

2024 International Mechanical Code Committee 403.3.1.5 Balancing.
 The ventilation air distribution system shall be provided with means to adjust the system to achieve not less than the minimum ventilation airflow rate as required by sections 403.3 and 403.3.1.2. Ventilation systems shall be balanced using a nationally accepted air balancing test by an approved method. Such balancing shall verify that the ventilation system is capable of supplying and exhausting the airflow rates required by Sections 403.3 and 403.3.1.2. Please note: A final TAB report shall be provided to the engineer of record and the mechanical inspector. Please note this on mechanical drawing.

AIRFLOW CFMS SHOWN ON PLAN AND SCHEDULES ARE RECOMMENDATIONS BASED ON RECORDS FROM EXISTING DRAWINGS. RE-BALANCE AS REQUIRED ACCORDING TO EXISTING EQUIPMENT ON SITE AND PROVIDE TEST & BALANCE REPORT TO ENGINEER OF RECORD UPON COMPLETION FOR REVIEW AND COORDINATION.

- 1] INSTALL NEW OWNER-FURNISHED TYPE-I KITCHEN HOOD EXHAUST SYSTEM, FIRE SUPPRESSION SYSTEM, GREASE DUCT, AND ALL OTHER REQUIREMENTS FOR A TYPE-I SYSTEM. INSTALL HOOD CONTROL PANEL, TEMPERATURE SENSOR(S), AND HUMIDITY SENSOR(S) WITHIN HOOD UTILITY CABINET ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.
- 2] INSTALL NEW OWNER-FURNISHED ROOF-MOUNTED EXHAUST FAN. MAINTAIN MINIMUM 10'-0" SEPARATION BETWEEN ROOF TERMINATION AND ANY NEARBY RTU INTAKE OR ROOF EDGE. INSTALL 12" GREASE DUCT TO ROOF-MOUNTED FAN. EXTEND HOOD COLLAR. BALANCE TO AIRFLOW RATE SCHEDULED ON M601. COORDINATE WITH ELECTRICAL CONTRACTOR FOR FAN CONTROLS BETWEEN HOOD AND FAN. RE: QT INSTALL DRAWINGS AND HOOD MANUFACTURER'S INSTRUCTIONS.
- 3] INSTALL NEW OWNER-FURNISHED HOOD SUPPRESSION PUSH STATION PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
- 4] EXISTING ROOF EQUIPMENT SHALL REMAIN, SHOWN FOR REFERENCE. RE: G1-M601 TO RE-BALANCE AIRFLOWS AS REQUIRED.
- 5] EXISTING TEMPERATURE SENSOR AND HUMIDITY SENSOR FOR ROOFTOP UNIT SERVING KITCHEN SHALL REMAIN, SHOWN FOR REFERENCE.
- 6] PROVIDE EXHAUST GRILLE 4" IN-LINE EXHAUST FAN ABOVE CEILING. PROVIDE ROUND DUCT ABOVE CEILING TO EXHAUST GRILLE IN CEILING AND TO NEW ROOF TERMINATION PER DETAIL K5-M601. MAINTAIN MINIMUM 10'-0" SEPARATION BETWEEN ROOF TERMINATION AND ANY NEARBY RTU INTAKE OR ROOF EDGE. RE: G1-M601.
- 7] RE-BALANCE EXISTING DIFFUSER/GRILLE TO AIRFLOW SHOWN ON PLAN. RE: M601.
- 8] RELOCATE DIFFUSER/GRILLE RETAINED DURING DEMOLITION AND MODIFY DUCTWORK AS SHOWN. FIELD VERIFY DIFFUSER TYPE. PROVIDE T11US.FAS TYPE DIFFUSER IF NOT CURRENTLY PROVIDED.
- 9] INTERLOCK RTU VIA RELAY TO NEW HOOD CONTROL PANEL. EXISTING RTU SHALL SHUT DOWN UPON ACTIVATION OF HOOD SUPPRESSION SYSTEM.

A1 MECHANICAL DUCTWORK CEILING PLAN - NEW

A13 PLAN NOTES

Bowie Tiglas Engineering Inc.
 Consulting Engineers
 Justin S. Bowie
 24820 N 167th Ave, Ste 170
 Phoenix, AZ 85065
 Phone: 602.982.3000
 Fax: 602.982.1541
 Just@BowieTiglas.com
 RTE # 29489

KDF JOB #: 24010

QuikTrip No. 448
 9910 WEST CAMELBACK ROAD
 PHOENIX, ARIZONA

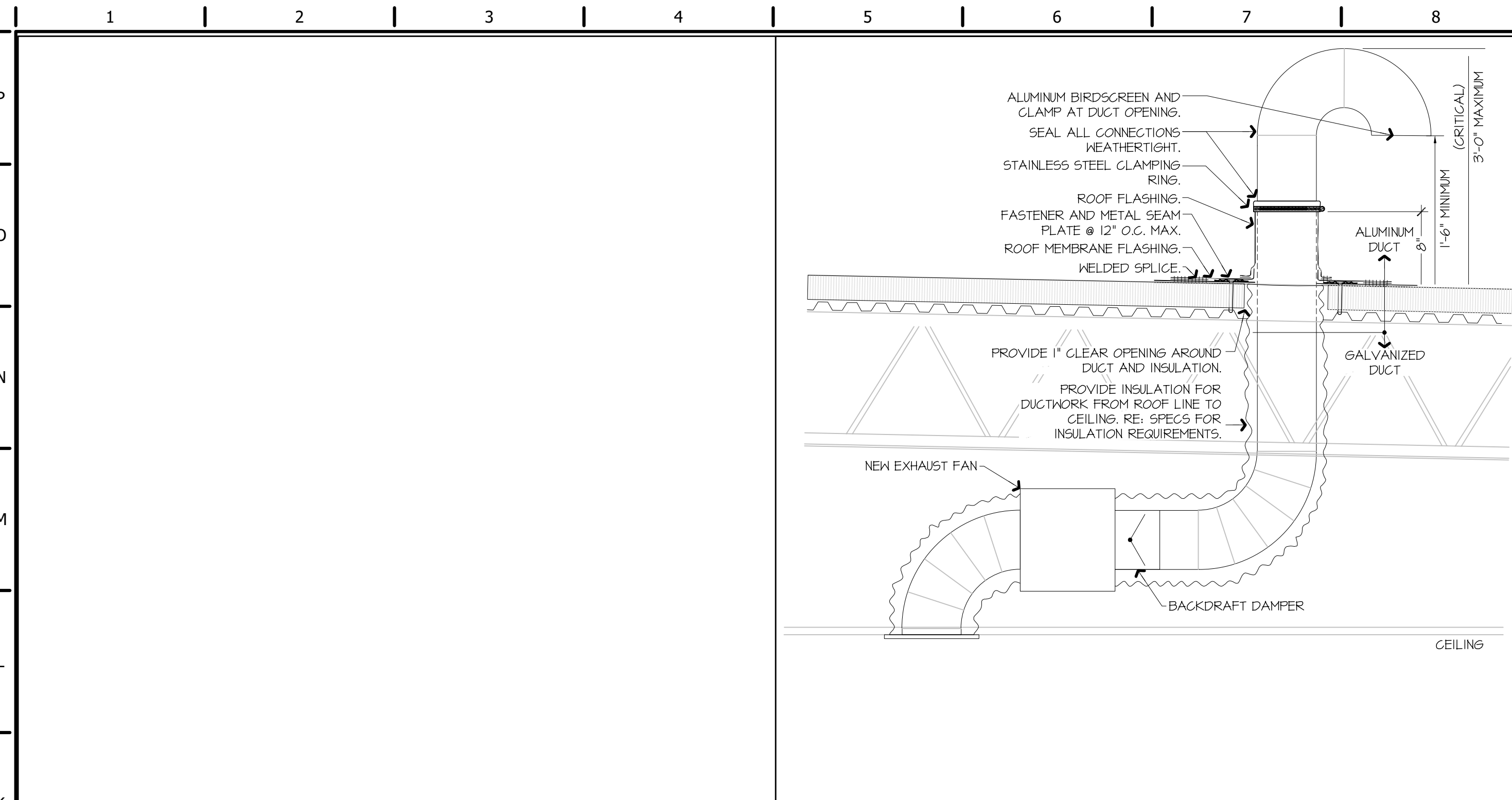
PROTOTYPE: FRYER ADDITION
 DIVISION: PHOENIX
 VERSION: 03.5
 DATE: 07/28/25

REV	DATE	DESCRIPTION

ORIGINAL ISSUE DATE: 07/28/25

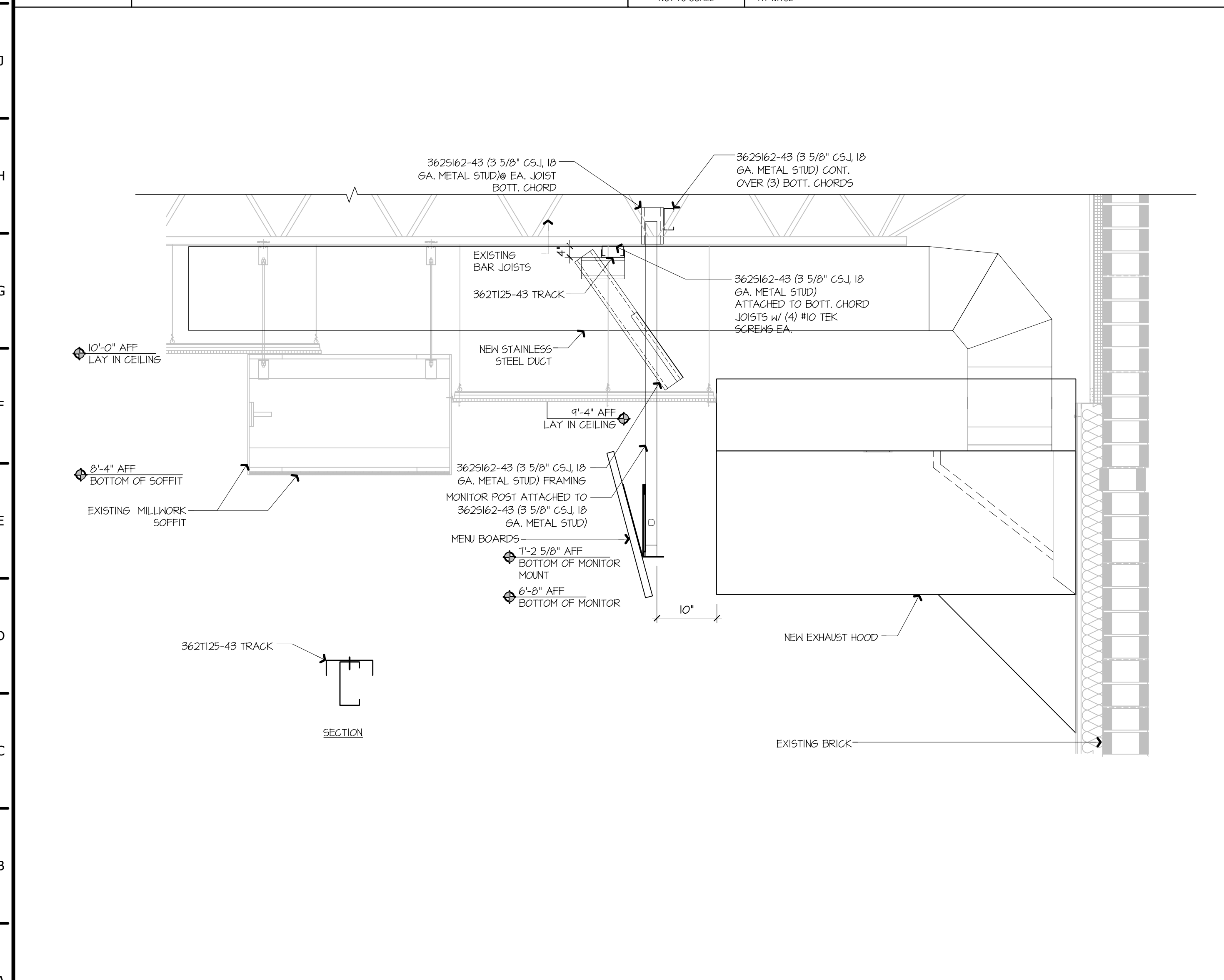
SHEET TITLE:
 MECHANICAL DUCTWORK
 CEILING PLAN - NEW

SHEET NUMBER:
 M102

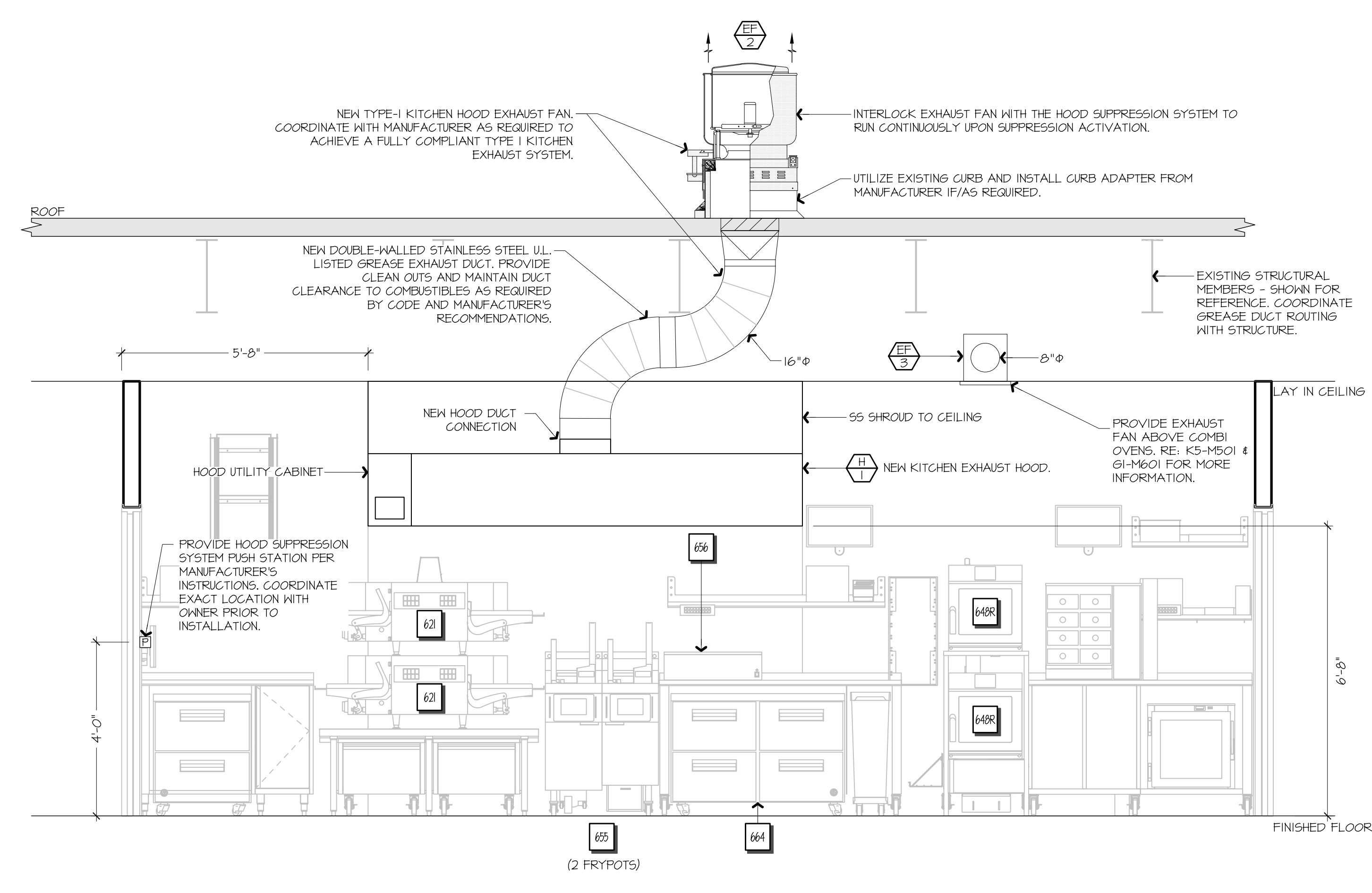


GENERAL NOTES:
 KITCHEN EXHAUST HOOD SHALL BE TYPE-I RATED FOR MEDIUM DUTY COOKING APPLIANCES THAT PRODUCE GREASE OR SMOKE AS A RESULT OF THE COOKING PROCESS. HOOD SHALL BE PROVIDED WITH AUTOMATIC FIRE SUPPRESSION SYSTEM INTERLOCKED WITH EQUIPMENT SHUTDOWN CONTROLS. HOOD SHALL BE PROVIDED WITH UL 1046 GREASE FILTERS. HOOD SHALL BE LISTED IN ACCORDANCE WITH UL700. HOOD SHALL BE LISTED AND LABELED FOR 0\"/>

K1	NOT USED	K5	COMBI OVEN FAN EXHAUST DUCTWORK
		NOT TO SCALE	A1-M102



A1	KITCHEN EXHAUST HOOD SUPPORT DETAIL	A9	DIFFUSER CONNECTION DETAIL
NOT TO SCALE		NOT TO SCALE	A1-M102



EXHAUST FAN INFORMATION - JOB#7284466

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	HEIGHT (LBS)	SONES
1	EF-3 (TYPE I)	1	DJ50HFA	CAPTIVEAIRE	1350	0.750	1543	TEAO-ECM	0.500	0.310	1	208	3.8	513 FPM	74	16.6
2	EF-1 - RR FAN	1	DR33HFA	CAPTIVEAIRE	600	0.500	1304	TEAO-ECM	0.333	0.153	1	115	4.3	247 FPM	58	8.8
3	TF-1 - TRANS FAN	1	GFA 500CA	CAPTIVEAIRE	350	0.500	725	GENERAL PURPOSE	0.310	0.222	1	115	2.2		35	N/A
4	VF-1 - CO2 FAN	1	DFA-300-CA	CAPTIVEAIRE	600	0.100	1846	GENERAL PURPOSE	0.333	0.148	1	115	2.6		12	12.9

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST		SUPPLY				
		GREASE CUP	GRAVITY DAMPER	HALL MOUNT	SIDE DISCHARGE DAMPER	GRAVITY DAMPER	MOTORIZED DAMPER	HALL MOUNT
1	EF-3 (TYPE I)	YES						
2	EF-1 - RR FAN		YES					
3	TF-1 - TRANS FAN							
4	VF-1 - CO2 FAN							

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-3 (TYPE I)	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR50HFA - SHIP LOOSE - FOR GREASE DUCTS
		1	ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCO), CCM ROTATION
		1	2 YEAR PARTS WARRANTY
2	EF-1 - RR FAN	1	1 1/2-BDD DAMPER
		1	ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCM ROTATION
		1	2 YEAR PARTS WARRANTY
		1	FAN CONTROL - 3 AMP FAN MOUNTED SPEED CONTROL FOR GFA CEILING FANS
3	TF-1 - TRANS FAN	1	2 YEAR PARTS WARRANTY
		1	FAN CONTROL - 3 AMP WHITE SPEED CONTROL FOR GFA CEILING FAN
4	VF-1 - CO2 FAN	1	FAN CONTROL - 3 AMP WHITE SPEED CONTROL FOR GFA CEILING FAN
		1	2 YEAR PARTS WARRANTY

CURB ASSEMBLIES

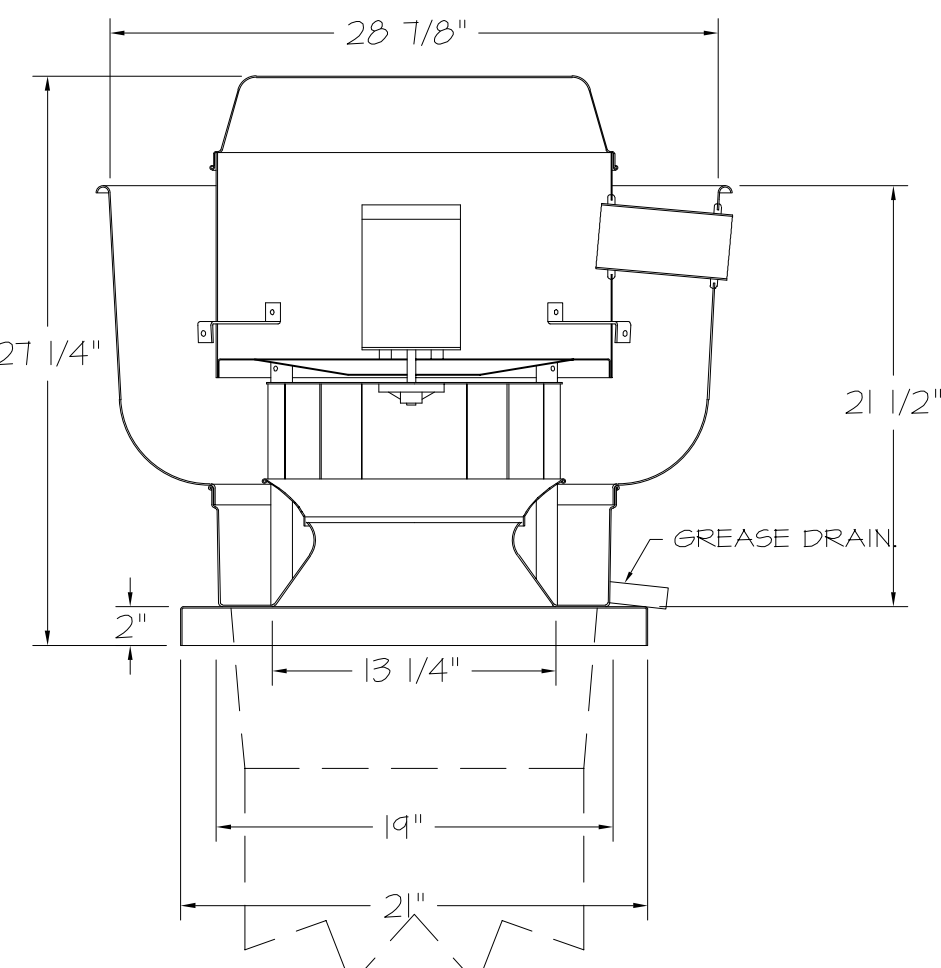
NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	EF-3 (TYPE I)	34 LBS	CURB	14.500"W X 14.500"L X 24.000"H VENTED HINGED.
2	# 2	EF-1 - RR FAN	31 LBS	CURB	14.500"W X 14.500"L X 20.000"H HINGED.

FAN SOUND DATA

FAN UNIT NO	TAG	MOTOR	SOUND DATA				OCTAVE BAND SOUND DATA							
			LWA	SONES @ 5 FT	DBA @ 5 FT	DISTANCE (FT)	63 HZ	125 HZ	250 HZ	500 HZ	1 KHZ	2 KHZ	4 KHZ	8 KHZ
1	EF-3 (TYPE I)	EXHAUST	80	16.54126568875544	68.5	5	76.6	78	85	76.5	71.9	64.8	66	51
2	EF-1 - RR FAN	EXHAUST	70.9	8.82639034421919	59.4	5	68.3	75.1	73.9	67.5	64.2	62.8	55.9	44.9
4	VF-1 - CO2 FAN	EXHAUST	76.4	12.925453301313551	64.9	5	65.8	74	74	72.2	64.8	68.5	68	68.2

FAN #3 GFA 500CA - EXHAUST FAN (TF-1 - TRANS FAN)

FAN #1 DJ50HFA - EXHAUST FAN (EF-3 (TYPE I))



FEATURES:

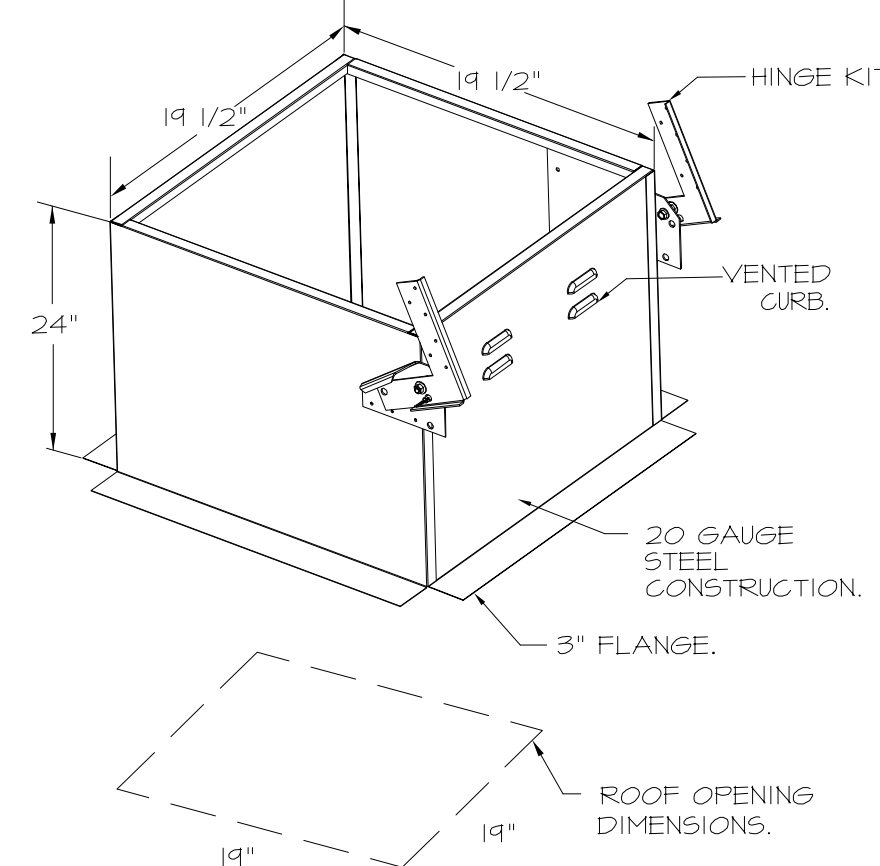
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND UL-C-5645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

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

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

OPTIONS

- GREASE BOX.
- FAN BASE CERAMIC SEAL - DU/DR50HFA
- SHIP LOOSE - FOR GREASE DUCTS.
- ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCO), CCM ROTATION
- 2 YEAR PARTS WARRANTY.



FAN #2 DR33HFA - EXHAUST FAN (EF-1 - RR FAN)

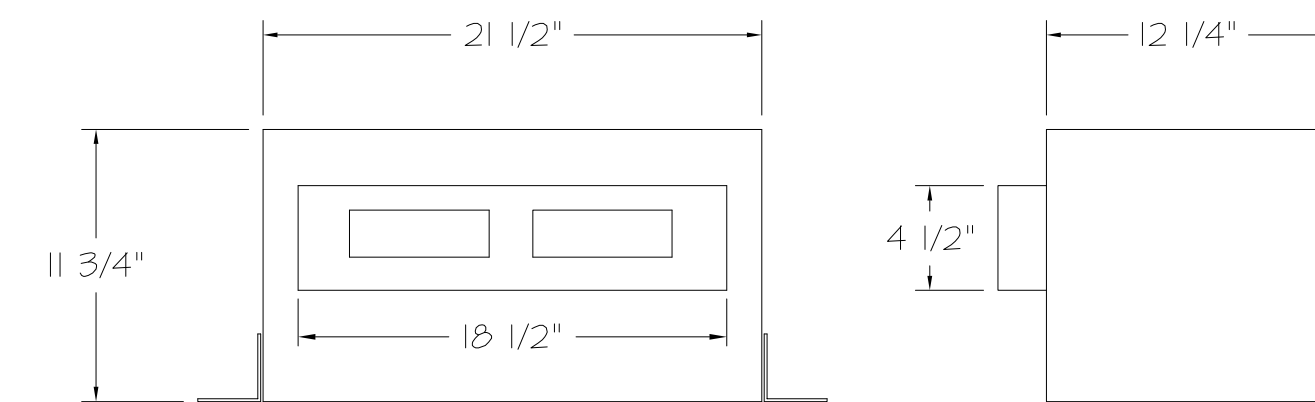
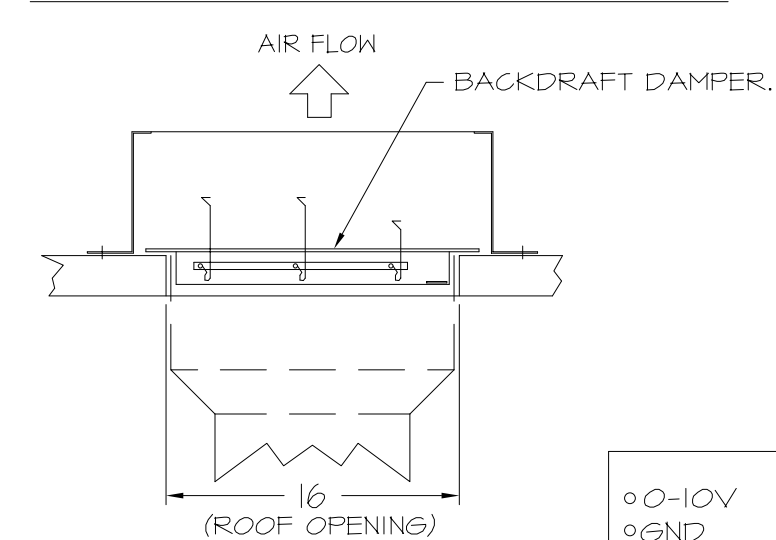
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- SAFETY DISCONNECT.
- STANDARD BIRD SCREEN.
- SPEED CONTROL.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).

OPTIONS

- 1 1/2-BDD DAMPER.
- ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCM ROTATION.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION

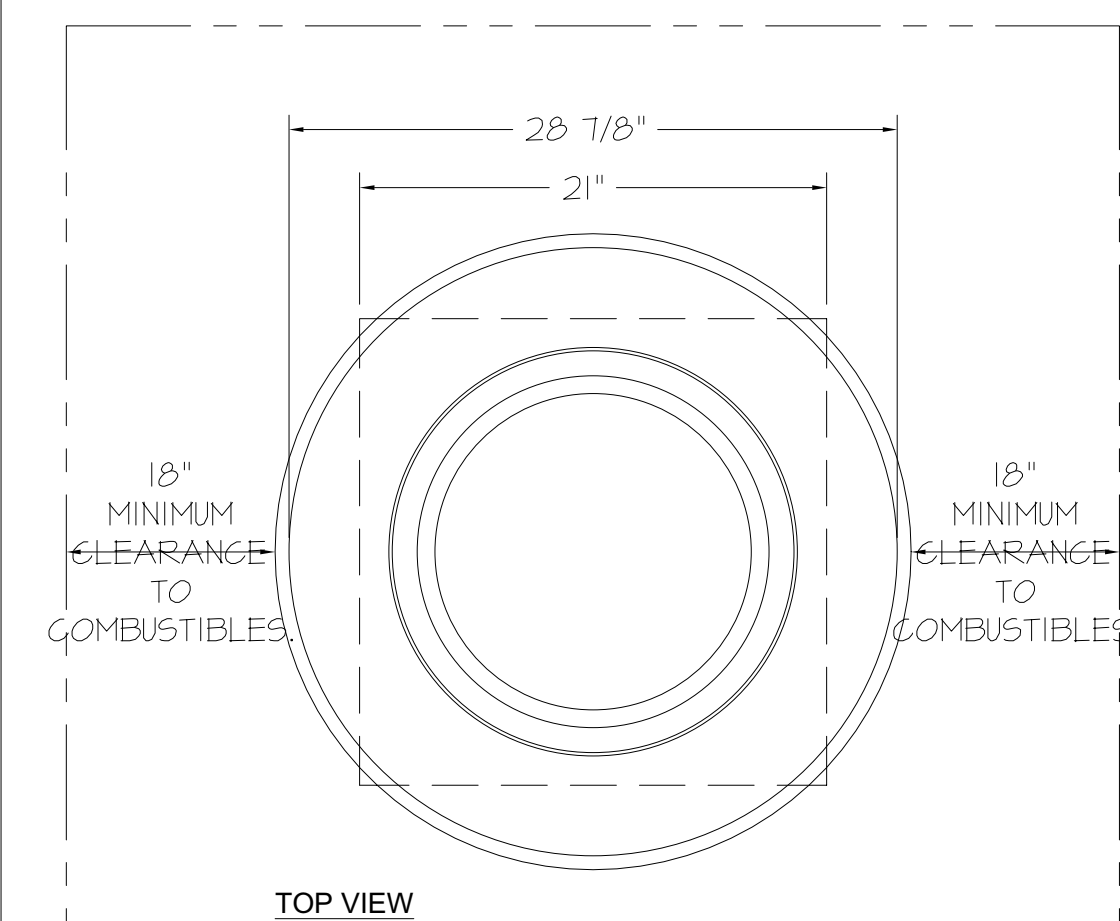
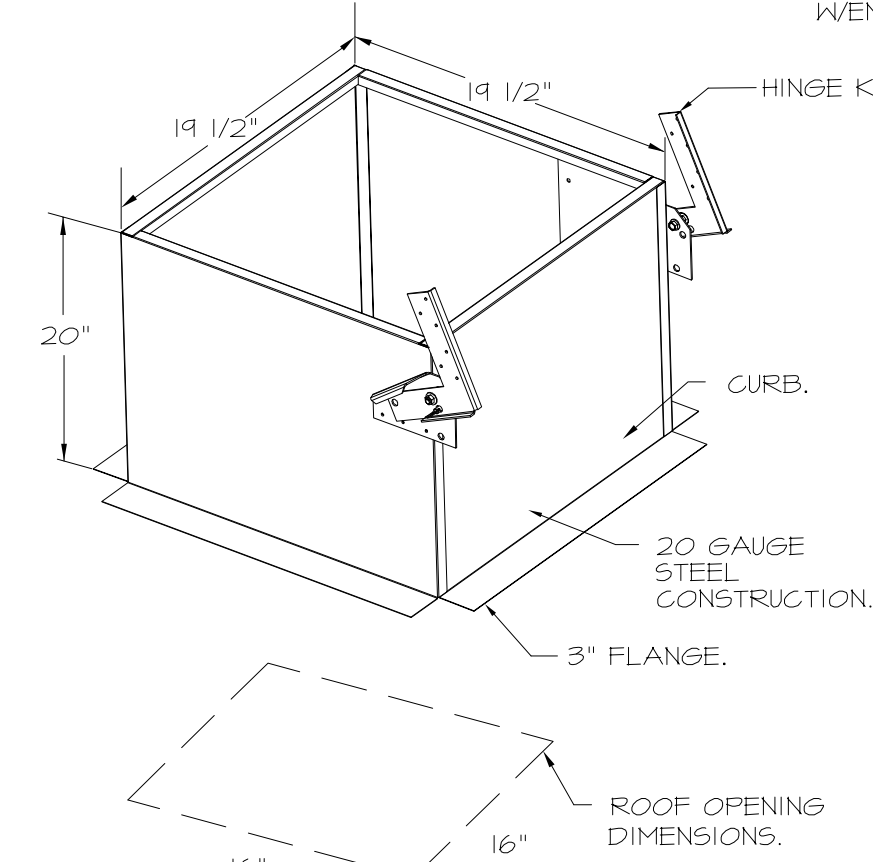


FEATURES:

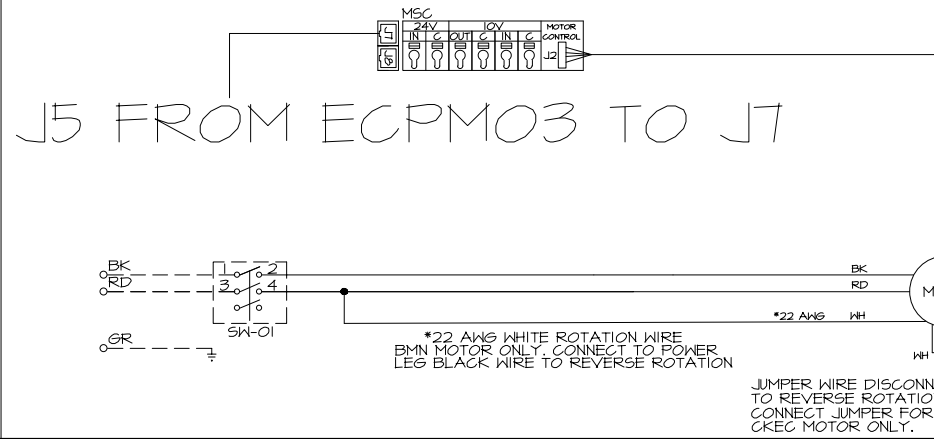
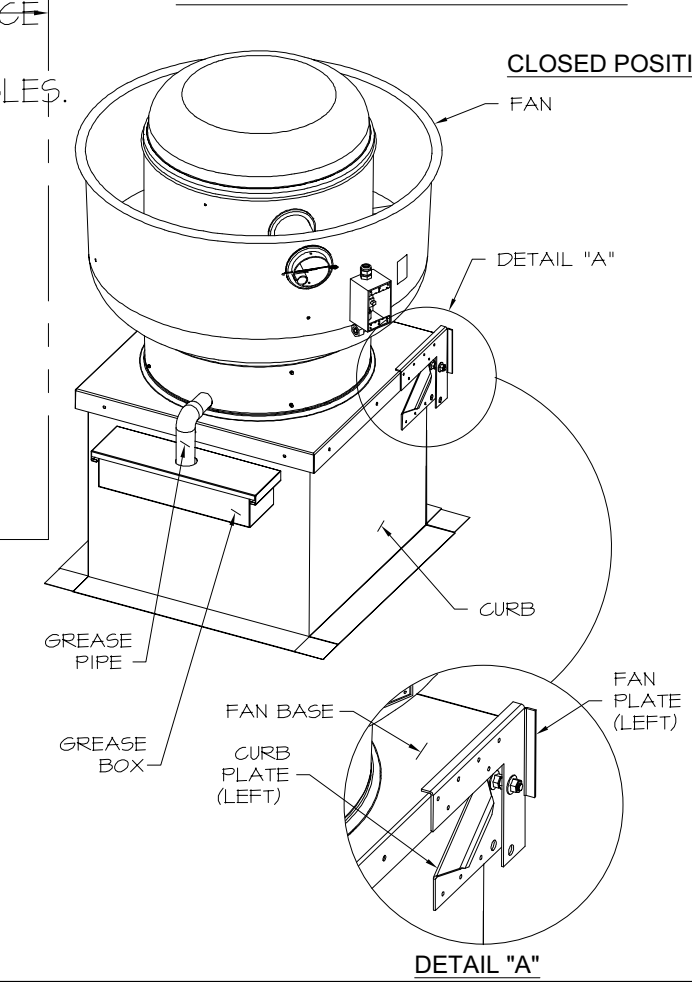
- 1/2" ACOUSTIC HOUSING INSULATION.
- 20 GA. GALVANIZED STEEL HOUSING.
- PLUS TYPE DISCONNECT.
- BUILD IN AUTOMATIC BACKDRAFT DAMPER.
- AMCA SOUND 4 AIR CERTIFIED.
- UL LISTED.
- CAN BE INSTALLED IN CEILING OR WALL.
- 8 POSITION MOUNTING BRACKETS.

OPTIONS

- FAN CONTROL - 3 AMP FAN MOUNTED SPEED CONTROL FOR GFA CEILING FANS.
- 2 YEAR PARTS WARRANTY.

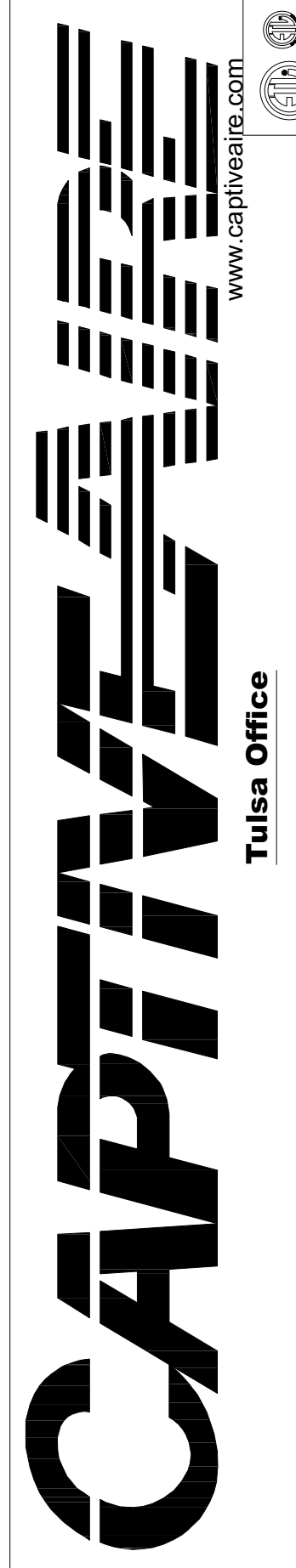


HINGE KIT INSTALLATION



REVISIONS

NO	DESCRIPTION	DATE



QT - Fryer Addition Remode Pkg Going Forward (DW) (450F)
Various Locations,
Tulsa, OK, 74136

DATE: 4/29/2025
DWG.#: 7284466
DRAWN BY: RJH-80
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 2

Bowie Tigras Engineering Inc.
Consulting Engineers
Phone: 602.982.2800
Fax: 602.982.1541
24820 N 167th Ave, STE 170
Phoenix, AZ 85085
BTE # 29489

QuikTrip No. 448
9910 WEST CAMELBACK ROAD
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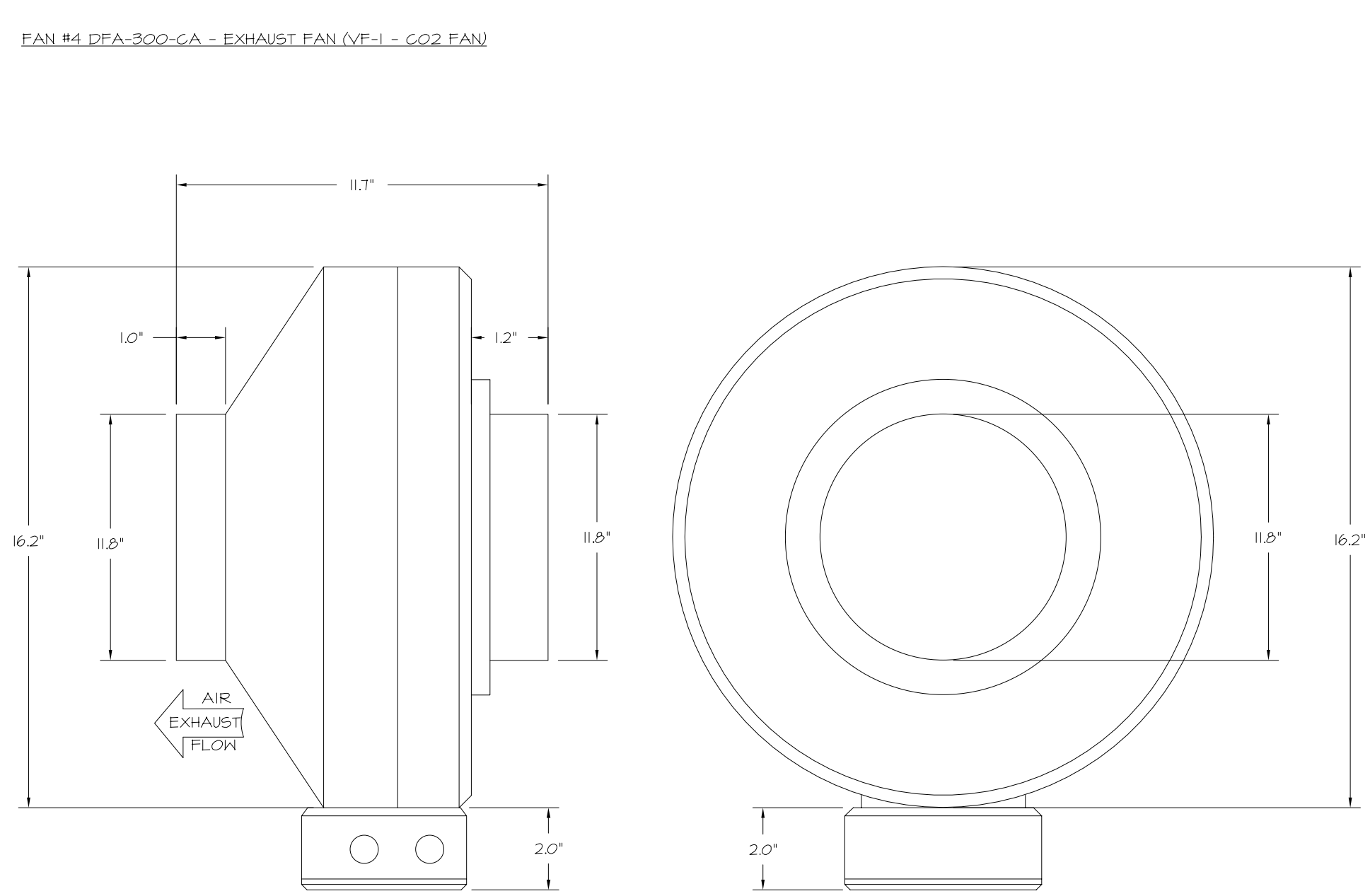
QT

PROTOTYPE	FRYER ADDITION
DIVISION	PHOENIX
VERSION	03.5
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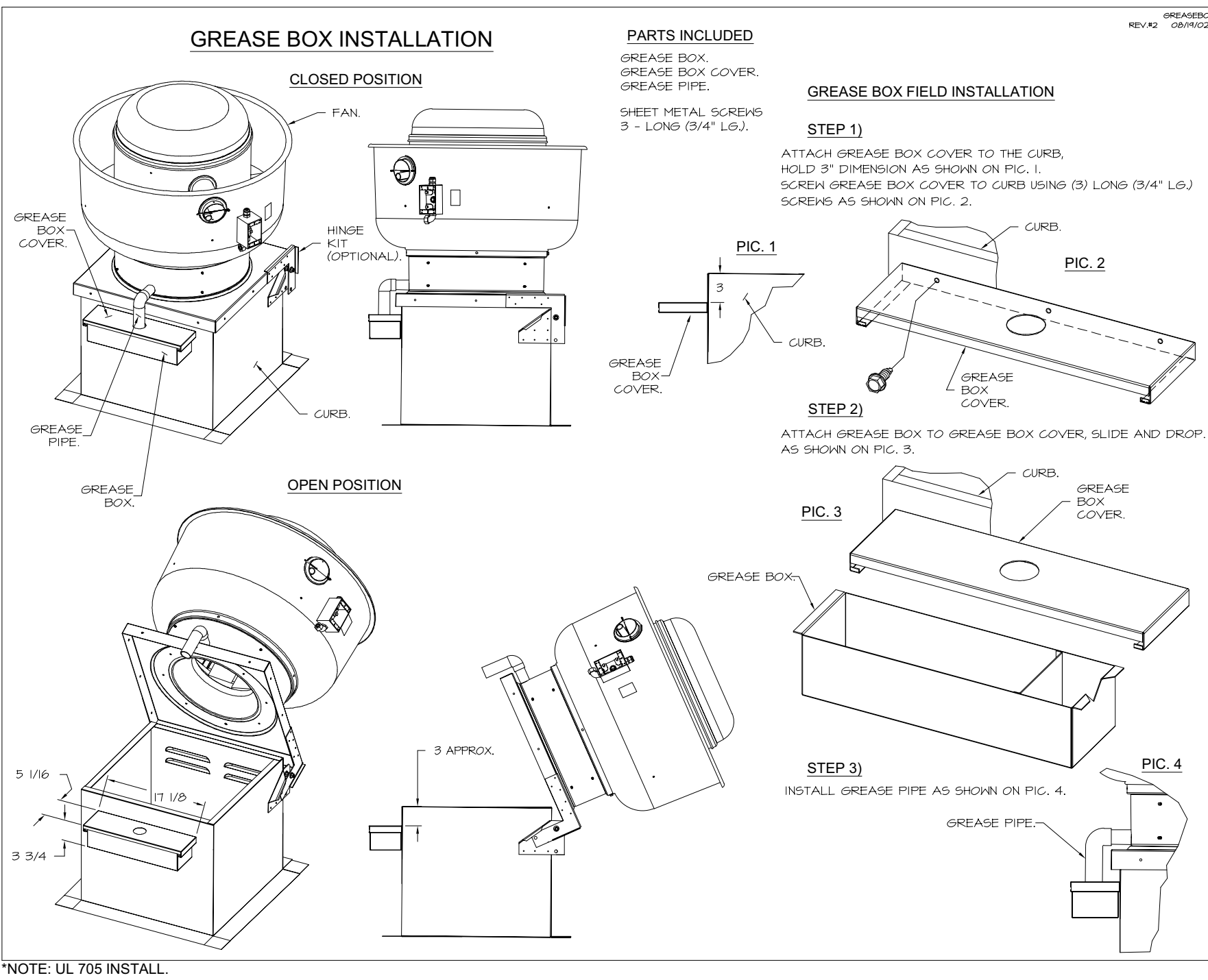
REV	DATE	DESCRIPTION

SHEET TITLE:
MECHANICAL HOOD DETAILS

SHEET NUMBER:
M511

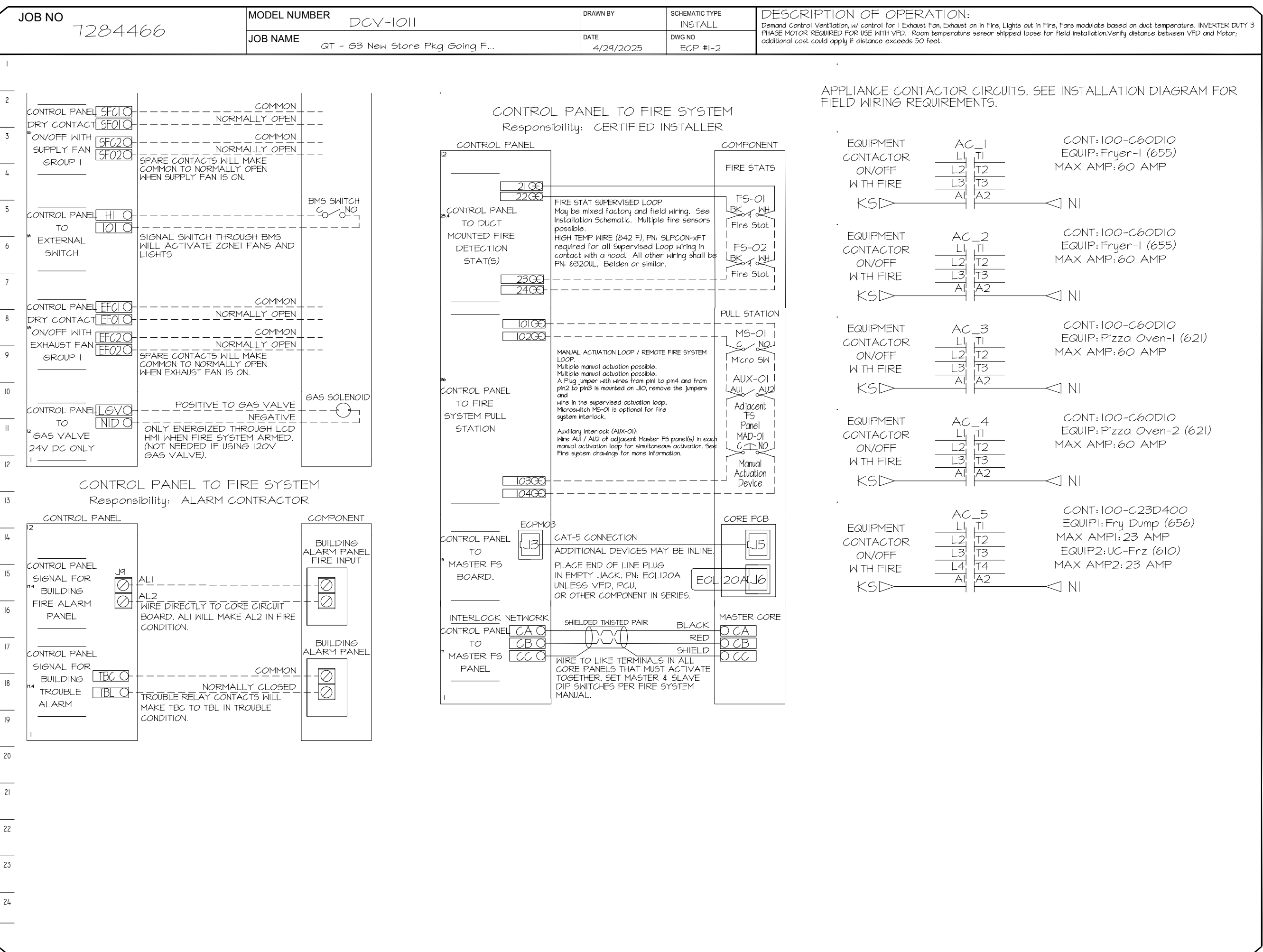
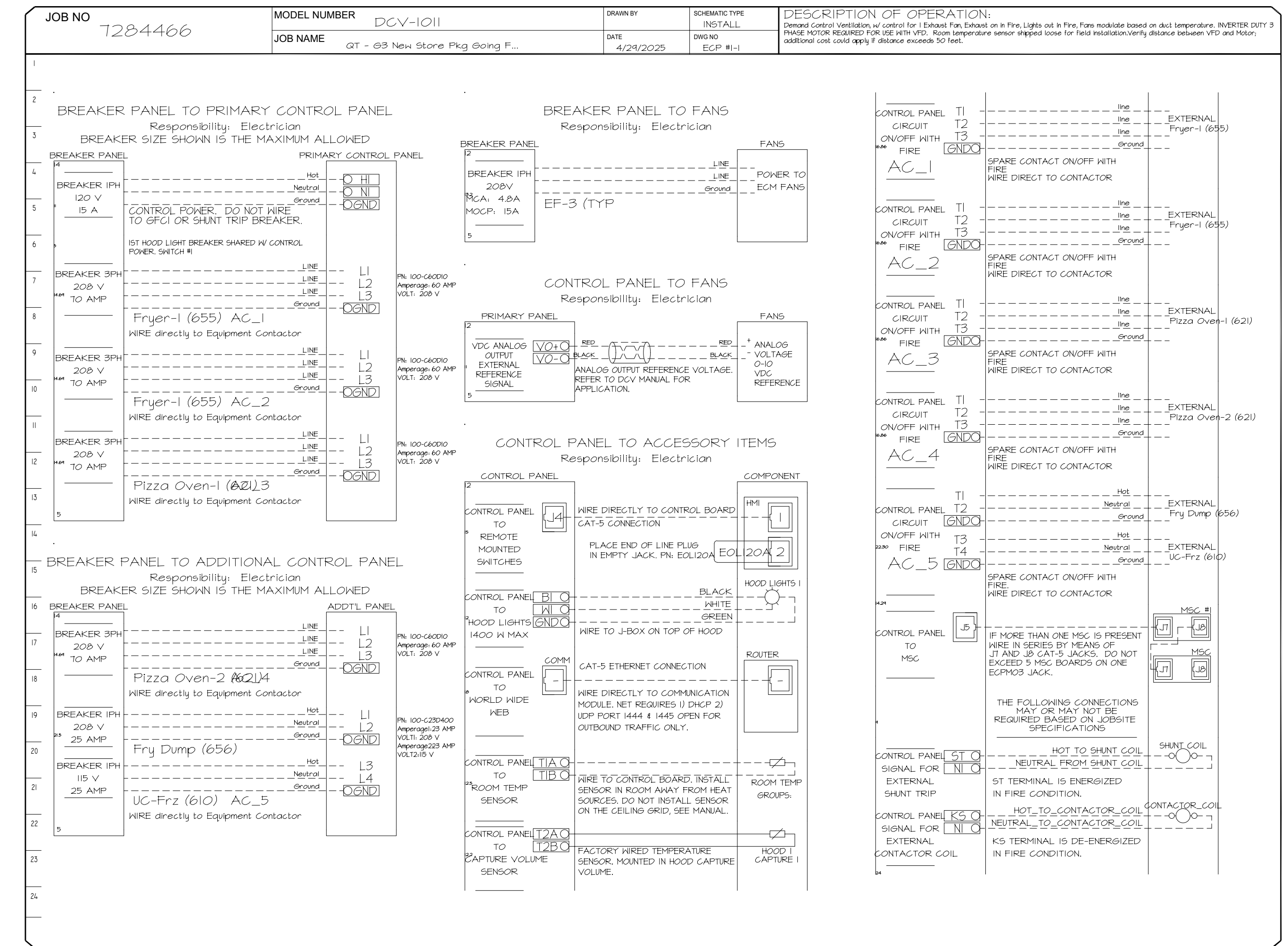


- FEATURES:**
- 20 GA. GALVANIZED STEEL HOUSING.
 - STANDARD 4" - 12" ROUND DUCT CONNECTIONS.
 - EASILY ACCESSIBLE J-BOX.
 - UL507 LISTED.
 - EXTREMELY QUIET OPERATION.
- OPTIONS:**
- FAN CONTROL - 3 AMP WHITE SPEED CONTROL FOR CFA CEILING FAN.
 - 2 YEAR PARTS WARRANTY.



ELECTRICAL PACKAGE - JOB#7284466

NO	TAG	PACKAGE	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	HP	VOLT	FLA	
1	TYPE I ECP	DCV-1011	UTILITY CABINET LEFT	SHIP LOOSE W/ PREWIRE	1 LIGHT 1 FAN	SMART CONTROLS DCV	EF-3 (TYPE 1)	EXHAUST	1	0.500	208	3.8



REVISIONS

NO.	DESCRIPTION	DATE

www.captive.com
Tulsa Office
 12101 East 51st Street, Suite 101A, Tulsa, OK 74146 PHONE: (918) 258-0291 FAX: 9192275947 EMAIL: reg80@captive.com

QT - Fryer Addition Remode Pkg Going Forward (DW) (450F)
 Various Locations,
 Tulsa, OK, 74136

DATE: 4/29/2025
DWG.#: 7284466
DRAWN BY: RJH-80
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
3

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 Consulting Engineers
 Phone: 602.982.3000
 Fax: 602.982.1541
 24820 N 167th Ave, Ste 170
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SHEET TITLE:
MECHANICAL HOOD DETAILS

SHEET NUMBER:
M512

DUCTWORK #1 PARTS - JOB#7284466 DOUBLE WALL OFFSET										
TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
HI-EI	DW16DWRISER-2R-S	1350				-0.54	7.31	0.00	1	DOUBLE WALL RISER COVER - USED ON 12" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
PI	DW123ODHASY-2R-S	1350				-0.0387	14.16	1718.87	1	DOUBLE WALL DUCT - 12" INNER 30 DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
SYSTEM AT PI										
P2	DW124TDWA-ID-2R-S	1350				-0.0128	83.19	1718.87	1	DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
SYSTEM AT P2										
P3	DW123ODHASY-2R-S	1350				-0.0442	14.16	1718.87	1	DOUBLE WALL DUCT - 12" INNER 30 DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
SYSTEM AT P3										
P4	DW124TDWA-ID-2R-S	1350				-0.0164	83.19	1718.87	1	DOUBLE WALL ADJUSTABLE DUCT - 12" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL "V" CLAMPS.
SYSTEM AT P4										
P5	ASSEMBLED W/P6	1350				-0.0122	21.94	1718.87	1	DOUBLE WALL DUCT - 12" X 14" END2RND ADAPTER - 13" TALL - 2 LAYERS REDUCED CLEARANCE - 16" X 18" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
SYSTEM AT P5										
P6	ASSEMBLED W/P5	1350				-0.6648	0.00		1	DUCT TO CURB TRANSITION, 23" CURB TO 14" DUCT, 16 GA ALUMINIZED, USED ON BDUI5, DU75 & 85.
RC1	DW16DWRISER-2R-S						7.31		1	DOUBLE WALL RISER COVER - USED ON 12" INNER RISER, 4" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER RISER SHELL ASSEMBLY. INCLUDES INSULATION & SINGLE V CLAMPS FOR INNER & OUTER CONNECTIONS.
3M-2000PLUS							0.80		2	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
TOTAL WEIGHT							241.35			

DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5"-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5"-24")	10'	24'	24'
3Z (26" -36")	10'	20'	20'

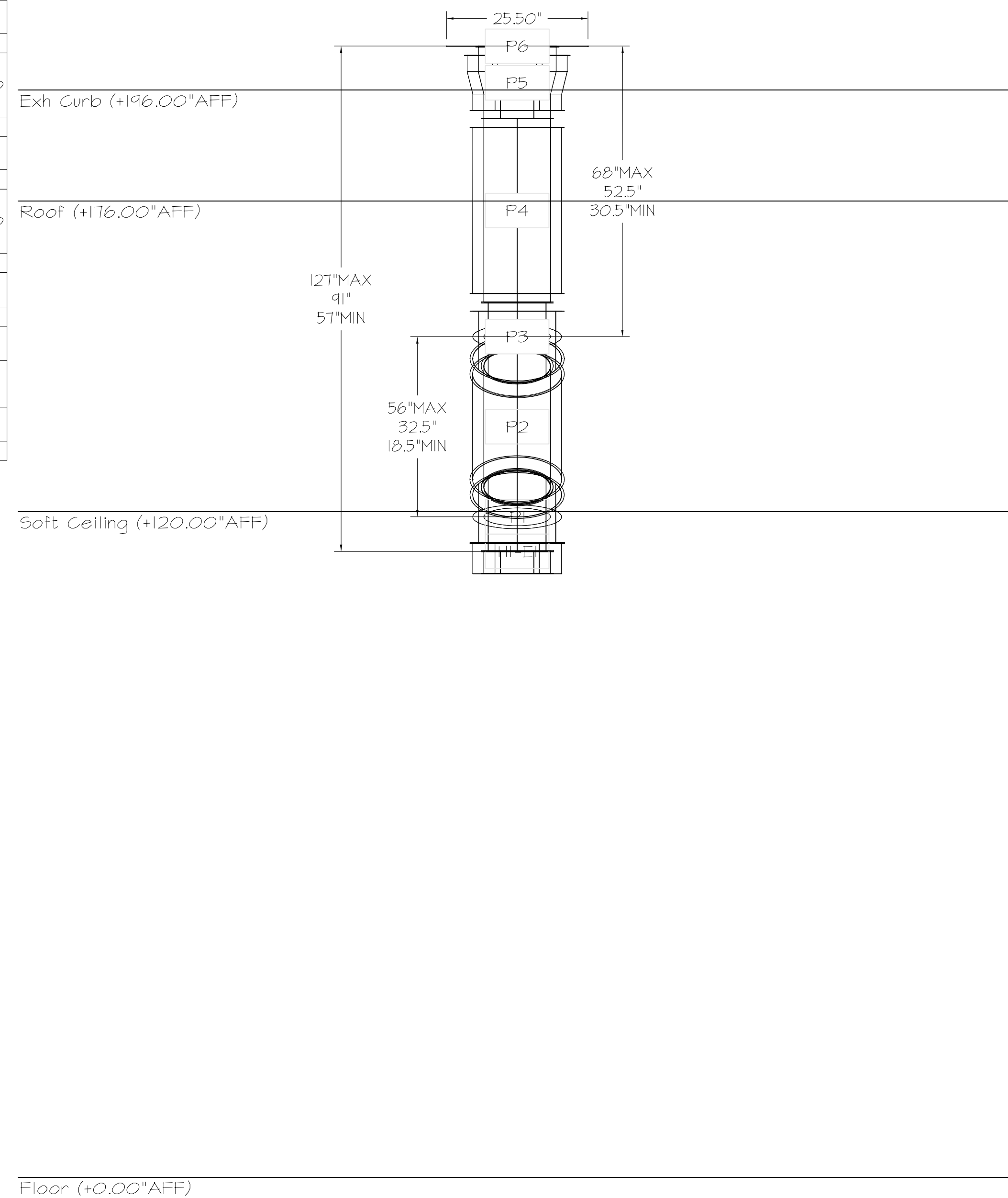
Double Wall Grease Duct Specification

Furnish double wall, factory built grease duct for use with Type I kitchen hoods, which conforms to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 and UL-2221 for venting air and grease vapors from commercial cooking operation. Models DW-2R, 3R and 3Z are used for grease duct applications when installed in accordance with these instructions and National Fire Protection Association "NFPA 96"; Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Double wall grease ducts are listed for a continuous internal temperature of 500 degrees F and intermittent temperatures of 2000 degrees F. The duct sections shall be constructed of an inner duct wall and an outer wall with insulation in between. The inner duct wall shall be constructed of .036 inch thick, 430 type stainless steel and be available in diameters 8" through 24". The outer wall shall be constructed of stainless steel at a minimum of .024 inch thickness. The duct, based on model number, shall include layers of Super Wool 607 Plus insulation between the inner and outer wall. Grease duct joints shall be held together by means of formed V clamps and sealed with 3M Fire Barrier 2000+. The duct wall assembly shall be tested and listed at 3/4" or zero inch clearance, according to classifications.

Classifications and Clearances

UL 2221: Standard for Fire Resistant Grease Duct Enclosure Assemblies. Chapter 7 of this standard references a test labeled Internal Fire Test. Section 7.1.1 references two installation conditions, Condition A and Condition B. Condition A represents all installation condition except for installation within non-ventilated combustible enclosures. Condition B represents installation within a non-ventilated combustible enclosure. Model DW-2R is classified under UL2221 (Test of Fire Resistant Grease Duct Enclosure Assemblies) as an alternate to 2-Hr. Fire resistant shaft enclosures with a reduced clearance to combustibles (sizes 8" to 16" diameter). Model 2R is listed in accordance with the requirements for duct enclosure Condition B.

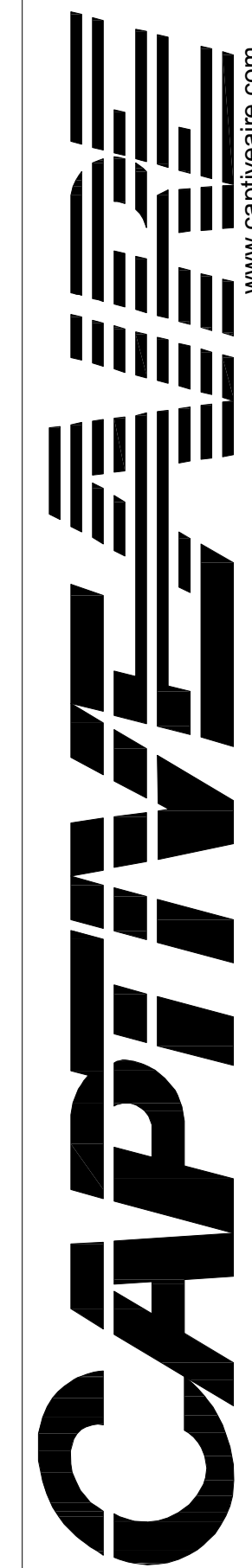
DUCTWORK #1 FRONT VIEW OFFSET



Floor (+0.00" AFF)

REVISIONS

NO.	DESCRIPTION	DATE

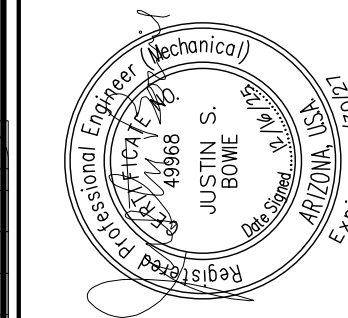


Tulsa Office

12101 East 51st Street, Suite 101A, Tulsa, OK, 74146 PHONE: (918) 258-0291 FAX: 9192275947 EMAIL: reg80@captiveaire.com

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VERSION	02.5
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REV	DATE	DESCRIPTION

SHEET TITLE:
MECHANICAL HOOD
DETAILS

SHEET NUMBER:
M513

DATE: 4/29/2025

DWG.#: 7284466

DRAWN BY: RJH-80

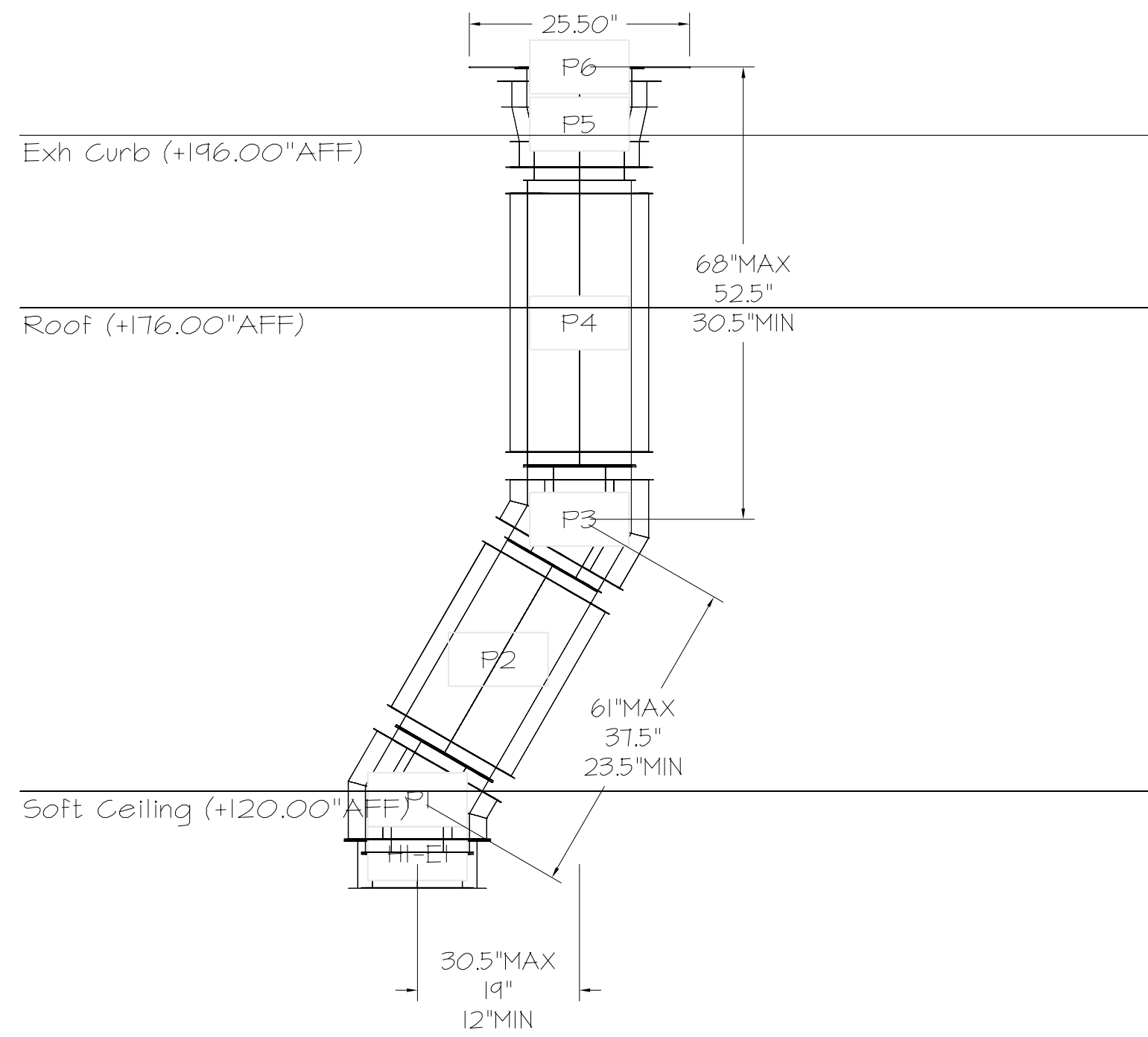
SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 4

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

DUCTWORK #1 SIDE VIEW
OFFSET

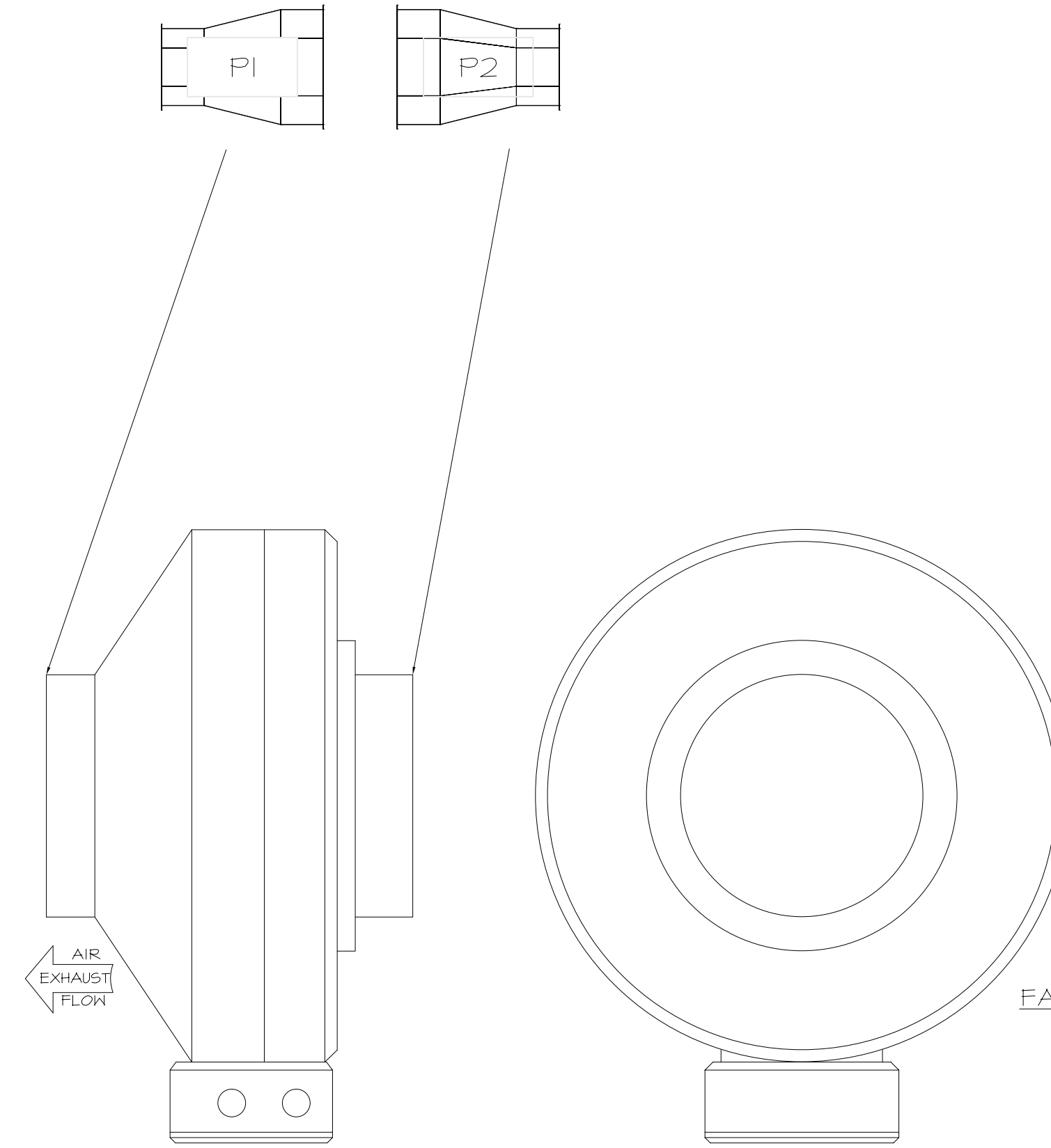


Floor (+0.00"AFF)

DUCTWORK #2 PARTS - JOB#7284466

TAG	PART #	GFM	GPM	ZONE	COVERED BY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DKQB12ADPIT						6.74		1	SINGLE WALL DUCT ADAPTER, 8" DUCT DIA TO 12" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
P2	DKQB12ADPIT						6.74		1	SINGLE WALL DUCT ADAPTER, 8" DUCT DIA TO 12" DUCT DIA, ASSEMBLY - 430 STAINLESS STEEL.
TOTAL WEIGHT							13.48			

DUCTWORK #2 FRONT VIEW



SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS

DESCRIPTION	DATE

CAPTIVE
Tulsa Office
12101 East 51st Street, Suite 101A, Tulsa, OK 74146
PHONE: (918) 258-0291 FAX: 9192275947 EMAIL: reg80@captiveinc.com
www.captiveinc.com

QT - Fryer Addition Remodel Pkg Going Forward (DW) (450F)
Various Locations,
Tulsa, OK, 74136

DATE: 4/29/2025

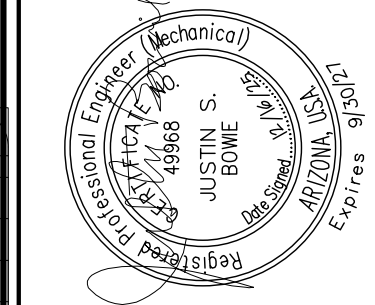
DWG.#: 7284466

DRAWN BY: R.JH-80

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

MASTER DRAWING

SHEET NO. 5



Bowie Tiglas Engineering Inc.
Consulting Engineers
Phone: 602.992.3000
Fax: 602.992.1541
24820 N 167th Ave, Ste 170
Phoenix, AZ 85065
BTE # 29489
www.bowie-tiglas.com
KDF JOB #: 24010

QuikTrip No. 448
9910 WEST CAMELBACK ROAD
PHOENIX, ARIZONA



PROTOTYPE: FRYER ADDITION

DIVISION: PHOENIX

VERSION: 03.5

DATE: 07/28/25

REV	DATE	DESCRIPTION

ORIGINAL ISSUE DATE: 07/28/25

SHEET TITLE:
MECHANICAL HOOD
DETAILS

SHEET NUMBER:
M514

HOOD / EXHAUST FAN SCHEDULE									
	MANUFACTURER	MODEL	SIZE	CFM	MISC.	LIGHTS	FIRE SYSTEM	WEIGHT	NOTES
H-1	CAPTIVEAIRE	6030ND-2-F	(4) 60"X30"	1350	1/4" EXHAUST FAN	(6) LED	YES	661 LBS	H-10
EF-2	CAPTIVEAIRE	DUSOHA	1/2 HP	0 / 1350	DIRECT-DRIVE	-	-	74 LBS	H-12
EF-3	CAPTIVEAIRE	SIF10DD-95	0.3 HP 120V/1PH	150	DIRECT-DRIVE	-	-	55 LBS	H-13

NOTES:

- HOODS, FANS, AND ACCESSORIES SHALL BE MANUFACTURER-FURNISHED, CONTRACTOR-INSTALLED.
- HOOD SHALL BE 430 STAINLESS STEEL.
- HOOD SHALL BE FURNISHED WITH FAN INDICATOR AND LIGHTSWITCH MOUNTED ON FRONT PANEL.
- MANUFACTURER FURNISHED UL LISTED STAINLESS STEEL DUCT KIT AND ALL REQUIRED CONNECTION ACCESSORIES FOR FIELD-INSTALLATION FROM HOOD TO FAN.
- HOOD SHALL HAVE RIGHT AND LEFT QUARTER END PANELS, AND FRONT, LEFT, AND RIGHT STAINLESS STEEL FIELD WRAPPER.
- HOOD SHALL BE FURNISHED WITH UL 1046 LISTED GREASE FILTERS.
- HOOD SHALL BE FURNISHED WITH DUCT MOUNTED HEAT SENSORS AND AUTOMATIC FAN CONTROLS MOUNTED IN HOOD UTILITY CABINET.
- SYSTEM SHALL BE CAPABLE OF MODULATING FAN AS SCHEDULED, AND INTERLOCKED WITH BUILDING HVAC SYSTEM FOR BUILDING PRESSURIZATION.
- EQUIPMENT SHUT DOWN CONTACTORS ARE FACTORY-FURNISHED WITHIN HOOD UTILITY CABINET.
- HOOD SHALL BE LISTED AND LABELED FOR 0" CLEARANCE REQUIREMENTS TO COMBUSTIBLES.
- FAN SHALL BE FURNISHED WITH VENTED AND HINGED CURB, GREASE BOX, AND DISCONNECT.
- VARIABLE SPEED CONTROLLER PRE-MOUNTED IN FAN HOUSING. SPEED CONTROLLER SHALL BE MANUALLY ADJUSTED BY TEST AND BALANCE CONTRACTOR.
- WIRE TO EMERSON CONTROLS TO ACTIVATE FAN WHEN AMP DRAH IS DETECTED.

GRILLE, REGISTER, & DIFFUSER SCHEDULE							
	MANUFACTURER	MODEL	SERVICE	FACE SIZE	NECK SIZE	DESCRIPTION	NOTES
RI	TITUS	35ORL	EXHAUST	12" X 12"	SEE PLAN	3/4" 35" BLADE TRANSFER GRILLE, ALL WHITE.	I,2

NOTES:

- PROVIDE TRIM RINGS FOR ALL DIFFUSERS OR GRILLES IN GYP. BOARD CEILING.
- PROVIDE PLASTER FRAME IN HARD CEILING.

GENERAL NOTES (APPLY TO ALL THE ABOVE):

- GRILLES, REGISTERS, AND DIFFUSERS SHALL BE CONTRACTOR-FURNISHED, CONTRACTOR-INSTALLED.
- MAXIMUM NG OF 30 FOR ALL GRILLES, REGISTERS, AND DIFFUSERS.
- FOUR-WAY THROW PATTERN FOR SQUARE DIFFUSERS UNLESS SHOWN OTHERWISE.
- PROVIDE SQUARE-TO-ROUND ADAPTER ON ALL GRILLES AND DIFFUSERS AS REQUIRED PER THE DRAWINGS.
- PROVIDE NONASBESTOS THERMAL INSULATING BLANKETS WITH VAPOR BARRIER FOR ALL SUPPLY DIFFUSERS AND RETURN GRILLES.
- RE: THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- RE: DRAWINGS FOR FURTHER INSTALLATION AND APPLICATION DETAILS.

EXHAUST FAN CONTROL SETTINGS				RTU O/A CONTROL SETTINGS			BALANCE
CONDITION	EXHAUST FAN CFM	PERCENTAGE OF MAX EXHAUST	CONTROL VOLTAGE Vdc *	CONTROL VOLTAGE Vdc *	RT-3 O/A CFM	RT-3 O/A DAMPER POSITION **	BUILDING PRESSURE
HOOD OFF	0	0.0%	0	0	0	0 / (FAN# X SUPPLY AIRFLOW)	125
HOOD ON	1350	100.0%	10	5	1350	1350 / (FAN# X SUPPLY AIRFLOW)	125

* CONTROL VOLTAGE SIGNAL RECEIVED FROM HOOD CONTROL PANEL ** O/A CFM / (SUPPLY FAN# X SUPPLY AIRFLOW)

AIR BALANCE & PRESSURIZATION SCHEDULE				
	SA CFM	RA CFM	(HOOD OFF) OA CFM	(HOOD ON) OA CFM
RT-1 OUTSIDE AIR	2000	1600	400	400
RT-2 OUTSIDE AIR	4300	3600	700	700
RT-3 OUTSIDE AIR	1350	0	0	1350
EF-1 RESTROOMS	0	0	-625	-625
EF-2 KITCHEN EXHAUST HOOD	0	0	0	-1350
EF-3 COMBI OVEN EXHAUST	0	0	-150	-150
	7650	5200	325	325

NEW SUPPLY DIFFUSER WITH CFM AMOUNT, NEW RETURN OR EXHAUST GRILLE WITH TYPE AND CFM AMOUNT.

EXISTING SUPPLY DIFFUSER WITH CFM AMOUNT, EXISTING RETURN GRILLE WITH CFM AMOUNT.

REMOVED SUPPLY DIFFUSER WITH CFM AMOUNT, REMOVED RETURN GRILLE WITH CFM AMOUNT.

RECTANGULAR DUCTWORK WIDTH INCHES X DEPTH INCHES

TAKE-OFF WITH GASKET AND DAMPER 45° OR 90° AS SHOWN ON PLAN FLEXDUCT RUNOUT

ELBOW WITH TURNING VANES

ROOF MOUNTED EXHAUST FAN

ROOFTOP UNIT (HIDDEN OUTLINE REPRESENTS SERVICE CLEARANCE)

REMOTE TEMPERATURE SENSOR (PER EMS)

HUMIDISTAT (PER EMS)

DUCT SMOKE DETECTOR

INTERIOR ELEVATION TAG

CONNECT TO EXISTING

DISCONNECT FROM EXISTING

Bowie Tiglas Engineering Inc.
 Consulting Engineers
 Phone: 602.982.3000 Fax: 602.982.1541
 24820 N 167th Ave, Ste 170 Phoenix, AZ 85065
 Just@BowieTiglas.com
 RTE # 29489

QuikTrip No. 448
 9910 WEST CAMELBACK ROAD
 PHOENIX, ARIZONA

G1 MECHANICAL SCHEDULES

MECHANICAL SYSTEM SECTION 230000

MECHANICAL SCOPE OF WORK REQUIRED BY THIS REMODEL PROJECT INCLUDES, BUT IS NOT LIMITED TO, INSTALLING OWNER-FURNISHED OR MANUFACTURER-FURNISHED HVAC SYSTEM EQUIPMENT, PROVIDING NEW DUCTWORK, DIFFUSERS, GRILLES, INSULATION, CONTROLS, AND EQUIPMENT COMPONENTS SHOWN IN THE DRAWINGS AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM. HVAC EQUIPMENT AFFECTED IN THIS REMODEL MAY INCLUDE:

- HEATING, VENTILATION, AND AIR-CONDITIONING (AC) EQUIPMENT
- SUPPLY, RETURN, AND EXHAUST DUCTWORK SYSTEMS WITH DIFFUSERS, GRILLES, FILTERS, AND DAMPERS
- CONTROL SYSTEMS INCLUDING LOW VOLTAGE AND CONDUIT
- DUCT, PIPING, AND EQUIPMENT INSULATION
- ROOF CURB MAINTENANCE/MODIFICATION AND FLASHING OF ROOF PENETRATIONS FOR ASSOCIATED EQUIPMENT

MECHANICAL CONTRACTOR AND OTHER COORDINATED TRADES SHALL COMPLY WITH ALL LAWS APPLYING TO MECHANICAL INSTALLATIONS IN EFFECT. ALL MATERIALS USED SHALL CONFORM TO THE STANDARDS ESTABLISHED BY LOCAL CODES AND SMACNA.

WARRANTY: PROVIDE 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. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS AS REQUIRED. PROVIDE ALL DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE SYSTEM FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED. THE WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES OR ORDINANCES AND SUBJECT TO INSPECTION.

COORDINATE WITH THE WORK OF OTHER SECTIONS. EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITES.

CONTRACTOR SHALL INSTALL ONE SET OF NEW FILTERS AT THE END OF CONSTRUCTION, WHEN QUIKTRIP TAKES OCCUPANCY OF THE BUILDING.

SHEET METAL DUCTWORK: SHEET METAL FABRICATED AND INSTALLED TO CONFORM TO THE 2005 EDITION OF "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE" OF THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION. SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK-FORMING QUALITY, ASTM A-525, UNLESS OTHERWISE NOTED. DUCT DIMENSIONS ON DRAWINGS ARE INTERNAL AIRWAY DIMENSIONS. DUCT REINFORCEMENT SHALL BE SUITABLE FOR +1" AND -1" I.G.C. STATIC PRESSURE.

ALL ANGLE IRON USED FOR SUPPORT SHALL BE PRIMED STEEL SHOP PAINTED. CONNECTIONS TO WALLS OR FLOORS SHALL BE AIRTIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIRTIGHT WITH UNITED SHEET METAL "DUCT SEALER" TO SMACNA CLASS 'B'. PROVIDE TURNING VANES AT ALL ELBOWS OR OFFSETS EXCEEDING 45°.

TRAPEZE DUCT HANGERS: MINIMUM 1"X2"X1/8" 6 GAUGE CHANNELS WITH 1" X1/8" GAUGE STRAPS TO STRUCTURAL SUPPORT ABOVE.

DUCT WRAP/AS-J INSULATION (ON ALL RIGID ROUND AND RECTANGULAR SUPPLY AIR DUCTWORK). PROVIDE 2" THICK (MIN R-6) FIBERGLASS AS-J DUCT WRAP WITH VAPOR SEAL ON ALL RIGID ROUND DUCTWORK ABOVE THE CEILING. CONFORM TO SPEC ASTM C 1240.

RIGID ROUND GALVANIZED DUCT SHALL BE SPIRAL OR SNAP LOCK GALVANIZED SHEET METAL COMPLYING WITH SMACNA.

FLEX DUCT: PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 181) WITH 1" THICK 1 PCF (MIN R-5) FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER/VAPOR BARRIER. FLEX DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR 2" I.G.C. PRESSURE AND 0 TO 250 DEGREE FAHRENHEIT. PROVIDE STAINLESS STEEL ADJUSTABLE CLAMPING DEVICES, SCREW OPERATED. USE TWIST-LOCK CONICAL TAP COLLARS AT CONNECTIONS INTO SHEET METAL DUCTWORK. DO NOT EXCEED SIX (6) FEET IN LENGTH FOR ANY FLEX DUCT. REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS. FLEXIBLE DUCTWORK SHALL BE SERIES TO BY ATCO, OR EQUIVALENT.

ROUND BALANCING DAMPERS: FABRICATED OF SAME MATERIAL AS DUCT, TWO METAL GAUGES HEAVIER THAN DUCT. MOUNT ON 3/8" SQUARE ROD WITH SAK SLOT POSITION INDICATOR. PIVOT BEARING, LOCKING POSITION REGULATOR, YOUNG REGULATOR CO., SERIES 443. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING.

CEILING DIFFUSERS/RETURNS: PROVIDE SUPPLY DIFFUSERS AND DAMPER IN SIZES, CAPACITIES, MATERIALS, AND PATTERN INDICATED ON THE DRAWINGS.

ACCESS PANELS: PROVIDE HINGED ACCESS PANELS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS IN INSULATED DUCTWORK.

AUTOMATIC TEMPERATURE CONTROL: ENTIRE BUILDING IS SERVED BY A BUILDING ENERGY MANAGEMENT SYSTEM REFERRED TO AS "EMS". SYSTEM WILL INCLUDE THERMOSTATIC AND HUMIDITY CONTROL FOR HVAC ROOFTOP UNITS.

HVAC TEST AND BALANCING AND COMMISSIONING CRITERIA: TEST AND BALANCING AND COMMISSIONING SHALL BE PERFORMED BY A CERTIFIED BALANCING CONTRACTOR WHO IS AN INDEPENDENT CONTRACTOR FROM THE HVAC INSTALLING CONTRACTOR. A COMPLETED AND CERTIFIED TEST 4 BALANCE REPORT SHALL BE PRESENTED TO THE OWNER'S CONSTRUCTION MANAGER PRIOR TO REQUEST FOR FINAL PAYMENT.

CONTRACTOR SHALL FIRST VERIFY THAT THE SYSTEM MATCHES THE CONSTRUCTION DOCUMENTS FOR LOCATIONS OF ALL DIFFUSERS, GRILLES, ROOFTOP UNITS, EXHAUST FAN, THERMOSTATS, TEMPERATURE SENSORS, HUMIDISTATS, SMOKE DETECTORS, TEST UNITS, AND AMMUNICIATORS. MAKE VISUAL OBSERVATIONS OF INSTALLATION SUCH AS ROOFTOP UNITS INSTALLED LEVEL AND COMPLETE, CLEAN FILTERS, GOOD REFRIGERANT CHARGE, ADEQUATE CONDENSATE DRAINAGE, ETC. VERIFY THAT ALL DUCTS ARE CONNECTED (NONE HAVE COME LOOSE AND ARE BLOWING AIR INTO THE PLENUM). NO KINKED FLEX-DUCT, ALL DUCTS WELL INSULATED AND NO GAPS EXIST THAT COULD CREATE A SOURCE FOR CONDENSATION, PARTICULARLY ON TOP OF DIFFUSERS. INDICATE DIRECTION THAT STOREFRONT FACES. (PROVIDE A NORTH ARROW ON PLAN). ANY DISCREPANCIES SHALL BE MARKED ON A DRAWING TO BE PRESENTED TO THE OWNER'S REPRESENTATIVE ALONG WITH THE FINAL REPORT.

MINOR REPAIR WORK, SUCH AS LOOSE FLEX CONNECTIONS, REPLACEMENT BELTS, ETC., SHALL BE PERFORMED BY THE TEST AND BALANCE CONTRACTOR PRIOR TO AIR BALANCING. MAJOR REPAIR WORK SHALL BE REPORTED TO THE QUIKTRIP REPRESENTATIVE AND NEGOTIATED PRIOR TO WORK BEING DONE. INSTALL ALL NEW FILTERS.

ADJUST EACH PIECE OF HVAC EQUIPMENT AS REQUIRED TO ASSURE PROPER BALANCE AND OPERATION. FOLLOW NEBB AND ASHRAE STANDARDS. BALANCE ALL SYSTEMS TO WITHIN 5% OF AIR VOLUMES INDICATED OR PROPORTIONALLY PER THE DRAWING TO ACHIEVE A SLIGHTLY POSITIVE BUILDING PRESSURIZATION OF +0.5" W.C. TEST AND VERIFY PROPER ECONOMIZER AND GRAVITY RELIEF VENT OPERATION. CHECK RESTROOM PRESSURIZATION AND VERIFY THAT AN ADEQUATE TRANSFER AIR PATH EXISTS. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF ALL CONTROLS, MAINTENANCE OF TEMPERATURE AND HUMIDITY WHERE APPLICABLE, AND OVERALL OPERATION. FINAL BALANCED POSITIONS SHALL BE MARKED ON EACH DAMPER WITH A PERMANENT MARKER.

AUTOMATIC TEMPERATURE & HUMIDITY CONTROL: EACH ROOFTOP UNIT SHOULD BE CONTROLLED BY THE BUILDING ENERGY MANAGEMENT SYSTEM BY OTHERS. EMS LOCATED IN THE LOW-VOLTAGE CABINET. TEMPERATURE AND/OR HUMIDITY SENSORS IN THE SPACE. SET OUTSIDE AIR DAMPER TO MINIMUM POSITION DURING OCCUPIED MODE. ALL PROGRAMMING SHALL BE THROUGH THE EMS BY OTHERS. VERIFY THAT ROOFTOP UNITS EQUIPPED WITH DEHUMIDIFICATION (HOT GAS REHEAT) ARE WIRED, FUNCTIONAL, AND SET. ALL WIRING SHALL BE IN CONDUIT.

CONTRACTOR SHALL PRESENT A FINAL DRAWING AND CERTIFIED BALANCE REPORT TO THE QT REPRESENTATIVE THAT CONTAINS ALL ACTUAL DIFFUSER AND GRILLE LOCATIONS WITH AIR QUANTITIES SHOWN FOR EACH DEVICE, EXHAUST AND OUTSIDE AIR QUANTITIES, SUPPLY AIR TEMPERATURE, FAN REFRIGERANT CURRENTS, MAIN DUCT STATIC PRESSURE, AND DUCT TEMPERATURES, INDOOR/OUTDOOR PRESSURE DIFFERENTIAL, AND ROOFTOP UNIT(S) MAKE AND MODEL NUMBER.

CONTRACTOR TO OBTAIN COPY OF "QT TEST AND BALANCE REPORT FORM" FROM QT REP FOR REPORTING PURPOSES.

G13 MECHANICAL SYMBOLS LEGEND

- REFER TO THE SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADDITIONAL REQUIREMENTS NOT SHOWN ON THE PLAN.
- ALL TEMPERATURE CONTROL WIRING SHALL BE TAPPAN OR BELDEN CABLE BY THE EMS INSTALLER AND SHALL MEET NATIONAL ELECTRIC CODE REQUIREMENTS. SEE ROOFTOP UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS. CONCEAL ALL WIRING IN WALL CAVITIES OR ABOVE CEILING.
- MECHANICAL CONTRACTOR SHALL REMOVE ALL FILTERS AND REPLACE WITH NEW FILTERS WHEN CONSTRUCTION IS FINISHED.
- CONTRACTOR SHALL FIELD REVIEW AND VERIFY EXISTING CONDITIONS AS APPLICABLE AND COORDINATE WITH OTHER TRADES.
- TRANSITION AS REQUIRED FROM BRANCH DUCT TO DIFFUSER NECK. COORDINATE BETWEEN PLANS AND SCHEDULES.
- DUCTWORK DIMENSIONS ARE CLEAR INSIDE DIMENSIONS.
- FLEXIBLE DUCTWORK SHALL BE LIMITED TO NO MORE THAN 6' IN LENGTH.
- HOLD TOP OF DUCTWORK INSULATION TO UNDERSIDE OF STRUCTURE WHEREVER POSSIBLE.
- ALL BRANCH DUCTS SHALL HAVE BALANCING DAMPERS INSTALLED AS INDICATED ON DRAWINGS. HANDLE SHALL BE BOTH ACCESSIBLE AND CAPABLE OF OPENING AND CLOSING FULLY. REFER TO DIFFUSER CONNECTION DETAIL.
- FINAL LOCATION OF TEMPERATURE CONTROLS SHALL BE FIELD-VERIFIED BY OWNER AT JOB SITE.
- MECHANICAL CONTRACTOR SHALL CLEAN ALL CONDENSERS AFTER CONSTRUCTION HAS BEEN COMPLETED.
- ALL DUCTWORK SHALL RECEIVE DUCT WRAP INSULATION PER SPECIFICATIONS. LINED DUCTWORK IS NOT ACCEPTABLE.



PROTOTYPE	FRYER ADDITION
DIVISION	PHOENIX
VERSION	02.3
DATE	07/28/25

REV	DATE	DESCRIPTION

SHEET TITLE:
MECHANICAL SCHEDULES, SPECIFICATIONS, & NOTES

SHEET NUMBER:
M601

A1 MECHANICAL SPECIFICATIONS

A13 GENERAL NOTES