTALLATION RECHARGE INSPECTION AND MAINTENANCE MANUALS. SHALL COMPLY WITH NFPA 96 WHEN INSTALLED AND CERTIFIED BY AUTHORIZED TRAINED ANSUL DISTRIBUTORS. AGENT DISTRIBUTION PIPING AND DETECTION CONDUIT HOOD PENETRATIONS SHALL BE PROPERLY SEALED IN ACCORDANCE WITH NFPA 96.

AIR DEVICE SCHEDULE

DIFFUSER MARK	NECK SIZE	FACE SIZE	TYPE							ACCESSORY MOUNT			PATTERN			DUTY			TITUS MODEL NO.	PRICE MODEL NO.	AMER. LOUVER MODEL NO.	NOTES	
			DIFFUSER	REGISTER	GRILLE	OBD	STR	LAV-IN	SURFACE	SUPPLY	RETURN	EXHAUST											
RG-1	PER PLAN	24"x24"				X		X	X											PAR-AA	APDDR	-	1.4
RG-2	8"	12"x12"				X		X	X											PAR-AA	APDDR	-	1.2,4 DRYWALL CEILING MOUNTED RR EXHAUST
SD-1	10"	22"	X																TMR-AA	ARCD	-	3.4 DINING SUPPLY	
SD-2	22"x22"	24"x24"	X							X									PAR-AA	APDDR	-	1.5,6 CEILING MOUNTED HOOD SUPPLY DUMP BOX	
SD-2a	22"x22"	24"x24"	X							X									-	-	-	-	1.5 CEILING MOUNTED HOOD SUPPLY DUMP BOX (CAPTIVE-AIRE MODEL DI-PSP)
SD-2b	22"x22"	24"x24"	X							X									-	-	-	-	1.5 CEILING MOUNTED HOOD SUPPLY DUMP BOX (HALTON MODEL KCD)
SD-3	PER PLAN	24"x24"	X							X									PAS-AA	APDN	-	1.4	
SD-4	6"	12"x12"	X					X											PAS-AA	APDN	-	1.2,4 DRYWALL CEILING MOUNTED SUPPLY	
TD-1	PER PLAN	24"x24"				X				X									PAR-AA	APDDR	STR-ERFG-8W	1.2,4 CAPTURE JET TRANSFER	

ACCESSORY NOTE: OBD-OPPOSED BLADE DAMPER, STR-SQUARE TO ROUND TRANSITION

AIR DEVICE SCHEDULE NOTES

- WHITE
- ROUND NECK
- DUCT MOUNTED
- CLEAR ANODIZED
- SUPPLY DIFFUSERS AT HOOD LOCATION USE SHOP OR FIELD FABRICATED DUMP BOXES, WHICH CONSIST OF PERFORATED DIFFUSER WITH NO PATTERN CONTROLLERS, AND SQUARE PLENUM BOX THAT CAN ACCEPT ROUND DUCT CONNECTION. 4 WAY DIFFUSERS ARE PROHIBITED AROUND THE HOODS.
- REFER TO DUMP BOX DETAIL ON DRAWING M2.0.

FAN SCHEDULE

MARK	CFM	SP	HP	V/HP	ACCESSORIES					MODEL NO.	REMARKS
					BACK DRAFT DAMPER	BIRD SCREEN	DISCONNECT SWITCH	SPEED CONTR.	DIRECT DRIVE		
EF-1	1200	1.25	3/4	208/1			X	X	X	DU85HFA	1,2,3
EF-2	1500	1.25	3/4	208/1			X	X	X	DU85HFA	1,2,3
EF-3	300	0.375	1/6	115/1	X	X	X	X	X	DR10HFA	1,4

1. FANS, CURBS, AND NFPA FAN HINGES AS APPLICABLE WILL BE SUPPLIED AS PART OF THE EXHAUST HOOD PACKAGE.

2. PROVIDE UL APPROVED GREASE RATING.

3. EXHAUST FAN IS CONNECTED TO THE HOOD ON SWITCH. FAN SHALL OPERATE AT ALL TIMES WHILE RESTAURANT IS OPEN.

4. FAN TO OPERATE FROM SMART BREAKER IN FCLC SYSTEM.

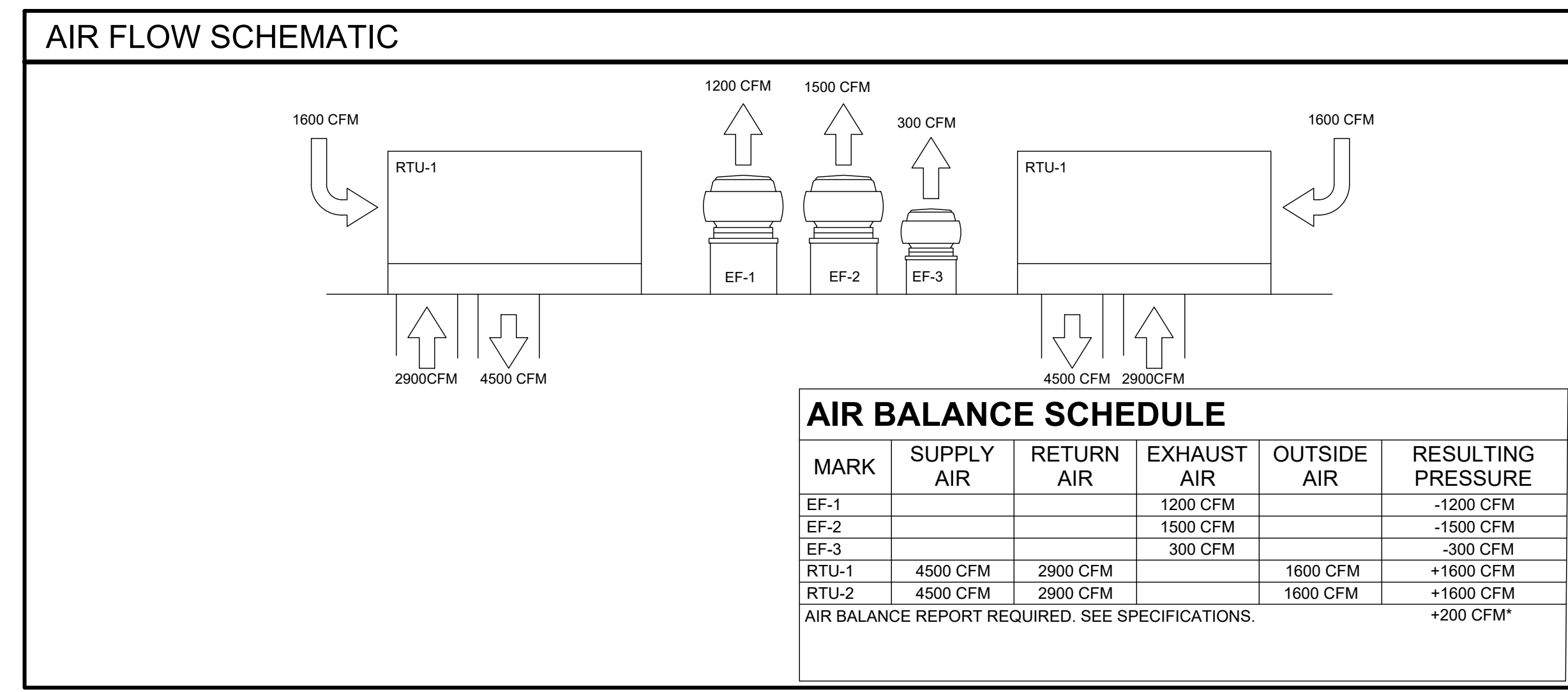
ELECTRIC UNIT HEATER SCHEDULE

MARK	KW	V/HP	FAN HP	MOC	ACC.		MODEL NO.	REMARKS
					DISCONNECT SWITCH			
UH-1	3.3	208/1	1/125	20 A	X		TRANE - UHEC-032	1.2,3

1. UNIT HEATER TO BE MOUNTED OVERHEAD AT ENTRY. VERTICAL AIR DELIVERY MOUNT AT 9' AFF.

2. PAINT TO MATCH DINING ROOM DUCTWORK.

3. PROVIDE WITH UNIT-MOUNTED THERMOSTAT.



HVAC BIDDING AND EQUIPMENT NOTES

FOR QUOTATION ON THE FOLLOWING EQUIPMENT, REFER TO APPROVED VENDOR LIST ON SHEET G2.1:

EQUIPMENT PACKAGE:
 OAU-1 AND RTU-1 WITH ACCESSORIES AND CURBS
 GENERAL CONTRACTOR TO CONTACT APPROVED VENDOR ON SHEET G2.1 FOR PRICING INFORMATION. IF DESIGN CONDITIONS DIFFER FROM THOSE LISTED, CONTACT SUPPLIER FOR APPROPRIATE EQUIPMENT.

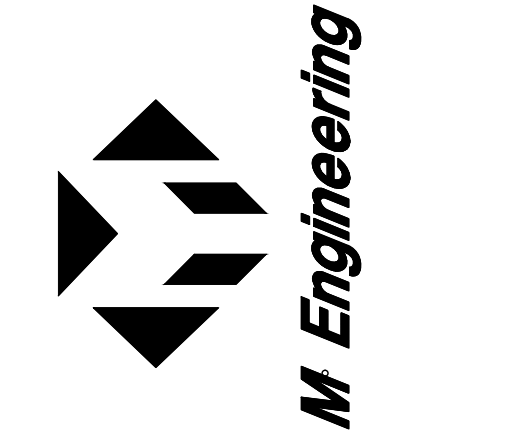
HOODS, FANS AND FAN CURBS PACKAGE:
 GENERAL CONTRACTOR TO CONTACT APPROVED VENDOR ON SHEET G2.1 FOR PRICING INFORMATION. ALL CURBS ARE TO BE INSULATED AND TO COMPLY WITH NFPA 96 REQUIREMENTS FOR HEIGHT. CURBS PROVIDED FOR EF-1 AND EF-2 MUST BE HINGED.

AIR DISTRIBUTION PACKAGE:
 PACKAGE TO INCLUDE SCHEDULED AIR DEVICES AND ACCESSORIES. EQUIPMENT AND MATERIAL PACKAGES ARE IN STOCK AND SHOULD BE ORDERED IMMEDIATELY UPON RECEIPT OF HVAC CONTRACT TO AVOID CONSTRUCTION DELAY. CONTACT HJG CONSOLIDATOR FOR DIFFUSER PACKAGE.

SITE NUMBER: 13349
 BUILDING TYPE: (2.0) SMART 55+/65
 ASSET TYPE: FREESTANDING
 CLASSIFICATION: NEW
 OWNER: COTTI FOODS, INC.
 BASE VERSION: 2020
 UPGRADE CLASSIFICATION: NEW BUILD
 PROJECT YEAR: 2021
 DESIGN TYPE: (2.0) UM BRITE
 DRAWING RELEASE: SUMMER

Project No. **20-160**

750 Brookridge Boulevard
 Westerville, Ohio 43081
 614-839-4639
 614-839-2222 FAX



Wendy's
 500 W. STONE WOOD DRIVE
 BROKEN ARROW, OK. 74012

REV.	DATE	DESCRIPTION
△	08/27/21	SUMMER RELEASE
△		
△		

ISSUE DATE: JUNE 29, 2021
 PROJECT NUMBER: 13349
 DRAWN BY: BLS
 CHECKED BY: BLS

Construction
Set 10/12/21

SHEET NAME:
AAON MECHANICAL SCHEDULES
 SHEET NUMBER

M3.0

MECHANICAL SPECIFICATIONS

230500 COMMON WORK RESULTS FOR HVAC

- A. PROVIDE MATERIALS AND EQUIPMENT AND LABOR REQUIRED TO INSTALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEM. COMPLETE AS INDICATED ON DRAWINGS, AS REQUIRED BY CODE AND AS SPECIFIED HEREIN.
- B. WITHOUT RESTRICTING THE GENERALITY OF THE FIRST STATEMENT, THE WORK TO BE PERFORMED UNDER THIS DIVISION SHALL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING:
- HVAC WORK AS DESCRIBED IN SECTIONS 230500 THROUGH 233813.
- C. ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED, SHALL PROVIDE POWER WIRING FOR EACH ITEM OF ELECTRICAL EQUIPMENT AND MAKE FINAL CONNECTION TO MOTORS.
- D. FINISH PAINTING SHALL BE PERFORMED BY GENERAL CONTRACTOR, EXCEPT AS NOTED ELSEWHERE. CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION PAINTING DEFACED BY CONTRACTOR AFTER ORIGINAL PAINTING.
- E. ALL WORK SHALL CONFORM TO CODES, RULES, AND REGULATIONS:

- NATIONAL ELECTRICAL CODE.
- STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS, NFPA 90A.
- CODE FOR SAFETY TO LIFE FROM FIRE IN BUILDINGS AND STRUCTURES, NFPA 101.
- FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS.
- STATE MECHANICAL CODE.
- STATE BUILDING CODE.
- STATE INDUSTRIAL COMMISSION REQUIREMENTS.
- LOCAL BUILDING CODE REQUIREMENTS.
- BUILDING INSURING AGENCY REQUIREMENTS.

- F. PERMITS REQUIRED BY LAWS, ORDINANCES AND BUILDING CODES HAVING JURISDICTION SHALL BE OBTAINED AT THE PROPER TIME BY AND AT EXPENSE OF CONTRACTOR.
- G. CONTRACTOR SHALL OBTAIN INSPECTIONS REQUIRED BY LAWS, ORDINANCES AND PUBLIC AUTHORITY HAVING JURISDICTION AND SHALL OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO ARCHITECT AND SHALL PAY FEES, CHARGES, ASSESSMENTS AND OTHER EXPENSES IN CONNECTION THEREWITH.

- H. PIPING AND EQUIPMENT LAYOUT ARE SCHEMATIC. EXACT LOCATIONS ARE DETERMINED BY STRUCTURAL AND OTHER CONDITIONS. DESIGN OF SYSTEM MAY NOT BE CHANGED. ONLY EXACT LOCATION OF PIPING AND DUCTS MAY BE REVISED TO SUIT CONSTRUCTION CONDITIONS AND AID IN COORDINATION WITH WORK OF OTHER CONTRACTORS.

- I. MATERIALS AND EQUIPMENT INSTALLED AS PART OF THE WORK SHALL MEET REQUIREMENTS OF THE CONTRACT DOCUMENTS AND NO MATERIALS OR EQUIPMENT SHALL BE ORDERED UNTIL REVIEWED BY OWNER. ARCHITECT OF RECORD IS RESPONSIBLE FOR REVIEWING AND APPROVING HVAC SUBMITTALS. HVAC UNITS SHALL NOT BE CONSIDERED AS ORDERED AND IN PROGRESS UNTIL SUBMITTALS ARE FORMALLY APPROVED AND RETURNED TO HVAC SUPPLIER.

- J. CATALOG DATA FOR EQUIPMENT REVIEWED BY OWNER SHALL NOT SUPERSEDE CONTRACT DOCUMENTS. REVIEW OF PRODUCTS SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS, PROVIDING PROPER CLEARANCE, FABRICATION PROCESS AND COORDINATION WITH OTHER TRADES.

- K. WHEN SUBMITTED FOR REVIEW, SHOP DRAWINGS SHALL BEAR CONTRACTOR'S CERTIFICATION THAT CONTRACTOR HAS REVIEWED, CHECKED AND APPROVED SHOP DRAWINGS, THAT THEY ARE IN HARMONY WITH REQUIREMENTS OF THE PROJECT AND WITH THE PROVISIONS OF CONTRACT DOCUMENTS AND THAT CONTRACTOR HAS VERIFIED ALL FIELD MEASUREMENTS AND CONSTRUCTION CRITERIA, MATERIALS, CATALOG NUMBERS AND SIMILAR DATA. CONTRACTOR SHALL ALSO CERTIFY THAT WORK REPRESENTED BY THE SHOP DRAWINGS IS RECOMMENDED BY CONTRACTOR AND THE CONTRACTOR'S GUARANTEE WILL FULLY APPLY.

- L. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES AND NOTE CONDITIONS WHICH WOULD AFFECT THE WORK. DISCREPANCIES SHALL BE REPORTED PRIOR TO BID AWARD.

- M. PROVIDE INSTRUCTION TO OWNER'S OPERATING PERSONNEL AS NECESSARY, SHOWING LOCATIONS AND PROPER OPERATION OF MAJOR ITEMS OF EQUIPMENT AND SYSTEM COMPONENTS AND REFERRING TO OPERATING INSTRUCTION MANUAL DESCRIBED BELOW AS A GUIDE.

- N. COMPLETE WRITTEN MANUAL OF OPERATING INSTRUCTIONS INCLUDING COPIES OF SHOP DRAWINGS AND LISTINGS OF EQUIPMENT SUPPLIERS, ASSEMBLY IN 8-1/2" X 11" HARD BACKED INDEXED BINDER. MANUAL SHALL BE AS FOLLOWS:

- TITLE PAGE: TITLE OF JOB, OWNER, ADDRESS, DATE OF SUBMISSION, CONTRACTOR AND ENGINEER.
 - INDEX.
 - LIST OF MAJOR EQUIPMENT USED IN PROJECT ACCOMPANIED BY CONTRACTOR PURCHASE ORDER NUMBERS AND SUPPLIERS NAMES AND ADDRESSES.
 - ONE COPY OF EACH SHOP DRAWING GROUPED BY TYPES OF EQUIPMENT, I.E., ROOFTOP UNITS, FANS, ETC.
5. SECTION FOR EACH SYSTEM INCLUDING:
- BRIEF DESCRIPTION OF SYSTEM OPERATION WITH LOCATION OF MAJOR COMPONENTS.
 - HVAC SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS AND SCHEMATICS.

- O. SUBMIT A COMPLETED COPY TITLED "HVAC OPERATING INSTRUCTION MANUAL" ON BINDING EDGE OF BINDER TO ARCHITECT FOR APPROVAL. AFTER ARCHITECT'S REVIEW AND ANY CORRECTIONS REQUIRED ARE COMPLETED, SUBMIT A COPY OF THE MANUAL TO OWNER.

- P. WITHIN 90 DAYS AFTER DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF ACTUAL INSTALLATION SHALL BE PROVIDED TO BUILDING OWNER. RECORD DRAWINGS SHALL INCLUDE AT A MINIMUM LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT DISTRIBUTION SYSTEM INCLUDING SIZES, AND AIR DESIGN FLOW RATES.

- Q. CONTRACTOR IS TO BECOME INFORMED OF EXACT DIMENSIONS OF FINISHED WORK WHERE PIPES, DUCTS AND EQUIPMENT ARE TO BE PLACED AND WILL ARRANGE THE WORK ACCORDINGLY, ASSUMING ALL RESPONSIBILITY FOR PROPER LOCATION AND COORDINATION OF THE WORK.

- R. IN ERECTION OF DUCTWORK, SPECIAL CARE SHALL BE USED PROVIDING SUPPORT.

- S. DUCTWORK SHALL BE PLACED SO AS TO AVOID INTERFERENCES WITH PLUMBING PIPES, ELECTRIC CONDUITS OR PIPES OF OTHER CONTRACTORS.

- T. DUCTWORK SHALL BE PROVIDED WITH SUFFICIENT DISTANCE FROM WALLS, PIPES, AND OTHER OBSTACLES TO PERMIT APPLICATION OF FULL THICKNESS OF INSULATION SPECIFIED.

230593 TESTING, ADJUSTING, & BALANCING HVAC

- A. CONTRACTOR SHALL COMPLETE INSTALLATION OF HOOD SYSTEM, ROOFTOP EQUIPMENT, AND CONTROL SYSTEM IN ACCORDANCE WITH DRAWINGS PRIOR TO PERFORMING TAB. CONTRACTOR SHALL PROGRAM THERMOSTATS IN ACCORDANCE WITH REQUIREMENTS LISTED AND FOLLOWING STATUS AS INDICATED IN TAB CONFIRMATION FORM. CONTRACTOR SHALL UTILIZE PERSONNEL AND SUBCONTRACTORS THAT ARE FULLY TRAINED AND CERTIFIED BY MANUFACTURER FOR EQUIPMENT BEING INSTALLED.

- B. CONTRACTOR SHALL COMPLETE CALIBRATIONS AND TESTS OUTLINED IN WENDY'S TEST PROTOCOLS AND DOCUMENT RESULTS ON DESIGNATED FORMS. COPIES OF FORMS ARE AVAILABLE ONLINE:

[HTTP://WWW.IGNITORLABS.COM/WRV1-DOC-HOME/](http://www.ignitorlabs.com/wrv1-doc-home/)

- C. CONTRACTORS WORKING ON PROJECT ARE REQUIRED TO HAVE COMPLETED WENDY'S RESTAURANT VENTILATION COURSE FROM IGNITOR LABS WITHIN PAST 12 MONTHS:

[HTTPS://PORTAL.IGNITORLABS.COM](https://portal.ignitorlabs.com)

- A COMPLETION CERTIFICATE FROM IGNITOR LABS WITH A SCORE OF 80% OR HIGHER IS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR THE NOMINAL COSTS REQUIRED FOR PROJECT PERSONNEL TO TAKE THE COURSE.

- D. PROCEDURES/CHECKLISTS:

CHECKLIST	PROCEDURE TROUBLESHOOTING		
BREAKER PANELS			
WESCO	RQC-2017-013	RQC-2017-014	RQC-2017-015
CPI	RQC-2017-043	RQC-2017-044	RQC-2017-045
ROOFTOP UNITS			
AAON	RQC-2020-075	RQC-2020-076	RQC-2020-077
TRANE	RQC-2020-025	RQC-2020-026	RQC-2020-027
YORK/CAPTIVE-AIR	RQC-2020-105	RQC-2020-106	RQC-2020-107
HOOD SYSTEM			
HALTON (CAPTURE/JET)	RQC-2020-052	RQC-2020-053	RQC-2020-054
HALTON (STANDARD FILTER HOOD)	RQC-2020-054	RQC-2020-055	RQC-2020-056
CAPTIVE-AIRE	RQC-2020-062	RQC-2020-063	

- E. QUALIFICATIONS:

- BALANCER SHALL BE A MEMBER IN GOOD STANDING AND CERTIFIED WITH THE ASSOCIATED AIR BALANCE COUNCIL (AABC), OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). BALANCER SHALL BE TOTALLY INDEPENDENT, HAVING NO AFFILIATION WITH ANY PROJECT

- CONTRACTOR, DESIGN PROFESSIONAL, EQUIPMENT MANUFACTURER OR SUPPLIER OF HVAC RELATED TO EQUIPMENT SHALL HAVE BEEN REGULARLY ENGAGED IN TAB OF HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS FOR RESTAURANTS. BALANCER SHALL PROVIDE PROOF THAT PERSONNEL PERFORMING WORK HAVE SUCCESSFULLY COMPLETED AT LEAST FIVE RESTAURANT PROJECTS OF SIMILAR SIZE AND SCOPE. A COMPLETE LIST OF REFERENCE PROJECTS, INCLUDING NAME AND PHONE NUMBER OF CONFIRMING CONTACTS, SHALL BE SUBMITTED WITH QUOTE, IF REQUESTED.

- INSTRUMENTS USED FOR TAB SHALL BE ACCURATELY CALIBRATED WITHIN TWELVE (12) MONTHS OF BALANCING AND MAINTAINED IN GOOD WORKING ORDER. PROVIDE RECORDS OF LATEST CALIBRATION AS REQUESTED AND INCLUDE THIS SUMMARY IN THE FINAL TAB REPORT. ENGINEER OF RECORD, OR THEIR REPRESENTATIVE, MAY OBSERVE TAB ACTIVITIES.
- UNLESS OTHERWISE NOTED RESTAURATEUR SHALL PROCURE SERVICES OF AND CONTRACT DIRECTLY WITH AN INDEPENDENT TAB CONTRACTOR (BALANCER) MEETING QUALIFICATIONS OF THIS SECTION. BALANCER SHALL TEST, BALANCE, AND ADJUST ALL AIR MOVING EQUIPMENT (RTUS AND FANS), AIR DISTRIBUTION DUCTS AND AIR DEVICES, EXHAUST SYSTEMS, AND TEMPERATURE CONTROL SYSTEMS.

- IF CONTRACTOR IS REQUIRED TO PROCURE TAB SERVICES DIRECTLY, CONTRACTOR SHALL PROVIDE QUALIFICATIONS OF BALANCER TO RESTAURATEUR OR THEIR REPRESENTATIVE FOR APPROVAL. CONTRACTOR SHALL CONTRACT BALANCER AS SOON AS POSSIBLE AFTER CONSTRUCTION START TO COORDINATE THEIR WORK WITH OTHER TRADES, WHILE MEETING COMPLETION DATE. CONTRACTOR SHALL PREPARE A CRITICAL PATH SCHEDULE, COORDINATED WITH SUBCONTRACTORS, TO ACCOMPLISH ALL TASKS REQUIRED OF BALANCER.

- CONTRACTORS SHALL COOPERATE AND ASSIST BALANCER AS REQUIRED. BALANCER SHALL INSPECT MECHANICAL, EXHAUST, AND CONTROL SYSTEM WORK. ANY DEVIATIONS FROM PLANS AND SPECIFICATIONS THAT MAY AFFECT PERFORMANCE OF THE SYSTEM SHALL BE REPORTED IN WRITING TO CONTRACTOR, ARCHITECT OF RECORD, ENGINEER AND RESTAURATEUR.

- F. CONTRACTOR SHALL COMPLETE THE FOLLOWING PRIOR TO TAB: PERMANENT POWER SHALL BE PROVIDED, ROOFTOP UNIT FULLY INSTALLED AND STARTED, HOOD SYSTEMS AND FANS STARTED, COMPLETE CONTROLS OPERATIONAL AND PROGRAMMED, DUCTWORK, DIFFUSER AND CEILING INSTALLATION COMPLETED. ADDITIONAL TAB COSTS ARE THE CONTRACTOR'S RESPONSIBILITY IF REQUIRED ITEMS ARE NOT COMPLETE AT START OF TAB PROCEDURES.

- G. DESIGN BALANCE DEVIATION TOLERANCES:

- KITCHEN HOODS ARE UL LISTED AND SHALL BE BALANCED FROM 100% TO 105% OF DESIGN AIRFLOW. DO NOT SET EXHAUST RATE BELOW THAT SCHEDULED. INCREASE RTU AIRFLOW AS NEEDED TO ACHIEVE POSITIVE PRESSURE IN THE RESTAURANT.

- TOTAL OF ALL AIR DISTRIBUTION DEVICES ON SAME ROOFTOP UNIT DUCT SYSTEM SHALL BE BALANCED TO 100% TO 105% OF DESIGN.

- ROOFTOP UNITS SHALL PROVIDE OUTDOOR AIR CFM BETWEEN 100% TO 105% OF DESIGN FOR ALL SUPPLY FAN SPEEDS DURING REGULAR HOURS AND SHALL BE SET TO TRACK AIR VOLUME WITH THE SUPPLY FAN FOR THE FAN SPEED PROVIDED BY THE UNITS.

- ECONOMIZERS SHALL PROVIDE REQUIRED OUTDOOR AIR WHEN CLOSED FOR BUSINESS (MINIMUM ONLY).

- OVERALL SYSTEM SHALL BE BALANCED TO POSITIVE CFM AS SHOWN ON THE VENTILATION SCHEDULE WITH SUPPLY AND EXHAUST FANS IN OPERATION.

- CONTACT RTU MANUFACTURER TO RESOLVE AIRFLOW DELIVERY IF ROOFTOP UNIT AIRFLOWS ARE BELOW DESIGN. THIS INCLUDES VERIFICATION OF DUCTWORK STATIC PRESSURE, ADJUSTMENT OF FAN RPM, REPLACEMENT OF DRIVES, ETC. RESTAURANT SHALL BE LEFT IN A POSITIVE AIR PRESSURE STATE.

- H. PLAN REVIEW: PROVIDE WRITTEN TESTING AND BALANCING PLAN REVIEW WITHIN FIVE (5) BUSINESS DAYS UPON RECEIPT OF CONTRACT. PLAN REVIEW SHALL INCLUDE RECOMMENDATIONS TO IMPROVE TESTING AND BALANCING. TRANSMIT THESE COMMENTS DIRECTLY TO CONTRACTOR. REVIEW WENDY'S RESTAURANT VENTILATION EQUIPMENT PRE-START AND START-UP FORMS.

- I. EQUIPMENT SUBMITTAL DATA: CONTRACTOR SHALL PROVIDE RESTAURANT EQUIPMENT SUBMITTAL DATA TO BALANCER. COMPLETED EQUIPMENT STARTUP AND CALIBRATION FORMS SHALL BE PROVIDED TO BALANCER PRIOR TO PERFORMING TAB.

- J. UPDATED DESIGN REQUIREMENTS: IF ANY, SHALL BE PROVIDED TO BALANCER PRIOR TO TAB. DESIGN REQUIREMENT CHANGES SHALL INCLUDE DATE OF THE CHANGE AND REFERENCES TO THE CONTRACT DOCUMENTS (ADDENDA, CHANGE ORDER, OR CONSTRUCTION CHANGE DIRECTIVE), WHICH DIRECTED THE CHANGE. CHANGES MADE WITHOUT RESTAURATEUR WRITTEN APPROVAL ARE INVALID.

- K. BALANCER TEST AND BALANCE REPORT:

- PERFORM TAB WORK ASSOCIATED WITH THE RESTAURANT VENTILATION SYSTEM PER DESIGN DOCUMENTS. SUBMIT AN ELECTRONIC PDF COPY OF TABULATED REPORTS IN NEATLY ORGANIZED TYPED FORMS (WITH NUMBERED PAGES) WITH AABC OR NEBB FULLY COMPLETED, STAMPED AND SEALED REPORTS. REPORT SHALL BE PROVIDED WITHIN SEVEN (7) DAYS OF COMPLETION OF TESTS TO ARCHITECT OF RECORD, ENGINEER, CONTRACTOR AND RESTAURATEUR. REPORT SHALL INCLUDE START-UP CHECKLIST FORMS AND REPORTS PROVIDED TO BALANCER BY CONTRACTOR. EQUIPMENT TEST DATA AND DRAWINGS TO COINCIDE WITH TEST REPORT. IN ADDITION, REPORTS SHALL INCORPORATE:
- A SUMMARY THAT SHALL INCLUDE A GENERAL DESCRIPTION OF PROJECT (BUILDING TYPE, SYSTEM TYPE, AND EQUIPMENT DESCRIPTION).
- A DESCRIPTIVE LIST OF ALL EQUIPMENT AND TEST RESULTS THAT DO NOT MEET PLANS AND SPECIFICATIONS (INCLUDE PHOTOGRAPHS).

- COPIES OF REDUCED PLAN DRAWINGS THAT UNIQUELY IDENTIFY AND CROSS REFERENCE AIR DEVICES AND HVAC EQUIPMENT.
- PROVIDE BUILDING PRESSURE TABLES THAT INDICATE DESIGN AND ACTUAL RESULTS.

- REPORTS THAT ARCHITECT AND/OR ENGINEER DETERMINES IS INACCURATE, OR INCOMPLETE, SHALL BE RETURNED FOR CORRECTION, COMPLETION, OR RE-TESTING AT BALANCERS COST. REVISED REPORTS SHALL BE SUBMITTED IN THEIR ENTIRETY. EACH REVISION SHALL BE HIGHLIGHTED AND SHALL INDICATE REVISION DATE. COVER PAGE SHALL INDICATE DATE OF FIRST EDITION AND REVISION DATE.

- L. TEST & BALANCE CONFIRMATION FORM: BALANCER SHALL COMPLETE A WENDY'S TEST & BALANCE CONFIRMATION FORM WHILE PERFORMING SYSTEM TESTING. IT SHALL BE SIGNED OFF WHEN TAB IS COMPLETE AND INCLUDED AT THE END OF THE TEST AND BALANCE REPORT. A DIGITAL VERSION OF THIS FORM CAN BE FOUND UNDER TEST AND BALANCE REPORTS AT:

[HTTP://WWW.IGNITORLABS.COM/WRV1-DOC-HOME/](http://www.ignitorlabs.com/wrv1-doc-home/)

- M. CONTRACTOR'S RESPONSIBILITIES FOR TAB:

- CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH ALL PROVISIONS AND RESPONSIBILITIES OF BALANCER AND SHALL PROVIDE COOPERATION AND SUPPORT REQUIRED.
- CONTRACTOR SHALL CORRECT OR REPAIR DEFICIENCIES NOTED BY BALANCER IMMEDIATELY. IF DEFICIENCIES ARE NOT CORRECTED WHILE BALANCER IS ON SITE, AND DEFICIENCIES PREVENT COMPLETION OF TAB WORK, CONTRACTOR SHALL ASSUME COSTS FOR EXTENDING TAB, OR FOR FOLLOW UP TAB VISITS.

- CONTRACTOR SHALL PROVIDE DOCUMENTATION OF CORRECTION OF ANY OPEN ISSUES PRIOR TO SUBMISSION OF FINAL REPORT. SHOULD ANY OPEN HVAC SYSTEM ITEMS BE INCAPABLE OF CORRECTION WITH SEVEN DAY PERIOD FOR THE FINAL BALANCING REPORT, CONTRACTOR SHALL INFORM BALANCER AND OWNER IMMEDIATELY AND CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS, DELAYS, AND RESCHEDULING REQUIRED.

- CONTRACTOR IS RESPONSIBLE FOR CORRECTION OF IDENTIFIED ITEMS AND FOR SUBSEQUENT TESTS IN EVENT OF THE FOLLOWING:

- NO PERMANENT POWER FOR THE RESTAURANT.
- DIFFUSERS NOT INSTALLED FOR TEST.
- CEILING TILES NOT INSTALLED.
- PASSWORD FOR RTU THERMOSTATS NOT PROVIDED.
- INOPERABLE EQUIPMENT.
- THERMOSTATS NOT PROGRAMMED.

- ADDITIONAL RESPONSIBILITIES INCLUDE: PROVIDE REQUIRED SHOP DRAWINGS AND EQUIPMENT DATA INCLUDING ANY APPROVALS OF DESIGN MODIFICATIONS, PROVIDE SAFE AND CLEAR ACCESS TO ALL HVAC SYSTEMS AS NEEDED TO PERFORM TAB WORK (LADDERS, LIFTS, ROOF ACCESS, ACCESS PANELS AND THE LIKE), PROVIDE TEST OPENINGS AS REQUIRED FOR

- TESTING AND BALANCING HVAC SYSTEMS, PROVIDE UPDATED JOB SCHEDULE AND TIMELY NOTICE PRIOR TO SCHEDULING TESTS AND CALIBRATION TO ESTABLISH ADEQUACY, QUALITY, SAFETY, COMPLETED STATUS, AND SATISFACTORY OPERATION OF HVAC SYSTEMS AND COMPONENTS.

- DURING TAB PERIOD, OPERATE HVAC EQUIPMENT AS NECESSARY TO PERMIT SYSTEMS TO BE TESTED AND BALANCED AS FULLY OPERATING FUNCTIONAL SYSTEMS. WORK HARMONIOUSLY WITH BALANCER TO EXPEDITE THE WORK. REMOVE AND REPLACE CEILING AS NECESSARY TO PERMIT TAB OPERATIONS. REMOVE AND REPLACE EQUIPMENT, LIGHTS, OR OTHER ITEMS WHICH OBSTRUCT TESTING AND BALANCING OPERATIONS (WHERE EQUIPMENT, LIGHTS, OR OTHER ITEMS INTERFERE WITH FUTURE ADJUSTMENTS OF HVAC SYSTEM. SUCH EQUIPMENT, LIGHTS, OR OTHER ITEMS SHALL BE RELOCATED BY CONTRACTOR AS DIRECTED BY ENGINEER OF RECORD.

- REPLACE BELTS AND DRIVES AS REQUIRED FOR PROPER BALANCING - DRIVES SHALL BE ADJUSTED AND ALIGNED BY CONTRACTOR TO PREVENT ABNORMAL BELT WEAR AND VIBRATION. ADJUST FAN SPEED AS REQUIRED NOT TO EXCEED MOTOR CAPACITY. CONTRACTOR SHALL ADJUST DAMPERS FOR THE BALANCER DURING TAB WORK. IDENTIFY CONCEALED DAMPER LOCATIONS WITH ORANGE TAPE. MANUALLY OPEN AND TEST DAMPERS FOR SMOOTH VIBRATION-FREE OPERATION AND TIGHTEN PRIOR TO COMMENCEMENT OF TAB WORK. VERIFY THAT ALL CONTROLS ARE INSTALLED AND OPERATING AS REQUIRED IN BOTH STORE OPEN AND CLOSED MODES. BEFORE REQUESTING FINAL TESTING AND BALANCING, SUBMIT SIGNED STATEMENT THAT HVAC SYSTEMS ARE INSTALLED, ADJUSTED, SERVICED, OPERATING SATISFACTORILY, AND ARE READY FOR USE.

- N. SYSTEM READY NOTICE: ALLOW ADEQUATE TIME TO PERFORM TESTING AND BALANCING WORK. TAB IS REQUIRED TO BE PERFORMED PRIOR TO RESTAURANT OPENING. NOTIFY BALANCER UPON COMMENCEMENT OF WORK RELATED TO HVAC SYSTEM AND COORDINATE PROPER TIME FOR NOTICE TO SCHEDULE TRAVEL AND PROVIDE THE DURATION REQUIRED FOR TEST AND BALANCING AND FOR ANY POSSIBLE CORRECTIONS.

- O. BALANCER RESPONSIBILITIES:

- RECORD DATA REQUIRED BY AABC OR NEBB FORMS. TEST AND ADJUST SYSTEMS FOR DESIGN CFM OF SUPPLY, OUTSIDE AIR (IN MULTIPLE FAN SPEEDS), AND EXHAUST AIR. KITCHEN APPLIANCES SHOULD BE OPERATIONAL WHILE MAKING ADJUSTMENTS. HOOD SIDE SKIRTS SHALL BE IN PLACE ON THE CORRECT ENDS OF HOODS (FRY HOOD DUMP SKIRT HAS A CUT OUT). TEST AND RECORD SYSTEM STATIC PRESSURE PROFILES. ADJUST SUPPLY AND RETURN DUCTS TO DESIGN AIRFLOW. TEST AND ADJUST FANS. ADJUST ALL DIFFUSERS, GRILLES, AND REGISTERS TO MINIMIZE DRAFTS. PROVIDE BUILDING DIFFERENTIAL PRESSURE (INSIDE TO OUTSIDE) AT ALL OPERATIONAL CONDITIONS AND INCLUDE IN THE FINAL REPORT.

- PROVIDE TABLE IN THE REPORT THAT ITEMIZES ALL SUPPLY AND EXHAUST AIR CFM (SPECIFIED AND ACTUAL) TO SHOW THAT BUILDING SHOULD BE UNDER POSITIVE PRESSURE. SIZE, AK CATALOG FACTORS OF DIFFUSERS, GRILLES, REGISTERS, AND ALL TESTED EQUIPMENT SHALL BE IDENTIFIED AND LISTED. READINGS AND TEST OF DIFFUSERS, GRILLES, AND REGISTERS SHALL INCLUDE REQUIRED VELOCITY (FPM), REQUIRED CFM, AND RESULTANT CFM. WHEN DIRECT CFM MEASURING INSTRUMENTS ARE USED, VELOCITIES ARE NOT REQUIRED.

- BALANCER SHALL COMPLETE A WENDY'S TEST & BALANCE CONFIRMATION FORM WHILE PERFORMING SYSTEM TESTING. FORM SHALL BE SIGNED OFF WHEN TAB IS COMPLETE AND INCLUDED AT THE END OF TAB REPORT.

230700 HVAC INSULATION

- A. DUCT INSULATION AND APPURTENANCES SHALL HAVE FLAME SPREAD RATING NOT EXCEEDING TWENTY-FIVE (25) AND SMOKE DEVELOPED RATING NOT EXCEEDING FIFTY (50). DUCT INSULATION SHALL HAVE AN INSTALLED R-VALUE OF 6.

- B. CONCEALED SUPPLY DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE OF SUFFICIENT DENSITY AND THICKNESS TO MEET LOCAL CODE REQUIREMENTS. ONLY COMMERCIAL GRADE INSULATION PRODUCTS MAY BE USED.

- C. INSULATION SHALL NOT BE APPLIED UNTIL CONSTRUCTION HAS PROGRESSED SUFFICIENTLY TO ENSURE AGAINST PHYSICAL OR MOISTURE DAMAGE TO INSULATION. INSULATION DAMAGED THROUGH FAILURE TO OBSERVE THIS DIRECTIVE SHALL BE REPLACED AT THIS CONTRACTOR'S EXPENSE.

- D. HANGER RODS SHALL BE PERPENDICULAR TO DUCTWORK BEFORE INSULATION IS INSTALLED.

- E. INSTALL INSULATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

- F. INSULATION SHALL BE APPLIED OVER FLANGES, JOINTS AND SEAMS IN PIPING AND DUCTWORK.

- G. JOINTS AND SEAMS IN INSULATION SHALL BE PROPERLY SEALED TO MAINTAIN VAPOR BARRIER.

- H. INSULATION SHALL BE OWENS-CORNING. EQUAL PRODUCT BY ARMSTRONG, CERTANTEED, SCHULLER OR KNAUF MAY BE PROVIDED AT CONTRACTOR'S OPTION.

230800 COMMISSIONING OF HVAC

- A. THIS CONTRACTOR SHALL COORDINATE COMMISSIONING OF HVAC SYSTEMS AND SHALL ASSIST OWNERS TAB CONTRACTOR TO COMPLETION. CONTRACTOR IS RESPONSIBLE FOR CORRECTING DEFICIENCIES NOTED IN THE TAB REPORT.

- C. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF TESTING AND COMMISSIONING TO BE INCLUDED IN OPERATING INSTRUCTIONS MANUAL (SEE GENERAL REQUIREMENTS). DOCUMENTATION SHALL INCLUDE:

- CONSTRUCTION AND SYSTEM CHECKLISTS.
- CERTIFICATE OF READINESS.
- INTERIM AND FINAL TEST AND INSPECTION REPORTS AND CERTIFICATES.
- APPROVED SUBMITTALS.
- CERTIFICATE OF COMPLETION.
- AS-BUILT DOCUMENTATION.

233133 METAL DUCTS

- A. THIS SECTION INCLUDES SPECIFICATIONS FOR DUCTWORK EXCEPT "GREASE DUCT" (EXHAUST DUCT CONNECTED TO TYPE I HOODS WHERE GREASE LADEN VAPORS MAY BE PRESENT). REFER TO PLANS AND DETAILS FOR INFORMATION ON "GREASE DUCT".

- B. CONTRACTOR SHALL PROVIDE COMPLETE DUCT SYSTEM CONSISTING OF DUCTWORK, PLENUMS, FITTINGS AND CONNECTORS OF SIZE AND LOCATION AS INDICATED ON DRAWINGS.

- C. ALL PORTIONS OF DUCT SYSTEM SHALL BE DESIGNED, FABRICATED AND INSTALLED PER THE FOLLOWING REQUIREMENTS:

- LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE".
- RIGID GALVANIZED SHEET METAL OF THICKNESS AND WITH STIFFENERS AS INDICATED IN SMACNA PER 2" WATER COLUMN CHART.
- AIR VELOCITIES NO MORE THAN 2000 FPM AND STATIC PRESSURE IN DUCT OF 2" OR LESS.
- SEALING PER SMACNA "CLASS B" OR AS REQUIRED TO MEET AIR BALANCE.
- CROSS-BREAKING, STIFFENING, BRACES, TOES, ANGLES AND OTHER BRACING AND SUPPORT REQUIRED TO MAINTAIN DUCT CONFORMITY (TRUE TO SHAPE, PREVENT BUCKLING OR CAVITATION).
- ALL VERTICAL DUCTS SHALL BE ABLE TO CARRY AN ADDITIONAL 100 LBS. SUSPENDED LOAD FROM HANGERS WITHOUT BUCKLING.
- SEAMS OF ALL DUCTS AND JOINTS SHALL BE HAMMERED TO A SMOOTH SURFACE ON THE INSIDE.

- D. FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT ROOFTOP UNIT SUPPLY AND RETURN AIR CONNECTIONS. CONNECTIONS SHALL BE AT LEAST 6" LONG, MADE OF NFPA 90A APPROVED FLAMEPROOF FABRIC.

- E. INSTALL HANGERS AND SUPPORTS WITHIN 24 INCHES OF EACH ELBOW AND WITHIN 48 INCHES OF EVERY BRANCH CONNECTION. HANGERS EXPOSED TO VIEW SHALL BE THREADED ROD AND ANGLE OR CHANNEL SUPPORTS.

- F. ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT CONCEALED ABOVE CEILING SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL-1. ROUND EXPOSED DUCTWORK SHALL BE SPIRAL SEAM (ALL SIZES).

- G. EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT.

- H. PROVIDE VOLUME CONTROLLER AND EXTRACTOR AT BRANCH TAKEOFFS IN SUPPLY AND RETURN AND AT OTHER LOCATIONS IN SUPPLY AND RETURN MAIN DUCTS AS REQUIRED TO PROPERLY BALANCE SYSTEMS. DAMPER SHALL BE AS SPECIFIED IN SECTION 233300.

- I. PROVIDE TURNING VANES IN ELBOWS OF RECTANGULAR SUPPLY DUCTS. BLADES SHALL BE HOLLOW-FORMED DOUBLE THICKNESS VANES.

- J. PROVIDE SUPPLY, RETURN, AND EXHAUST REGISTERS, GRILLES AND DIFFUSERS AS INDICATED ON DRAWINGS AND/OR SCHEDULES. VERIFY AIR DEVICE REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO ORDERING.

- K. PROVIDE FLEXIBLE SUPPLY AIR DUCTWORK UL 181, CLASS 1, TWO-PLY VINYL FILM SUPPORTED BY HELICALLY WOUND SPRING-STEEL WIRE, R-6 FIBERGLASS BLANKET INSULATION WITH METALIZED FILM VAPOR BARRIER OUTER JACKET IN LENGTHS THAT DO NOT EXCEED SIX FEET, AT AIR DEVICE CONNECTIONS (GRILLES, REGISTERS AND DIFFUSERS).

233300 DAMPERS

- A. CONTRACTOR SHALL PROVIDE RECTANGULAR AND ROUND GALVANIZED STEEL MANUAL AND/OR MOTORIZED VOLUME CONTROL DAMPERS THAT SHALL BE:

- NO MORE THAN 6" IN ONE DIMENSION (LARGER DAMPERS SHALL BE OPPOSED-BLADE WITH EACH BLADE BEING NO MORE THAN 6").
- MINIMUM OF 16 GAUGE AND AT LEAST 2 GAUGES HEAVIER THAN DUCT INSTALLED IN.
- CHANNEL FRAME WITH BRACED CORNERS, CONCEALED LINKAGE, TEFLON FILLED BEARINGS, BLADE STOPS.
- REPLACEABLE BUTYL RUBBER SEALS INSTALLED ALONG TOP, BOTTOM AND SIDES OF FRAME AS WELL AS ALONG ALL SIDES OF EACH BLADE.
- 6" LONG CONTROL SHAFT WITH INSULATION STAND-OFF.
- LOCKING QUADRANT MANUAL HANDLES OR MOTORIZED OPERATORS COMPATIBLE WITH CONTROL SYSTEM.
- OPERATE FROM FULL OPEN TO FULL CLOSED.

- B. PROVIDE ACCESS AND PROPER CLEARANCES AS REQUIRED TO OPERATE DAMPERS.

- C. CHECK DAMPERS FOR PROPER OPERATION BEFORE AND AFTER INSTALLATION.

- D. INSTALL BALANCE DAMPERS WHERE INDICATED ON DRAWINGS AND ELSEWHERE AS NECESSARY TO OBTAIN PROPER SYSTEM BALANCE.

233418 ROOF EXHAUST FAN

- A. ROOF MOUNTED UP BLAST EXHAUST FAN SHALL BE CENTRIFUGAL DIRECT DRIVE TYPE. FAN SHALL BE CONSTRUCTED OF SPUN ALUMINUM WITH STRUCTURAL ELEMENTS OF MINIMUM 16 GAUGE MARINE ALLOY ALUMINUM.

- B. INTEGRAL MOTOR SHALL BE HEAVY DUTY TYPE WITH PERMANENTLY LUBRICATED SEALED BEARINGS ENCLOSED IN WEATHER-TIGHT COMPARTMENT AND SEPARATED FROM THE EXHAUST AIR STREAM.

- C. THE WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED TYPE WITH COMPLETELY ALUMINUM CONSTRUCTION WITH CONE INLET AND DYNAMICALLY BALANCED TO MINIMIZE VIBRATION.

- D. FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE AND SHALL BE UL LISTED AND CSA APPROVED. CAPACITIES AS SHOWN ON THE DRAWINGS.

- E. WIRING SHALL BE BY ELECTRICAL CONTRACTOR.

- F. VERIFY MANUFACTURER MAKE AND MODEL OF EXHAUST FANS WITH HOOD DRAWINGS.

233713 AIR DISTRIBUTION DEVICES

- A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE PROVIDED BY CONTRACTOR.

- B. COORDINATE AIR DISTRIBUTION DEVICE LOCATIONS WITH AFFECTED CONTRACTORS BEFORE INSTALLING DUCTWORK. CHANGES IN LOCATION FROM THE DRAWINGS MUST BE APPROVED BY OWNER BEFORE INSTALLATION.

- C. SUSPEND CEILING AIR DEVICES FROM STRUCTURE ON WIRE HANGERS OR FROM RIGID DUCTWORK. CEILING MUST NOT BE USED TO SUPPORT AIR DISTRIBUTION DEVICES.

- D. SECURELY FASTEN SIDE WALL AIR DEVICES TO RIGID DUCTWORK OR STRUCTURE.

233813 - COMMERCIAL-KITCHEN HOODS

- A. PROVIDE SUBMITTALS ON TYPE I HOODS, FILTERS AND BAFFLES, AND LIGHTING FIXTURES.

- B. COORDINATE WITH KITCHEN EQUIPMENT LAYOUT, LIGHTING FIXTURES, HVAC EQUIPMENT, PLUMBING, SPRINKLER SYSTEM, AND FIRE-SUPPRESSION SYSTEM COMPONENTS.

- C. TYPE I HOOD SHALL BE MANUFACTURED OF STAINLESS STEEL ASTM A 666, TYPE 304 STEEL WITH MINIMUM THICKNESS OF 0.050".

- D. TYPE I HOODS SHALL BE WELDED AT ALL JOINTS EXPOSED TO GREASE WITH CONTINUOUS WELDS. HAVE EASILY ACCESSIBLE FILTERS/BAFFLES, AND MAKE-UP AIR DIFFUSERS EASILY ACCESSIBLE FOR CLEANING. HOODS SHALL BE FABRICATED ACCORDING TO FSF2 AND UL 710 LISTED AND LABELED.

- E. PROVIDE ACCESS PANELS FOR FIRE DAMPERS AND FUSIBLE LINKS.