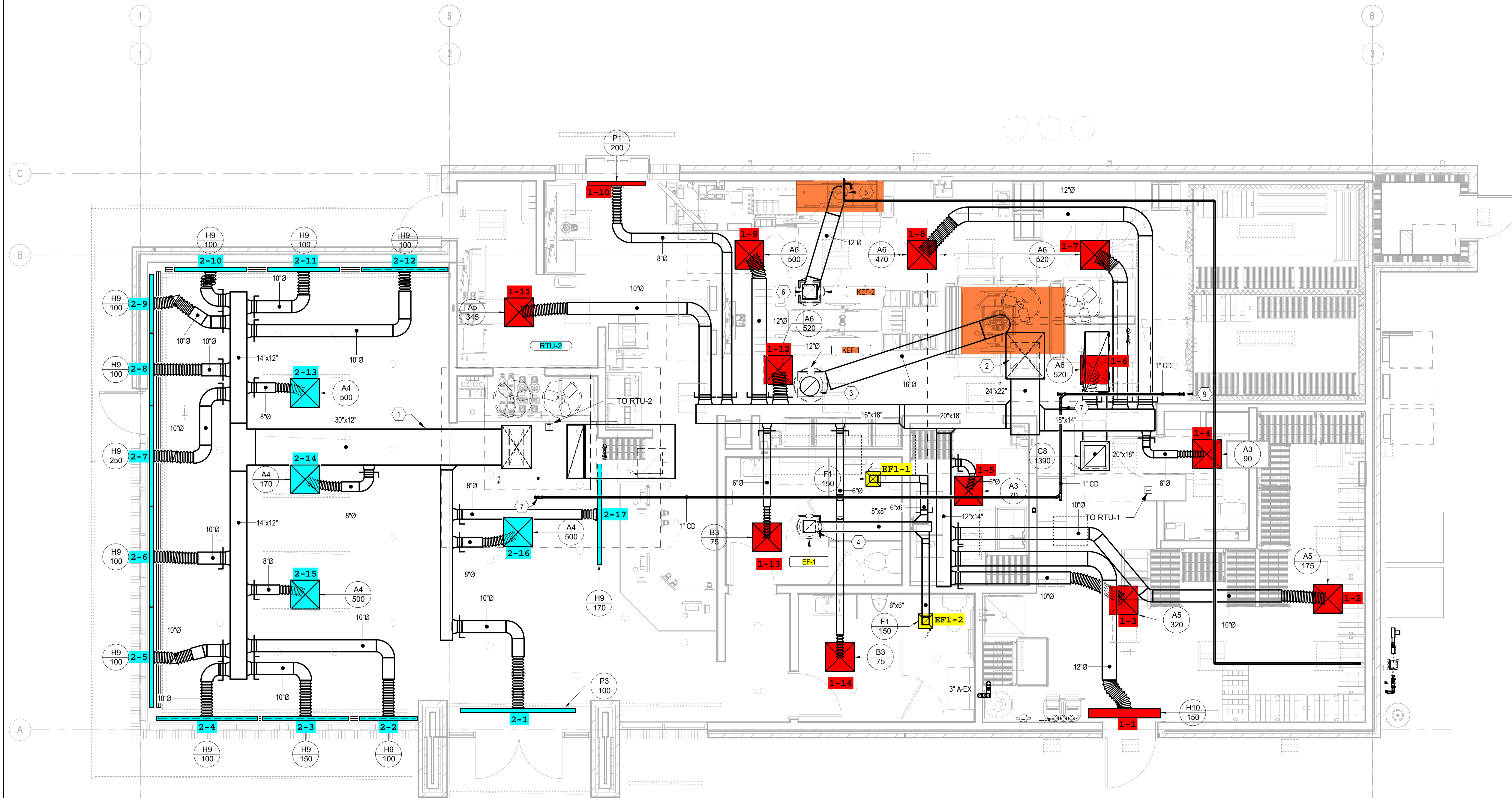


KEYNOTES

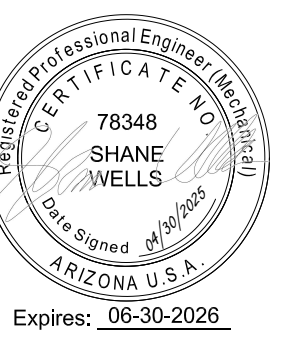
- 1 30/12 SUPPLY DUCT UP TO RTU-2. PROVIDE DUCT TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.
- 2 24/22 SUPPLY DUCT UP TO RTU-1. PROVIDE DUCT TRANSITION AS REQUIRED TO MATCH UNIT CONNECTION SIZE.
- 3 CONNECT KITCHEN EXHAUST HOOD ABOVE GRILL UP TO KEF-1 WITH 16" DIA. PREFABRICATED UL 1978 LISTED AND LABELED GREASE DUCT. PROVIDE TRANSITIONS ABOVE CEILING AS REQUIRED.
- 4 16" EXHAUST DUCT UP TO KEF-1 ON ROOF, RE: A1M2.1.
- 5 8"X8" EXHAUST DUCT UP TO EF-1.
- 6 CONNECT KITCHEN EXHAUST HOOD ABOVE FRYER UP TO KEF-2 WITH 12" DIA. PREFABRICATED UL 1978 LISTED AND LABELED GREASE DUCT. PROVIDE TRANSITIONS ABOVE CEILING AS REQUIRED.
- 7 FULLY INSULATED CONDENSATE UP THROUGH ROOF TO CONNECT TO RTU-2. CONDENSATE DRAIN LINE TO CONFORM TO LOCAL AND STATE CODES AND MANUFACTURERS SPECIFICATIONS.
- 9 CONDENSATE DOWN TO FLOOR SINK. TERMINATE CONDENSATE WITH 1" AIR GAP.

GENERAL NOTES

- A REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B SMOKE DETECTORS SHALL BE PROVIDED BY THE FIRE ALARM CONTRACTOR AND INSTALLED IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE WIRING FOR SHUTDOWN WITH ELECTRICAL SCOPE. MOUNT SMOKE DETECTORS IN ACCESSIBLE LOCATIONS. REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU AND ACTIVATE THE AUDIBLE AND VISUAL SIGNAL PROVIDED.
- C THE EMERSON SITE SUPERVISOR DISPLAY AND CONTROLLER PANEL SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER.
- D PER IECC 2018, PARAGRAPH C408.2.1, A THIRD PARTY SHALL BE HIRED BY THE OWNER AS PART OF THIS PROJECT TO PROVIDE/PERFORM THE FOLLOWING ITEMS:
 - A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.
- E KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED.
- F TEMPERATURE SENSORS "T" AND HUMIDITY SENSORS "H" ARE TO BE CEILING MOUNTED AND TIED INTO THE BUILDING CONTROL SYSTEM.
- G SLOT DIFFUSERS IN DINING AREA WILL COME INSTALLED IN PRE-MADE SOFFIT. AIR DEVICES SHOWN ON DRAWINGS FOR REFERENCE ONLY.



1 HVAC PLAN
M1.1 1/4" = 1'-0"



SYMBOL	DATE	DESCRIPTION	BY

PROJECT: 240703
WHATABURGER
 9815 N. NORTHERN AVENUE
 GLENDALE, AZ 85305



5240 N. 16th STREET,
 SUITE 105 PHOENIX, AZ
 85016
 WWW.AZSEG.COM
 TEL. 480.588.7228

WHATABURGER

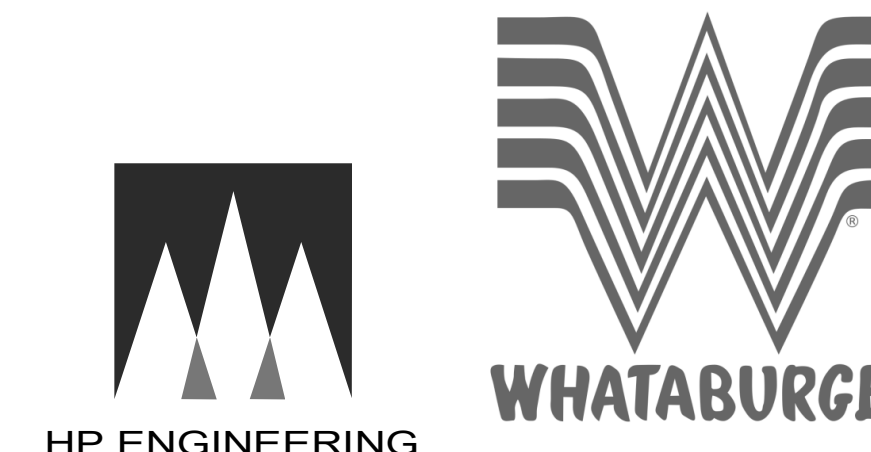
300 CONCORD PLAZA DR.
 SAN ANTONIO, TEXAS.
 210-476-6000 ZIP 78216.

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SHEET TITLE:
 MECHANICAL FLOOR PLAN
 ISSUED FOR:
 PERMIT

UNIT NO.
 DATE: 12/18/24
 SCALE: 1/4" = 1'-0"
 DRAWN BY: H.A.R.
 CHECKED BY: S.W.

SHEET NO:
M1.1

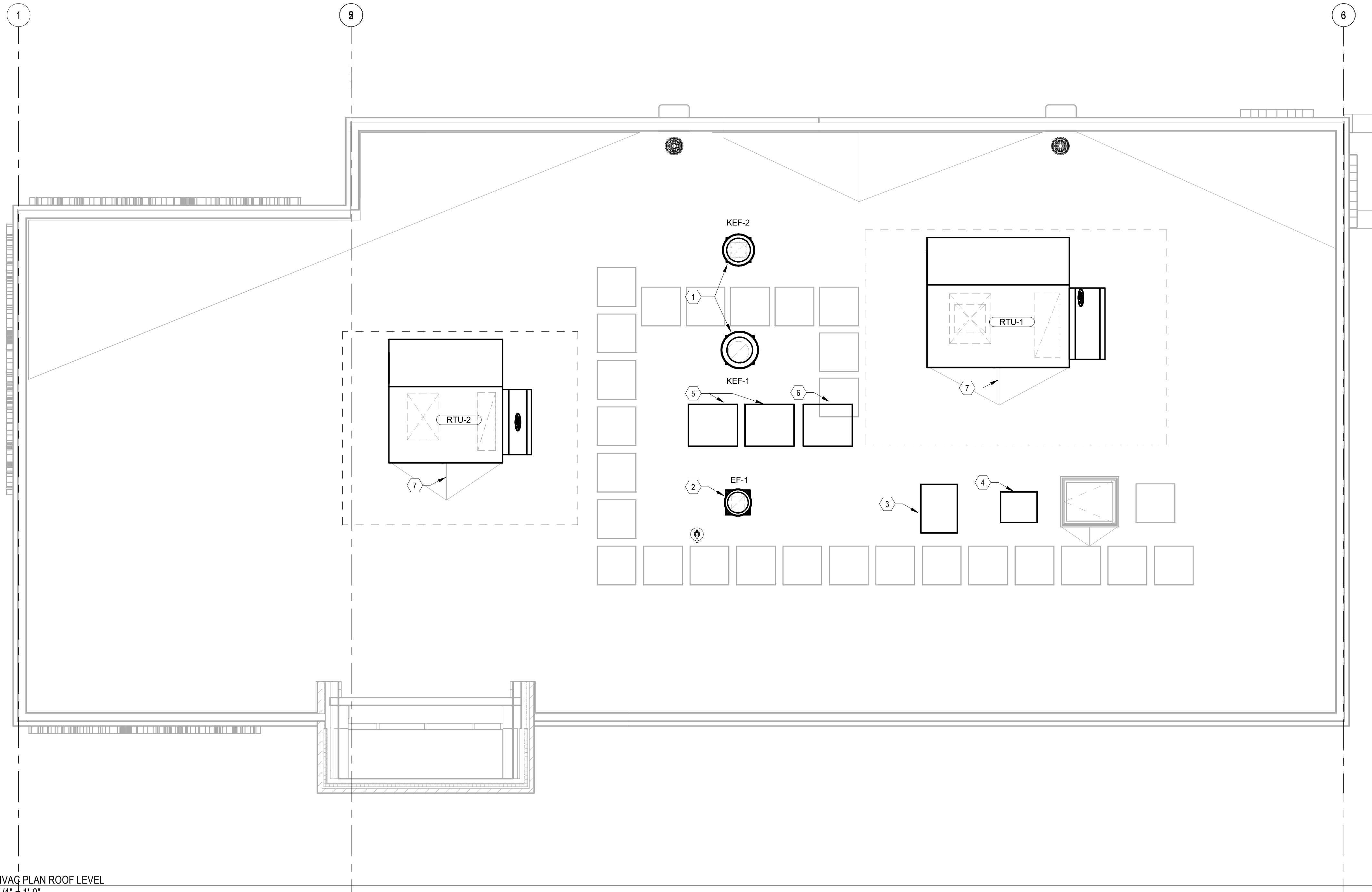


KEYNOTES

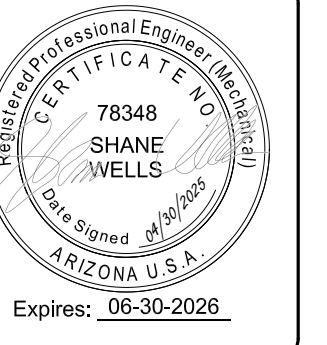
- 1 CENTRIFUGAL UPBLAST GREASE HOOD EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A2/M5.1.
- 2 CENTRIFUGAL DOWNBLAST EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A1/M5.1.
- 3 KITCHEN FREEZER CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER, COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION (BY OTHERS).
- 4 KITCHEN REFRIGERATOR CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER, COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 5 KITCHEN ICEMAKER CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER, COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 6 KITCHEN MULTIPLEX CONDENSING UNIT MOUNTED ON ROOFTOP, FURNISHED BY OWNER, COORDINATE EXACT LOCATION ON SITE AND ROUTE REFRIGERATION PIPING THROUGH ROOF PENETRATION (BY OTHERS).
- 7 ROUTE CONDENSATE LINE DOWN THROUGH ROOF, RE:A1/M1.1 FOR CONTINUATION.

GENERAL NOTES

- A. REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B. SMOKE DETECTORS SHALL BE PROVIDED BY THE FIRE ALARM CONTRACTOR AND INSTALLED IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE WIRING FOR SHUTDOWN WITH ELECTRICAL SCOPE. MOUNT SMOKE DETECTORS IN ACCESSIBLE LOCATIONS, REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU AND ACTIVATE THE AUDIBLE AND VISUAL SIGNAL PROVIDED.
- C. THE EMERSON SITE SUPERVISOR DISPLAY AND CONTROLLER PANEL SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER.
- D. PER IECC 2018, PARAGRAPH C408.2.1, A THIRD PARTY SHALL BE HIRED BY THE OWNER AS PART OF THIS PROJECT TO PROVIDE/PERFORM THE FOLLOWING ITEMS:
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 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED, TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.
- E. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED.
- F. MAINTAIN A MINIMUM CLEARANCE OF 10 FEET BETWEEN OUTSIDE AIR INTAKES AND ANY EXHAUST, FLUES, OR VENTS THROUGH ROOF.



1 HVAC PLAN ROOF LEVEL
1/4" = 1'-0"



SYMBOL	DATE	DESCRIPTION

PROJECT: 240703
WHATABURGER
 9815 N. NORTHERN AVENUE
 GLENDALE, AZ 85305

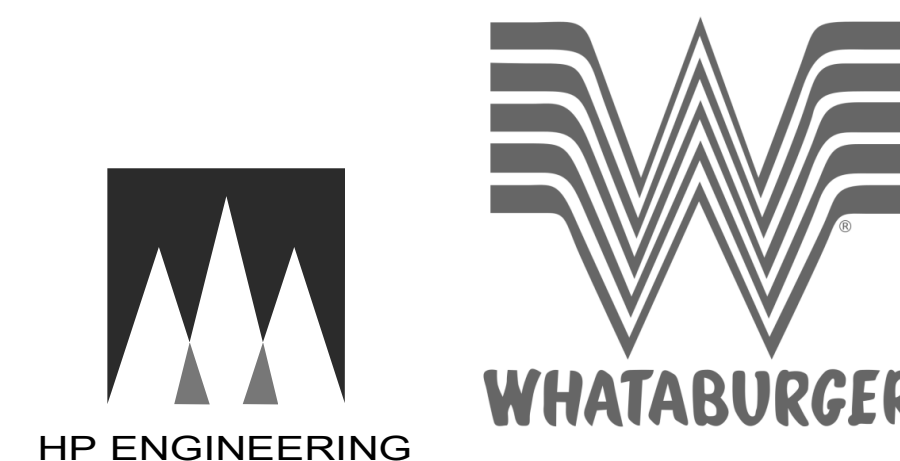
SEG
 5240 N. 16th STREET,
 SUITE 105 PHOENIX, AZ
 85016
 WWW.AZSEG.COM
 TEL. 480.588.7228

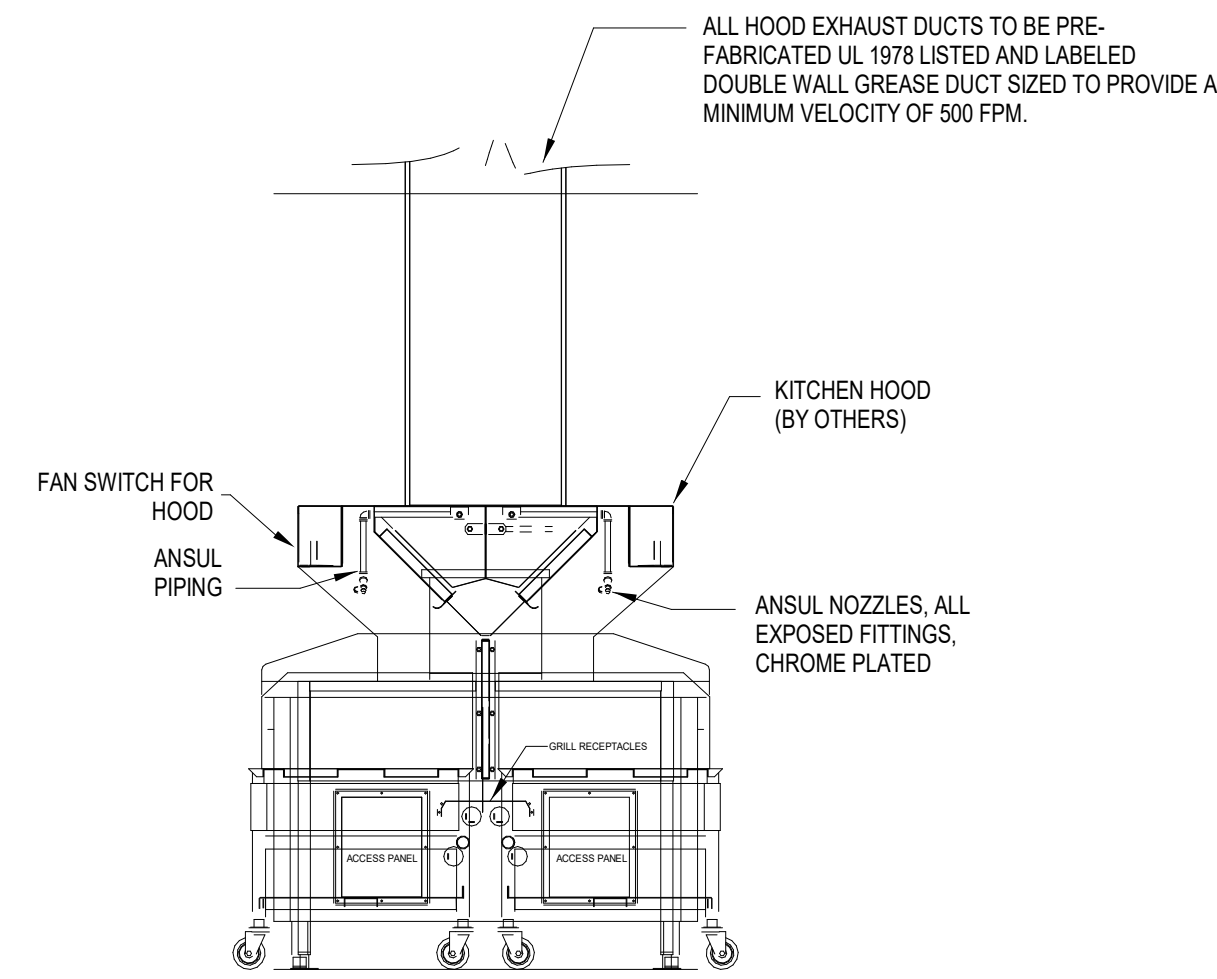
WHATABURGER
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 MECHANICAL ROOF
 PLAN
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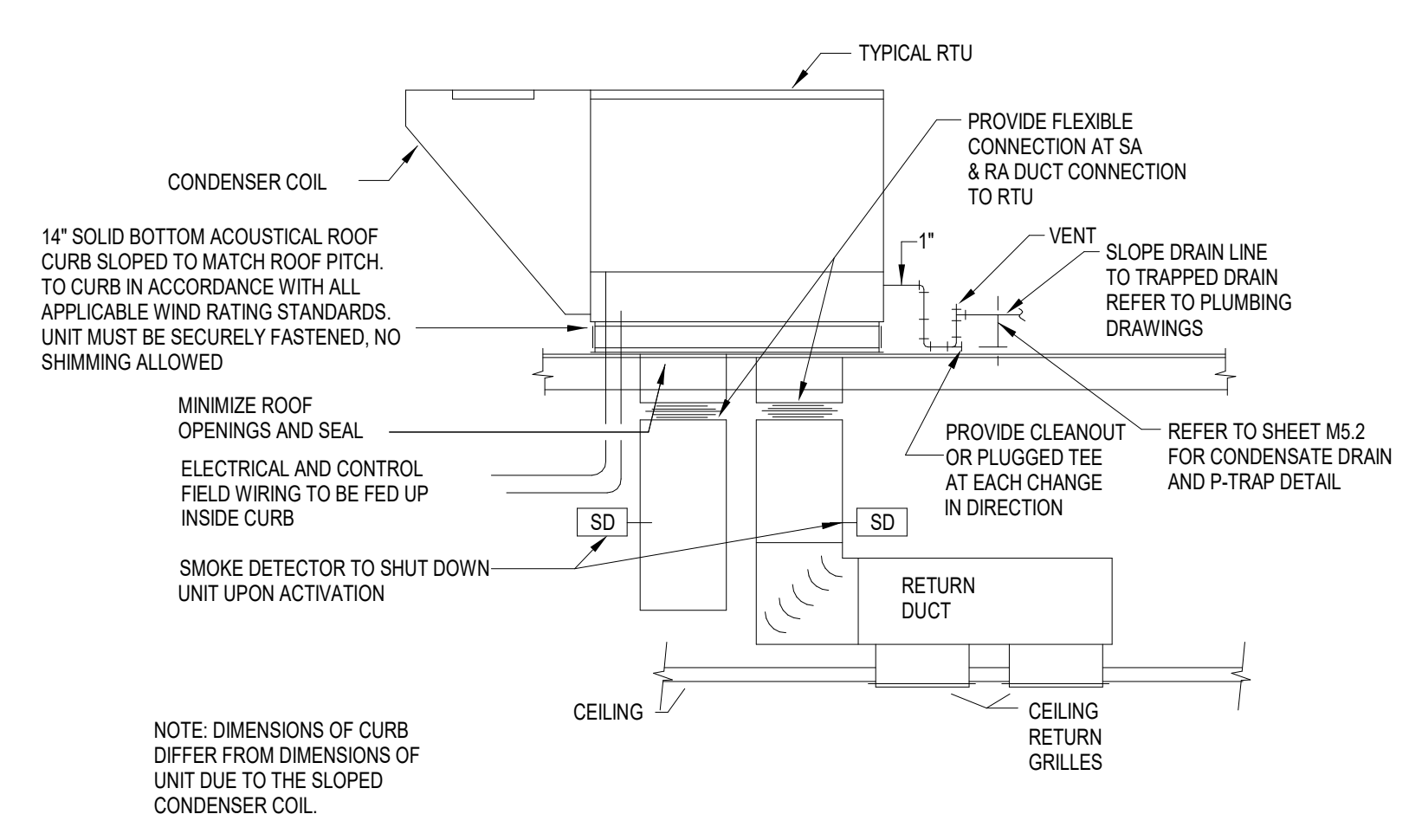
UNIT NO.
 DATE: 12/18/24
 SCALE: 1/4" = 1'-0"
 DRAWN BY: H.A.R
 CHECKED BY: S.W

SHEET NO:
M2.1

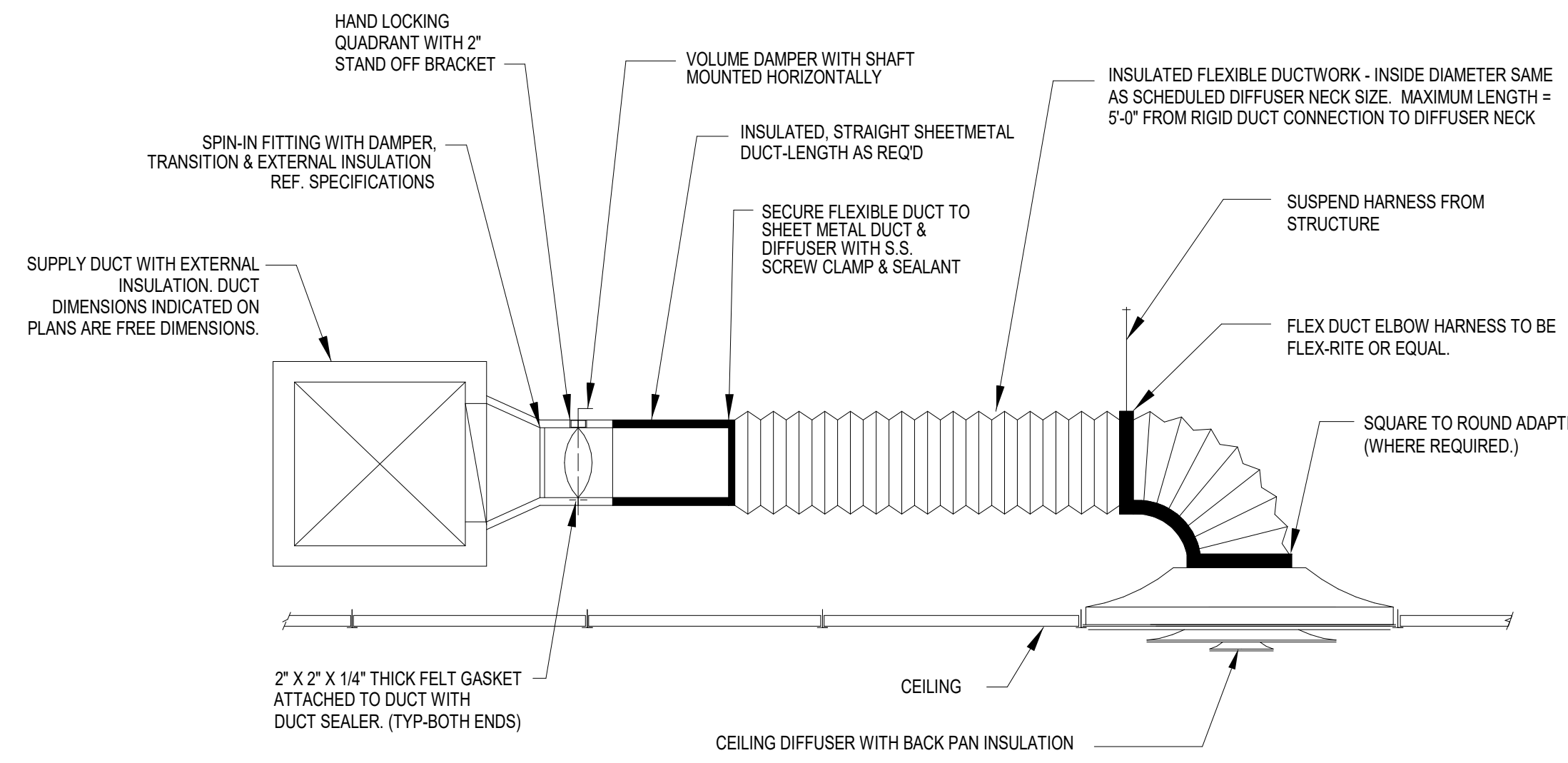




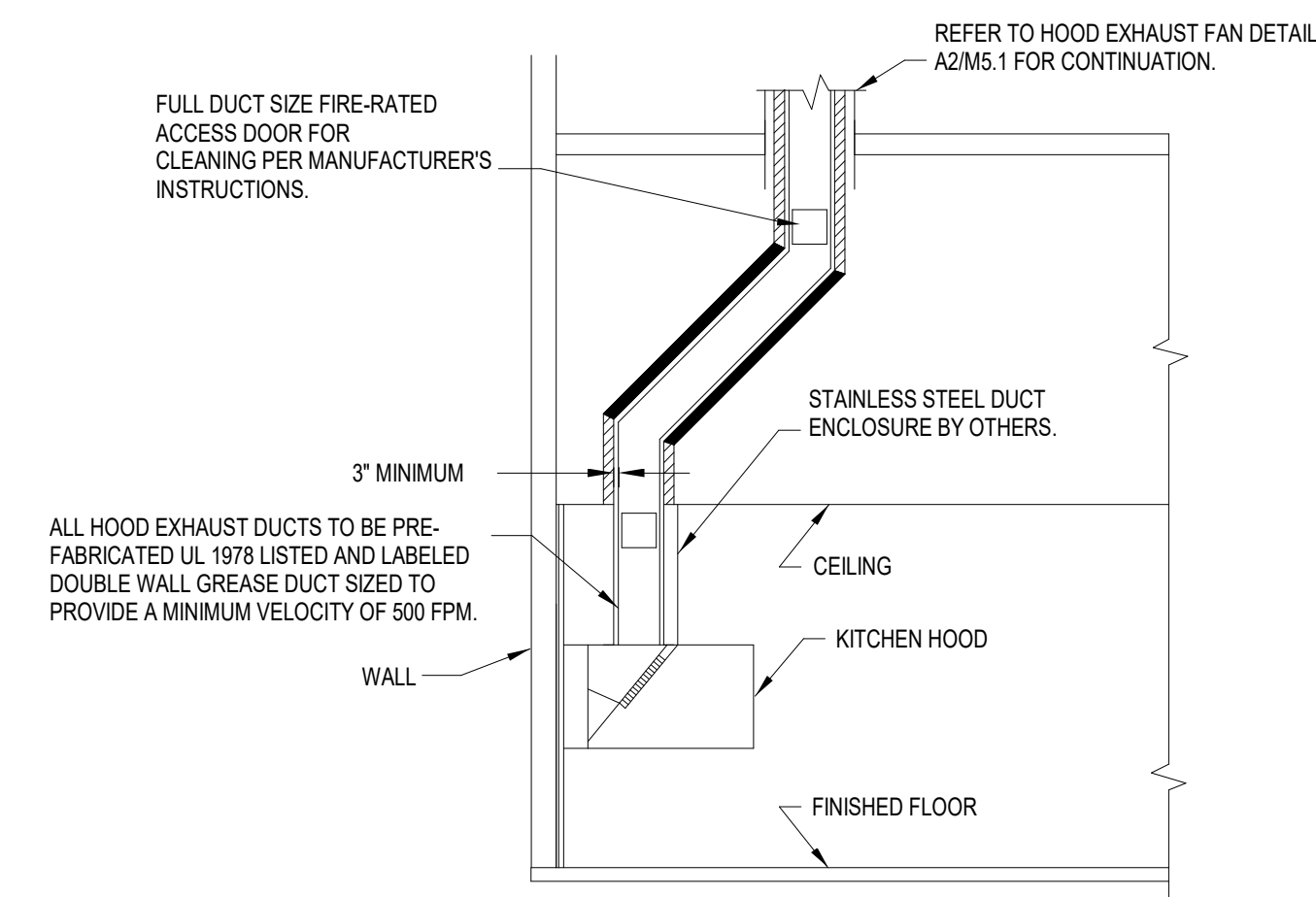
C3
M5.1
LOW PROFILE GOOD DETAIL
12" = 1'-0"



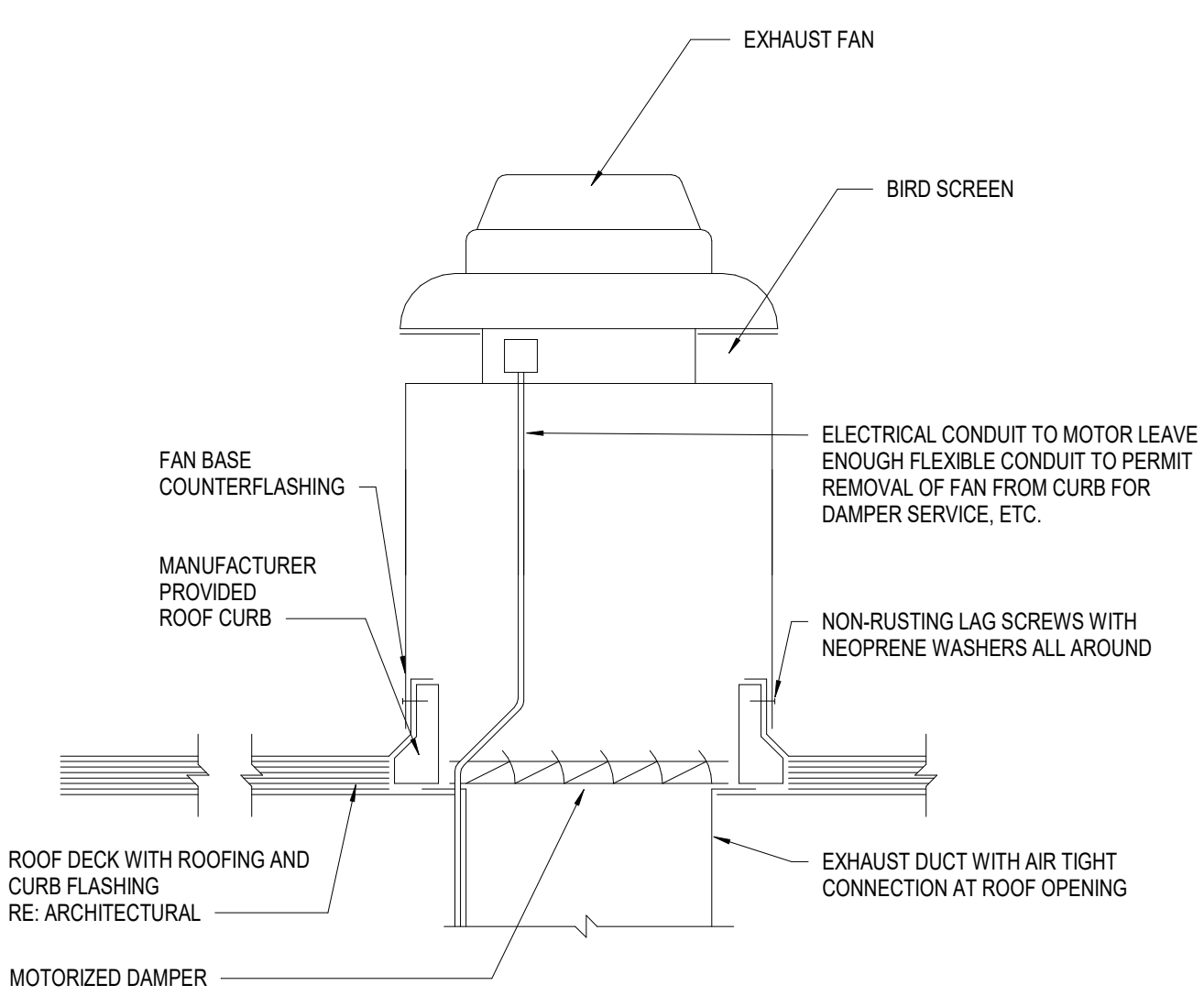
C4
M5.1
ROOFTOP HVAC UNIT DETAIL
12" = 1'-0"



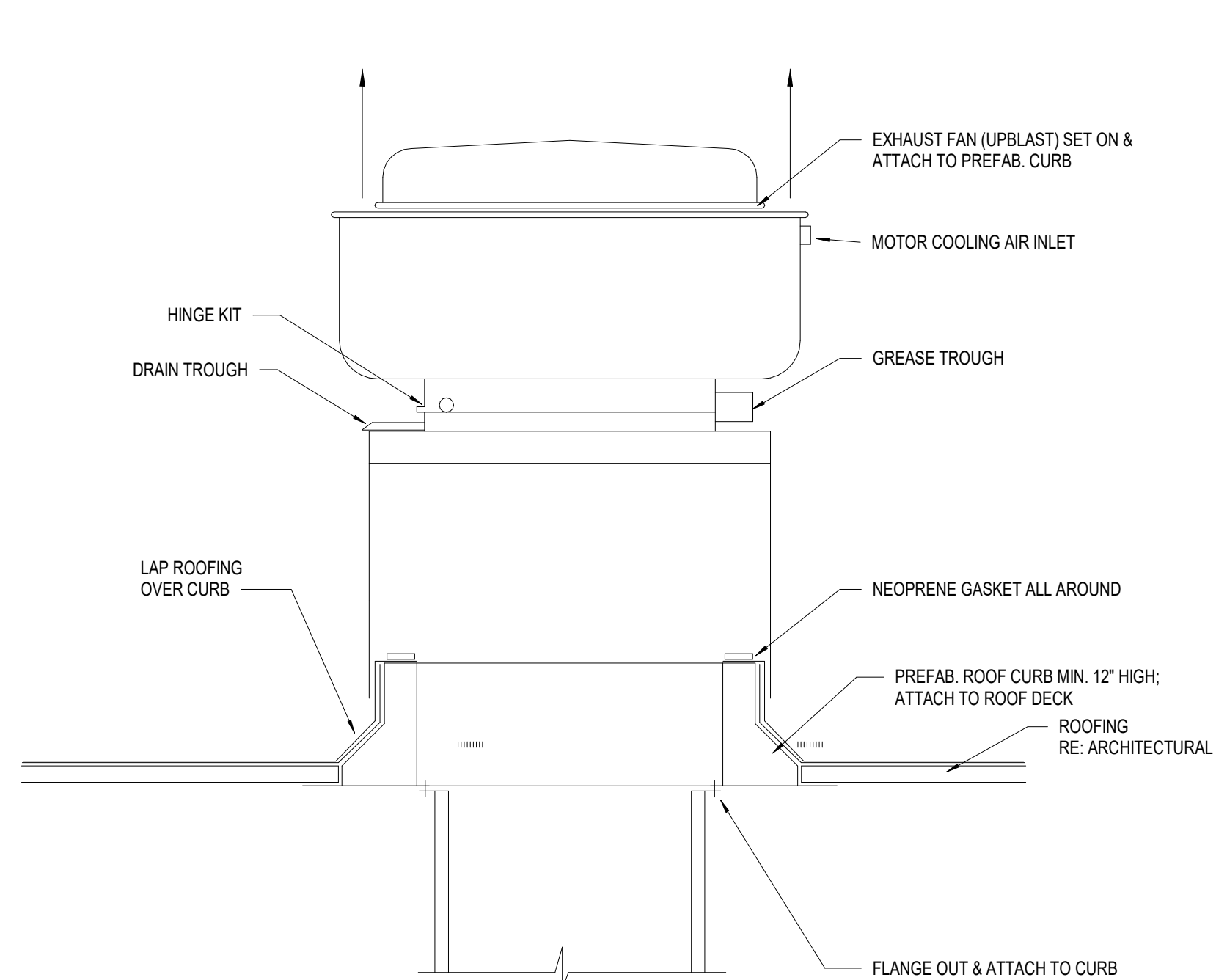
B2
M5.1
DIFFUSER CONNECTION DETAIL
12" = 1'-0"



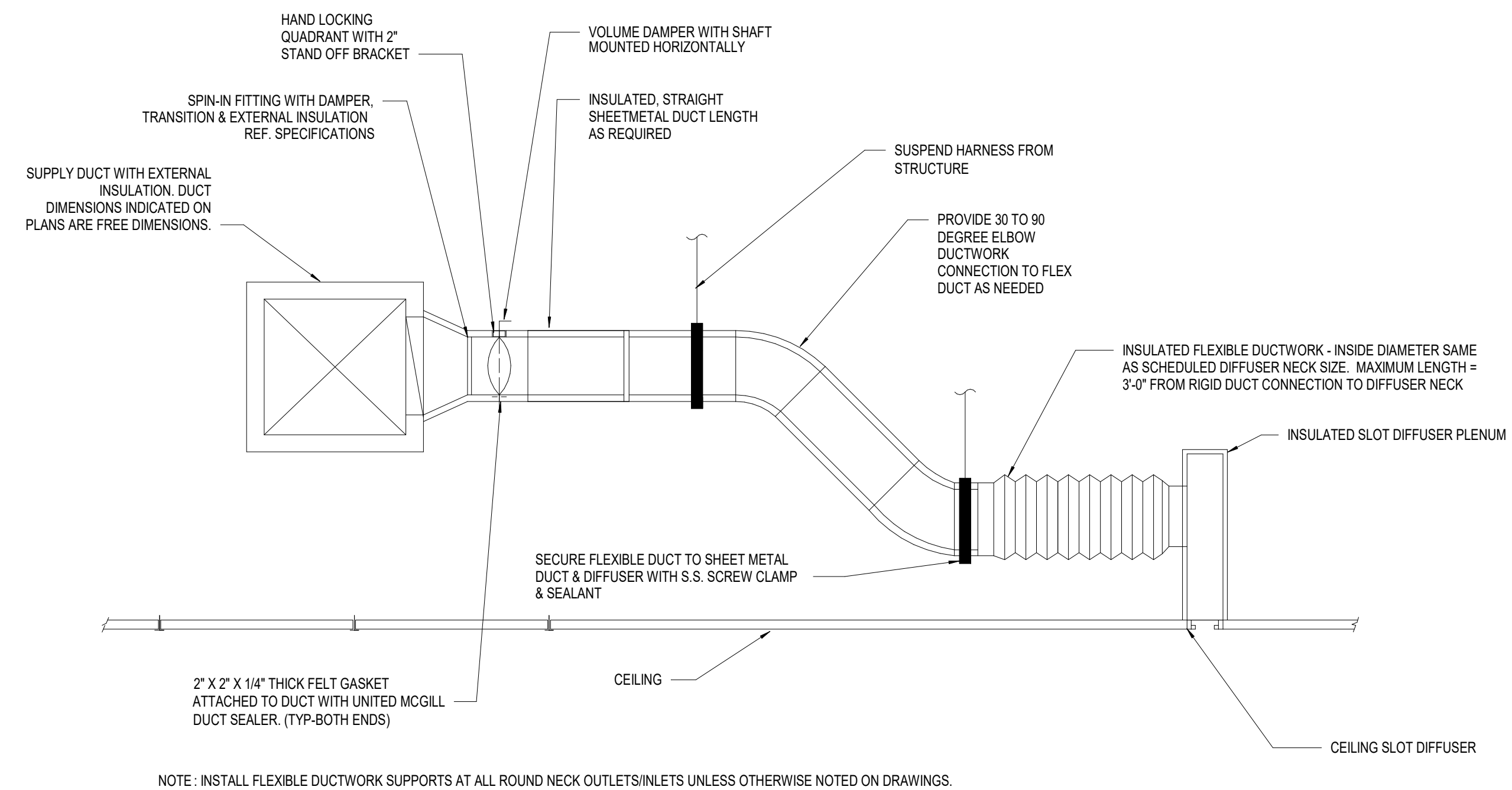
B4
M5.1
HOOD EXHAUST DUCT DETAIL
12" = 1'-0"



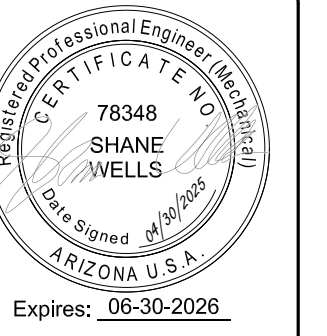
A1
M5.1
ROOF MOUNTED EXHAUST FAN AND CURB DETAIL
12" = 1'-0"



A2
M5.1
ROOFTOP GREASE EXHAUST FAN DETAIL
12" = 1'-0"



A3
M5.1
PLENUM SLOT DIFFUSER DETAIL
12" = 1'-0"



SYMBOL	DATE	DESCRIPTION	BY

PROJECT: 240703
WHATABURGER
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 GLENDALE, AZ 85305

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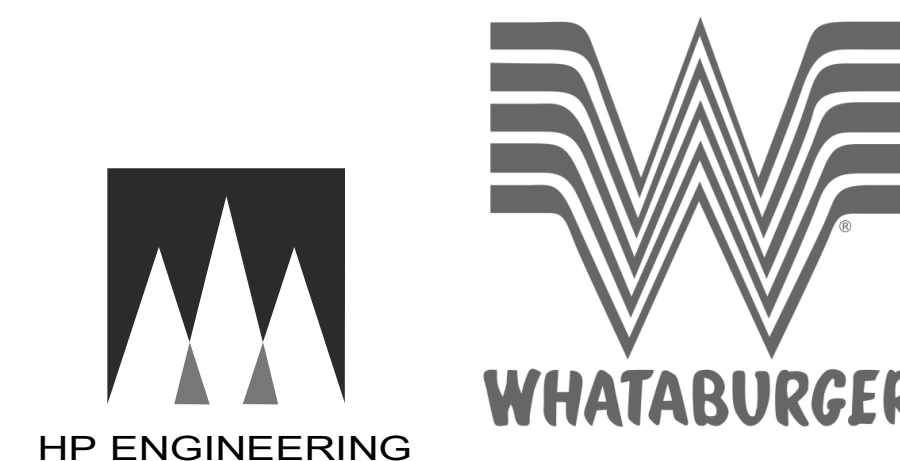
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SHEET TITLE:
 MECHANICAL DETAILS
 ISSUED FOR:
 PERMIT

UNIT NO.
 DATE: 12/18/24
 SCALE: 12" = 1'-0"
 DRAWN BY: H.A.R.
 CHECKED BY: S.W.

SHEET NO:
M5.1



MECHANICAL PIPING & INSULATION SCHEDULE

SERVICE	PIPING TYPE	INSULATION TYPE	MINIMUM INSULATION THICKNESS PER ASHRAE 90.1				
			NOMINAL PIPE SIZE RECOMMENDATIONS				
			<1	1 TO <1-1/2	1-1/2 TO <4	4 TO <8	≥8
HOT WATER HEATING, ABOVE GRADE	STEEL, SCHEDULE 40, BLACK, TYPE "L" HARD COPPER, HYDRONIC RATED POLYPROPYLENE PIPE	FIBERGLASS	1.0	1.0	1.5	1.5	1.5
CONDENSER WATER, ABOVE GRADE	STEEL, SCHEDULE 40, BLACK TYPE "L" HARD COPPER	FIBERGLASS	1.0	1.0	1.0	1.0	1.0
EQUIPMENT DRAINS, COOLING CONDENSATE LINES, AND OVERFLOWS	TYPE "L" HARD COPPER	ELASTOMERIC	0.5	0.5	1.0	1.0	1.0
REFRIGERANT PIPING	COPPER REFRIGERANT PIPING	ELASTOMERIC	0.5	1.0	1.0	1.0	1.5
GROUND-COUPLED PIPING	SCHEDULE 10 HIGH DENSITY POLYETHYLENE (HDPE)	N/A					
ALL OUTDOOR INSULATED PIPING	PROVIDE WITH EMBOSSED ALUMINUM JACKET OVER SCHEDULED INSULATION	PER ENERGY CODE AND AS SCHEDULED					

MECHANICAL DUCTWORK & INSULATION SCHEDULE

GENERAL NOTE:
DUCT DIMENSIONS LISTED ON DRAWINGS REPRESENT THE AIRFLOW FREE AREAS AND DO NOT HAVE ALLOWANCES FOR INSULATION LINER, WHERE APPLICABLE, INSIDE THE DUCTS, OR DUAL WALL DIMENSIONS. DUCTS SHALL BE CONSTRUCTED TO INCLUDE INSULATION REQUIREMENTS AND MAINTAIN AIRFLOW DIMENSIONS INDICATED ON PLANS. ALL INSULATION SHALL BE PROVIDED AT ASHRAE 90.1 MINIMUM REQUIREMENTS, REGARDLESS OF INSULATION THICKNESS RECOMMENDATIONS NOTED.
NOTE: NO LINED DUCT IN KITCHEN

SERVICE	DUCT TYPE	INSULATION TYPE	INSULATION THICKNESS
ALL LOW PRESSURE CONSTANT VOLUME SUPPLY AIR DUCT FROM AIR HANDLER OR PACKAGED UNIT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP	2" WRAP, R VALUE=6.0
ALL LOW PRESSURE CONSTANT VOLUME SUPPLY AIR DUCT FROM AIR HANDLER OR PACKAGED UNIT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS.	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
ALL LOW PRESSURE RETURN AIR DUCT FROM AIR HANDLER OR PACKAGED UNIT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP	2" WRAP, R VALUE=6.0
ALL LOW PRESSURE RETURN AIR DUCT FROM AIR HANDLER OR PACKAGED UNIT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS.	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
ALL RUNOUTS TO SUPPLY DIFFUSERS AND RETURN GRILLES CONCEALED ABOVE CEILINGS	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS.	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
ALL RUNOUTS TO SUPPLY DIFFUSERS AND RETURN GRILLES CONCEALED ABOVE CEILINGS	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP	2" WRAP, R VALUE=6.0
ALL SUPPLY AIR DIFFUSERS (BACKSIDE, NOT EXPOSED TO SPACE)	N/A	FIBERGLASS WRAP	2" WRAP, R VALUE=6.0
FRESH AIR EXHAUST DUCT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS. N/A IF IN UNCONDITIONED SPACE	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
FRESH AIR SUPPLY DUCT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS. N/A IF IN UNCONDITIONED SPACE	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
GREASE DUCT	PROVIDE GREASE DUCTWORK, FITTINGS, AND APPURTENANCES PER NFPA 96, SMACNA (KVS), UL 1978, AND UL 2221 REQUIREMENTS AND GUIDELINES. CONSTRUCT OF 20-GAUGE, 0.035-INCH TYPE 304 STAINLESS STEEL. SEAL JOINTS DURING INSTALLATION WITH FACTORY-SUPPLIED OVERLAPPING V-BANDS AND SEALANT.	THERMAL CERAMICS FIREMASTER. UL LISTED FOR ZERO CLEARANCE TO COMBUSTIBLES	3"
RESTROOM EXHAUST DUCT	ROUND OR RECTANGULAR, AS INDICATED ON PLANS.	FIBERGLASS WRAP OR MATTE FACED FIBERGLASS LINER, AS INDICATED ON PLANS	2" WRAP OR 1-1/2" LINER, R VALUE=6.0
SHOWER EXHAUST DUCT	ALUMINUM	FIBERGLASS WRAP	1-1/2", R VALUE=6.0

ROOFTOP UNIT SCHEDULE

MARK	RTU-1	RTU-2
SERVES	KITCHEN	DINING
TOTAL AIR (CFM)	3850	2050
OUTSIDE AIR (CFM)	2460	1550
APPROX. EXT S.P. ("WG) *	0.75	0.50
FAN MOTOR (MIN. HP)	3.00	2.00
AMBIENT TEMP. (F)	105	105

COOLING SECTION

TYPE	DX	DX
REFRIG. TYPE	R-410A	R-410A
FAN RPM	928	1184
ENT. AIR TEMP (DB/WB)	94.2 / 72.6	97.7 / 74.3
LEA. AIR TEMP (DB/WB)	53.1 / 53.1	50.6/50.5
OUTPUT-TOTAL (MBh)	220.3	124.1
OUTPUT-SENS (MBh)	123.0	93.4

HEATING SECTION

TYPE	GAS	GAS
STAGES	3:1	3:1
ENT. AIR TEMP (DB)	43.5	35.9
LEA. AIR TEMP (DB)	86.6	106.3
INPUT (MBH)	270.0	195.0
OUTPUT (MIN. MBH)	218.7	156.0

ELECTRICAL

UNIT VOLTS / PHASE	208/3	208/3
MCA	99	68
MOCP	125	80
WEIGHT	2534	1935
FILTER	MERV 8	MERV 8
REFERENCE	AAON	AAON
MODEL NO.	RN-020-8-0-GB04-349	RN-013-8-0-GB04-3F9
NOTES	1-13	1-13

NOTES:

- PROVIDE WITH PREMIUM EFFICIENCY MOTORS IN ACCORDANCE WITH NEMA MG-1.
- PROVIDE WITH SUPPLY AND RETURN SMOKE DETECTORS TO SHUT DOWN UNIT UPON SMOKE DETECTION.
- PROVIDE WITH TERMINAL STRIP FOR FIELD INSTALLED CONTROLS.
- UNITS TO BE 2" DOUBLE WALL R-13 CONSTRUCTION WITH 2500 HOUR SALT SPRAY RESISTANT PAINT.
- UNIT TO HAVE MODULATING HOT GAS REHEAT AND MODULATE HEAT CONTROL.
MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLING (2) FACTORY PROVIDED SUPPLY AIR TEMPERATURE SENSORS.
- PROVIDE FACTORY INSTALLED HAIL GUARDS
- PROVIDE 6 ROW DX COIL AND STAINLESS STEEL DRAIN PAN.
- PROVIDE ULTRA LOW LEAKAGE ECONOMIZER WITH BAROMETRIC RELIEF DAMPER, AND FAULT DETECTION AND DIAGNOSTIC.
- PROVIDE FACTORY MOUNTED AND WIRED CONDENSATE FLOW SWITCH.
- PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER WITH MODULATING CONTROL
- PROVIDE FACTORY POWERED GFCI CONVENIENCE OUTLET AND NONFUSED DISCONNECT.
- PROVIDE 18" INSULATED, SOLID BOTTOM CURBED FOR PITCHED ROOF. MECHANICAL CONTRACTOR TO FIELD CUT SUPPLY AND RETURN OPENINGS AS REQUIRED.
- AAON UNITS PROVIDED BY GC. FACTORY STARTUP IS INCLUDED. CONTACT AARON HUMPHRIES @ 210-954-6657 OR aaron.humphries@texasairsystems.com TO COORDINATE STARTUP.

FLEX DUCT SCHEDULE

CFM RANGE	SIZE (DIAMETER) *
< 50	5
51 - 100	6
101 - 250	8
251 - 400	10
401 - 650	12
651 - 900	14
901 - 1300	16
1301 - 1800	18
1801 - 2300	20

* ALL FLEX DUCT SHALL BE SIZED IN ACCORDANCE W/ FLEX DUCT SCHEDULE. PROVIDE RIGID REDUCER AT NECK OF AIR DEVICE. W/AV INLET DUCT, ETC. TO TRANSITION FROM FLEX DUCT SIZE TO DIFFUSER INLET AND/OR EQUIPMENT CONNECTION SIZE. FLEX DUCT NOT TO EXCEED 5ft.

OUTSIDE AIRFLOW CALCULATION (2021 IMC, TABLE 403.3.1.1)

Occupancy Category	People Outdoor Air Rate	Area Outdoor Air Rate	Default Values	
			Occupant Density	Combined Outdoor Air Rate
	Rp	Ra	#/1000ft ²	cfm/person
Restaurant dining rooms	7.5	0.18	70	10
Kitchen (cooking)	7.5	0.12	20	14

Formula (ASHRAE 62.1):	Vbz = (Rp x Pz) + (Ra x Az)
Vbz:	Breathing zone outdoor airflow (CFM)
Rp:	Outdoor airflow rate required per person (CFM/person)
Pz:	The maximum number of people expected to occupy the zone.
Ra:	Outdoor airflow rate required per unit area (CFM/ft²)
Az:	The zone area (ft²)

Area of Dining Rooms, ft²	1030
Area of Kitchen, ft²	1820

	Formula	Calculated Value, People
Calculated number of people in Dining Rooms based on Occupant Density	Pz = (1030 ft ²) x (70 people / 1000 ft ²)	72.1
Calculated number of people in Kitchen based on Occupant Density	Pz = (1820 ft ²) x (20 people / 1000 ft ²)	36.4

	Formula	Minimum Calculated Value, CFM
Calculated Outdoor Air for Restaurant Dining Room	Vbz = (7.5 cfm/person) x (72 people) + (0.18 cfm/ft ² x 1030 ft ²)	726
Calculated Outdoor Air for Kitchen	Vbz = (7.5 cfm/person) x (36 people) + (0.12 cfm/ft ² x 1820 ft ²)	491

Total Minimum Calculated Outside Air, CFM	1218
Total Actual Outside Air, CFM	4010

AIR BALANCE AND VENTILATION CALCULATION:

TOTAL OUTSIDE AIR INTAKE = 4010 CFM

TOTAL GREASE HOOD EXHAUST = 3210 CFM

TOTAL RESTROOM EXHAUST = 300 CFM

OUTSIDE AIRFLOW - (GREASE HOOD EXHAUST AIRFLOW + RESTROOM EXHAUST AIRFLOW) = NET POSITIVE AIRFLOW

4010 CFM - (3210 + 300) = 500 CFM

EXHAUST FAN SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	AIR FLOW	TSP (IN W.C.)	RPM	BHP	HP	DRIVE TYPE	VOLTAGE	PHASE	WEIGHT (LBS.)	NOTES
EF-1	ROOF-MOUNTED CENTRIFUGAL DOWNBLAST	GREENHECK	G-080-VG	300 CFM	0.50	1680	0.07	0.10	DIRECT	120	1	44	1.2
KEF-1	ROOF-MOUNTED CENTRIFUGAL UPBLAST	GREENHECK	CUE-140-VG	1995 CFM	1.00	1517	0.66	0.75	DIRECT	208	1	119	2.3,4,6
KEF-2	ROOF-MOUNTED CENTRIFUGAL UPBLAST	GREENHECK	CUE-120-VG	1216 CFM	0.75	1415	0.26	0.50	DIRECT	208	1	96	2.3,5,6

NOTES:

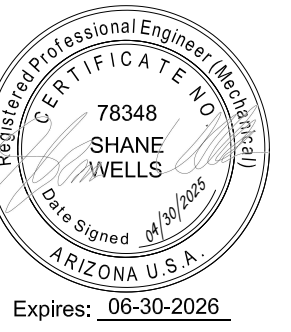
- PROVIDE INSULATED 12" ROOF CURB.
- PROVIDE WITH INTEGRAL DISCONNECT SWITCH.
- PROVIDE GREASE BOX.
- PROVIDE INSULATED AND VENTED 26" SQUARE ROOF CURB.
- PROVIDE INSULATED AND VENTED 22" SQUARE ROOF CURB.
- PROVIDE HINGED ACCESS KIT.

AIR DEVICE SCHEDULE

TAG	MANUFACTURER	MODEL	FACE SIZE	NECK SIZE (IN.)	MAX NC	PATTERN	MOUNTING	SLOT LENGTH	SLOT WIDTH	SLOT QTY	SYSTEM CLASSIFICATION	COMMENTS
A3	TITUS	TMS	24 X 24	6	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
A4	TITUS	TMS	24 X 24	8	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	
A5	TITUS	TMS	24 X 24	10	30	4-WAY	LAY-IN	<varies>	<varies>	<varies>	SUPPLY AIR	1
A6	TITUS	TMS	24 X 24	12	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
B3	TITUS	TMS	24 X 24	6	30	4-WAY	FLANGE	-	-	-	SUPPLY AIR	1.2
C8	TITUS	359FLP1	24 X 24	18 X 18	30	4-WAY	LAY-IN	-	-	-	RETURN AIR	
F1	TITUS	SIF	12 X 12	6 X 6	30	4-WAY	FLANGE	-	-	-	EXHAUST AIR	2
H9	TITUS	TB01-30	8	8	30	2-WAY	FLANGE	60	3/4	2	SUPPLY AIR	3
H10	TITUS	TB01-80	60 X 7-1/2	12	30	2-WAY	FLANGE	60	1-1/2	3	SUPPLY AIR	3
L1	TITUS	FL-15-JT	SEE PLANS	30	30	1-WAY	FLANGE	CONTINUOUS	1-1/2	1		4
P1	TITUS	FBP1	48 X 3-1/2	8	30	-	FLANGE	60	-	-	SUPPLY AIR	3
P3	TITUS	FBP1	96 X 3-1/2	8	30	-	FLANGE	60	-	-	SUPPLY AIR	3

NOTES:

- PROVIDE BACKPAN INSULATION.
- PROVIDE PLASTER FRAME FOR MOUNTING IN GYP. CEILING.
- PROVIDE INSULATED PLENUM.
- CONTINUOUS LINEAR SLOT DIFFUSER TO BE INSTALLED IN GYP. CEILING. PROVIDE INSULATED SUPPLY AIR PLENUMS AS SCHEDULED FOR A COMPLETE SYSTEM.



SY#	DATE	DESCRIPTION	BY
1	04/07/2022	Per Review Comments	

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SHEET TITLE:

MECHANICAL
SCHEDULES
ISSUED FOR:
PERMIT

UNIT NO.

DATE: 12/18/24

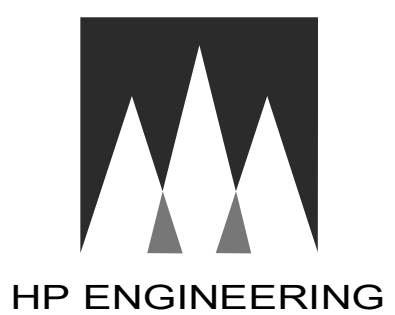
SCALE: 12" = 1'-0"

DRAWN BY: H.A.R

CHECKED BY: S.W

SHEET NO:

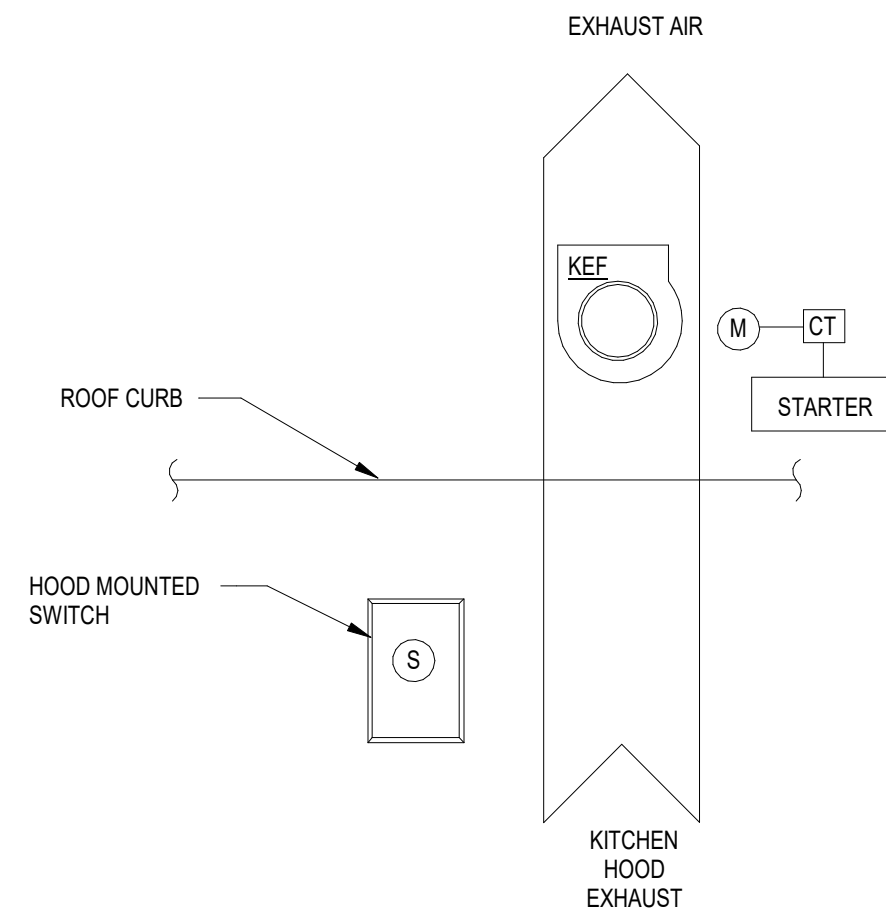
M6.1



CONTROL SYMBOLS

AE	ANALYZER ELEMENT	CO	CARBON MONOXIDE SENSOR
DDC	DIRECT DIGITAL CONTROL	←	COMMUNICATION SIGNAL
BMS	BUILDING MANAGEMENT SYSTEM	HPS	HIGH STATIC PRESSURE SENSOR
RDC	ROOFTOP UNIT DDC CONTROLLER	DA	DAMPER ACTUATOR
FACP	FIRE ALARM CONTROL PANEL	CV	CONTROL VALVE
DPI	DIFFERENTIAL PRESSURE INDICATOR	DX	DX COOLING COIL
DPS	DIFFERENTIAL PRESSURE SWITCH	HC	NATURAL GAS HEATING COIL
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	HGR	HOT GAS REHEAT
EDH	ELECTRIC DUCT HEATER	SF	SUPPLY AIR FAN
EF	EXHAUST FAN		
FE	FLOW ELEMENT		
FLTR	FILTER		
FS	FLOW SWITCH		
H	HUMIDISTAT		
HL	HIGH TEMPERATURE LIMIT SWITCH		
M	MOTOR		
PCV	PRESSURE CONTROL VALVE		
PT	PRESSURE TRANSMITTER		
SMK	SMOKE DETECTOR		
T	TEMPERATURE SENSOR		
TCV	TEMPERATURE CONTROL VALVE		
TSL	LOW LIMIT THERMOSTAT (FREEZE/STAT)		
TT	TEMPERATURE TRANSMITTER		
VFD	VARIABLE FREQUENCY DRIVE		
STARTER	MOTOR STARTER (PROVIDE CONTROL RELAY)		
CT	CURRENT TRANSDUCER		
OS	OCCUPANCY SENSOR		

****THE AMBIENT CONDITIONS FOR THIS PROTOTYPE ARE 105/76 °F DB/WB COOLING AND 20 °F DB HEATING. CHECK WITH LOCAL ENGINEER FOR REGIONAL CHANGES IN DESIGN CONDITIONS.****



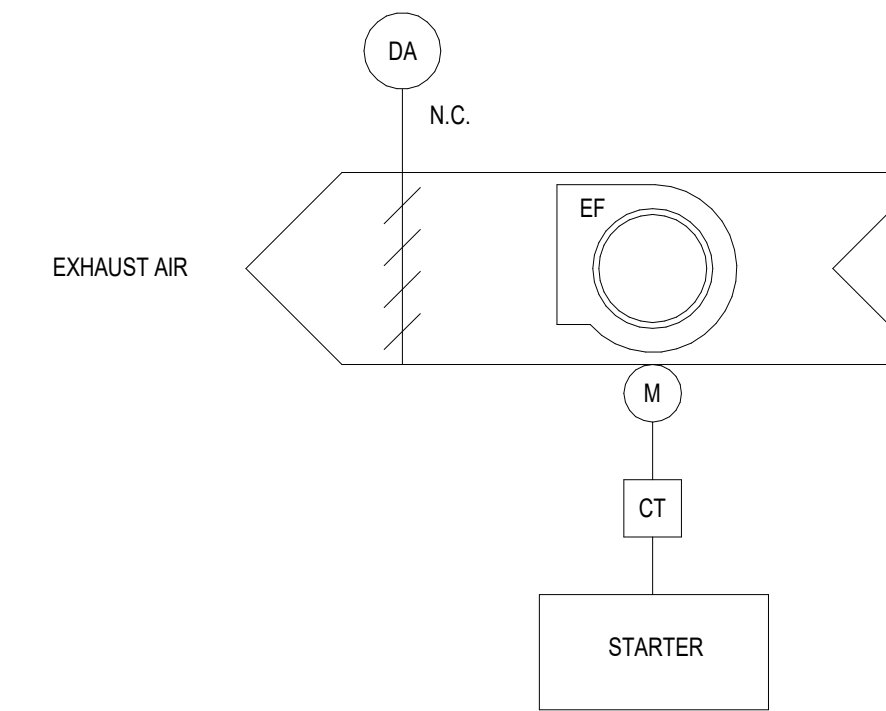
SEQUENCE OF OPERATION

OPERATING CONDITIONS - CONTINUOUS 24/7:
THE KITCHEN HOOD EXHAUST FAN SHALL RUN CONTINUOUSLY WHEN THE KITCHEN HOOD MOUNTED SWITCH IS ON.

INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM
UPON ACTIVATION OF THE INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM DURING NORMAL KITCHEN OPERATION, THE KITCHEN HOOD EXHAUST FAN SHALL REMAIN ENERGIZED.

FIRE/SMOKE CONTROL:
UPON SENSING DUCT SMOKE, THE KITCHEN EXHAUST FAN SHALL BE CYCLED OFF. FAN STATUS SHALL BE REPORTED TO THE BAS.

2 M7.1 KITCHEN HOOD EXHAUST FAN CONTROL DIAGRAM
12" = 1'-0"

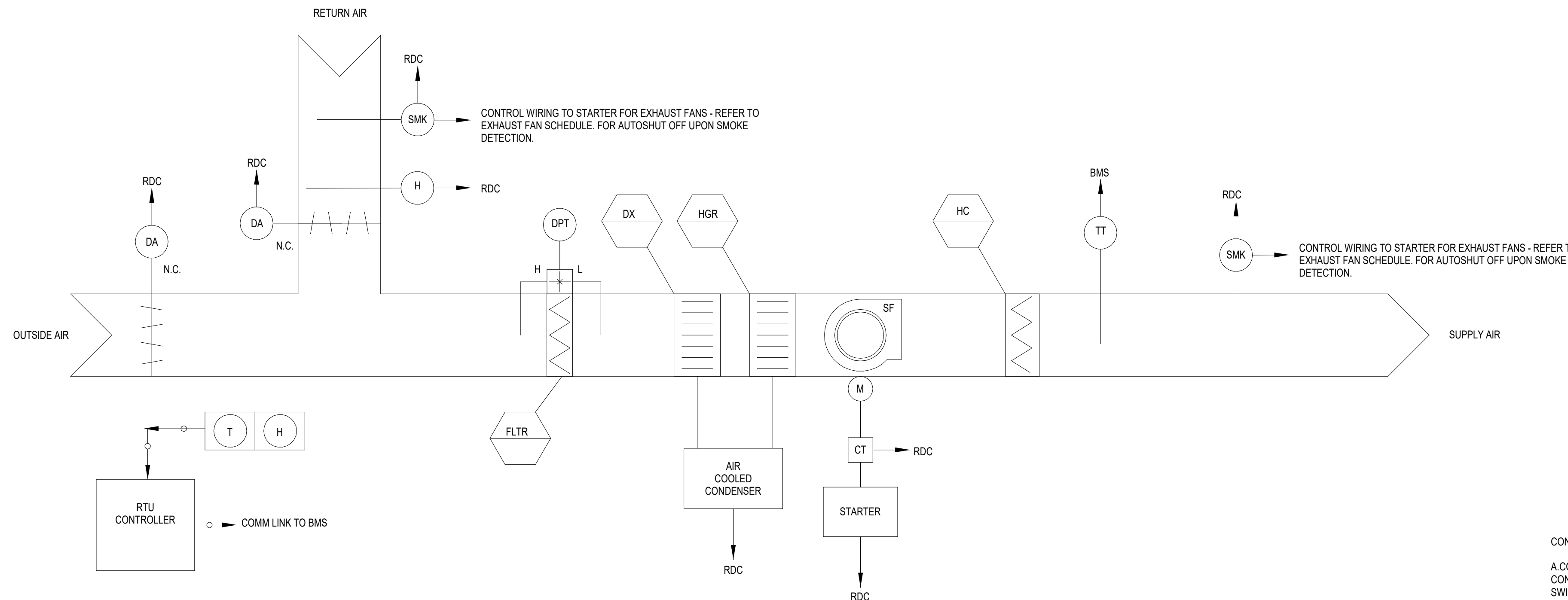


SEQUENCE OF OPERATION

OPERATING CONDITIONS:
THE GENERAL EXHAUST FAN SHALL BE INTERLOCKED WITH THE RESTROOM OCCUPANCY SENSORS. THE EXHAUST FAN SHUTOFF DAMPER SHALL BE INTERLOCKED WITH THE EXHAUST FAN TO OPEN WHEN THE FAN IS ENERGIZED AND CLOSE WHEN THE FAN IS DE-ENERGIZED.

ALARMS:
ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. FAN FAILURE: FAN COMMANDED ON BUT STATUS IS OFF.
2. FAN IN HAND: FAN COMMANDED OFF BUT STATUS IS ON.
3. FAN BELT FAILURE: MOTOR AMPERAGE READS ZERO AS MEASURED BY CURRENT TRANSDUCER.

4 M7.1 GENERAL EXHAUST FAN CONTROL DIAGRAM
12" = 1'-0"



SEQUENCE OF OPERATION

OPERATING CONDITION - CONTINUOUS 24/7
THE RTU CONTROLLER (RDC) SHALL PERFORM ALL CONTROL, SAFETY AND INTERLOCKS AS DESCRIBED IN THE SEQUENCE OF OPERATION. THE BMS SHALL MONITOR THE RTU DDC CONTROLLER VIA BMS PROTOCOL COMMUNICATION AND/OR COMBINATION OF DISCRETE INPUT/OUTPUT POINTS. THE BMS SHALL OPERATE THE UNIT CONTINUOUS 24/7. WHEN THE UNIT IS DE-ENERGIZED BY THE BMS, THE FAN SHALL SHUT DOWN. THE OA DAMPER SHALL CLOSE. THE REFRIGERATION SYSTEM SHALL ALSO BE DE-ENERGIZED AND THE HEATING SYSTEM LOCKED OUT OF HEATING MODE.

TEMPERATURE CONTROL
OCCUPIED MODE - THE BMS WILL MAINTAIN THE FOLLOWING SPACE TEMPERATURE SETPOINTS:
• COOLING: 75°F (ADJUSTABLE)
• HEATING: 70°F (ADJUSTABLE)

HUMIDITY CONTROL
IF THE RELATIVE HUMIDITY OF THE RETURN AIR EXCEEDS 60% (ADJUSTABLE) AND THERE IS NO CALL FOR COOLING IN THE SPACE, THE RDC SHALL ENABLE DEHUMIDIFICATION MODE OF THE RTU BASED ON ITS OWN INTERNAL CONTROLS UTILIZING HOT GAS REHEAT.

ECONOMIZER OPERATION
BASED ON THE RTU INTERNAL CONTROLS, THE RDC SHALL VARY THE OUTSIDE AIR DAMPER POSITION, BASED ON CALL FOR COOLING IN THE SPACE. THERE SHALL BE ONE FAN SPEED. THE RDC SHALL LOAD AND UNLOAD COMPRESSORS BASED ON THE UNIT INTERNAL CONTROLS TO CONDITION OR DEHUMIDIFY THE SPACE AS NEEDED.

SEQUENCE OF OPERATION (CONTINUED)

THE BMS SHALL BE PROGRAMMED SO THAT THE HEATING AND COOLING SYSTEMS SHALL NEVER OPERATE SIMULTANEOUSLY.

UNIT SHUTDOWN:
UNIT SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN DUCT OR BUILDING FIRE ALARM.

ALARMS
THE BMS SHALL MONITOR ALL SAFETIES ON THE REFRIGERATION SYSTEM AND THE HEATING SYSTEM THROUGH THE RDC COMMUNICATION PROTOCOL. ALL ABNORMAL CONDITIONS SHALL BE ALARMED AT THE BMS.

A. FILTERS
THE RDC SHALL MONITOR THE STATIC PRESSURE DROP ACROSS THE FILTER BANK AND ALARM ON HIGH STATIC PRESSURE DROP. A DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER SHALL INITIATE FILTER ALARM WHEN THE PRESSURE DROP ACROSS THE FILTER REACHES THE SETPOINT OF 1.0 INCHES W.C. (ADJUSTABLE).

B. FIRE/SMOKE CONTROL
UPON ACTIVATION OF A DUCT SMOKE DETECTOR, THE BMS SHALL RECEIVE AN ALARM.

C. GENERAL ALARM
ANY TROUBLE ALARM OR FAULT WITHIN THE UNIT ONBOARD CONTROLS WILL GENERATE A GENERAL ALARM TO THE BMS.

3 M7.1 PACKAGED ROOFTOP UNIT DIAGRAM
12" = 1'-0"

CONTROLS GENERAL NOTES:

A. CONTROLS CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A SYSTEM OF CONTROLS INCLUDING CONTROLLERS, VALVES, DAMPERS, SENSORS, SWITCHES ACTUATORS, WIRING, RELAYS, PROGRAMMING, AND COMMISSIONING AS REQUIRED TO PROVIDE THE DESIRED SEQUENCE OF OPERATION. PROVIDE INTEGRATED WIRING DIAGRAMS SHOWING INTERACTIONS BETWEEN FIELD INSTALLED EQUIPMENT AND WIRING PROVIDED WITH THE HVAC EQUIPMENT.

B. REFERENCE MECHANICAL DRAWINGS FOR LOCATION OF ALL CONTROLS RELATED ITEMS.

C. WHERE BACNET COMMUNICATION IS INDICATED, CONTROLS CONTRACTOR SHALL COORDINATE WITH THE OWNER AND PROVIDE POINTS AND VIEWS AS REQUESTED BY THE OWNER.

D. PROVIDE SUPERVISION AND JOB CHECKOUT SERVICE AS REQUIRED TO ENSURE THAT THE INSTALLATION MEETS REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THE SYSTEM SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING THE ACCEPTANCE OF THE SYSTEM BY THE ARCHITECT/ENGINEER. CORRECT DEFECTS OCCURRING DURING THAT PERIOD AT NO COST TO THE OWNER.

E. CONTRACTOR SHALL PROVIDE REMOTE "READ ONLY" ACCESS OF THE CONTROLS TO THE ENGINEER FOR A MINIMUM PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION. ACCESS SHALL INCLUDE ABILITY TO SEE AND SET UP TRENDS OF ALL AVAILABLE POINTS. PROVIDE MINIMUM ALLOWANCE OF 16 HOURS ON SITE OR REMOTE TO ASSIST THE ENGINEER WITH FUNCTIONAL TESTING OF PROPER OPERATION OF EQUIPMENT.



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UNIT NO.
DATE: 12/18/24
SCALE: As indicated
DRAWN BY: H.A.R
CHECKED BY: S.W

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