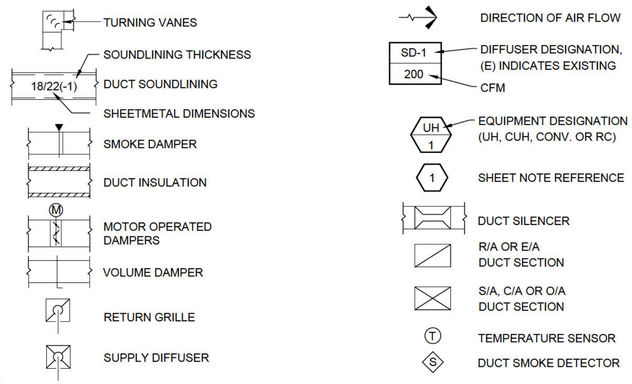
MECHANICAL ABBREVIATIONS

BDD	BACKDRAFT DAMPER	EF	EXHAUST FAN	NIC	NOT IN CONTRACT
BLDG	BUILDING	EG	EXHAUST GRILLE	NO	NORMALLY OPEN
BOD	BOTTOM OF DUCT	ESP	EXTERNAL STATIC PRESSURE	NTS	NOT TO SCALE
BOU	BOTTOM OF UNIT	°F	DEGREES FARENHEIT	OA	OUTSIDE AIR
BTUH	BRITISH THERMAL UNIT PER HOUR	FPM	FEET PER MINUTE	OBD	OPPOSED BLADE DAMPER
COMB	COMBUSTION	FS	FREEZESTAT	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CFM	CUBIC FEET PER MINUTE	HP	HORSEPOWER	QTY	QUANTITY
DEMO	DEMOLISH, DEMOLITION	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	RA	RETURN AIR
DIA	DIAMETER	IN. W.G.	INCHES OF WATER (PRESSURE)	RG	RETURN GRILLE
DN	DOWN	INS	INSULATION	RPM	REVOLUTIONS PER MINUTE
DWG	DRAWING	LAT	LEAVING AIR TEMPERATURE	SA	SUPPLY AIR
ETR	EXISTING TO REMAIN	MUA	MAKEUP AIR	SD	SUPPLY AIR DIFFUSER
EA	EXHAUST AIR	MBH	ONE THOUSAND BTUS PER HOUR	TA	TRANSFER AIR
EAT	ENTERING AIR TEMPERATURE	MECH	MECHANICAL	TYP	TYPICAL
		MISC	MISCELLANEOUS	W	WATTS
		N/A	NOT APPLICABLE	W/	WITH
		NC	NORMALLY CLOSED	W/O	WITHOUT

MECHANICAL LEGEND



ALL SYMBOLS DO NOT NECESSARILY APPEAR ON DRAWINGS

GRILLES, REGISTERS, AND DIFFUSERS SCHEDULE

TAG	USE	UNIT SIZE (IN)	NECK SIZE (IN)	THROW (FT)	SP (IN. W.G.)	NC	FINISH	BASIS OF DESIGN MFR.	BASIS OF DESIGN MODEL	NOTES
SD-1	SUPPLY AIR	24/24	12	8-12-20	<.1	20	WHITE	PRICE	SPD	-
EG-2	EXHAUST AIR	12/12	-	16-22-30	<.1	25	WHITE	PRICE	80	
-	-	-	-	-	-	-	-	-	-	

NOTES:

1. -

FAN SCHEDULE

TAG	SERVICE	LOCATION	TYPE	CFM	ESP (IN W.C.)	FLA	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL PHASE	BASIS OF DESIGN MFR.	BASIS OF DESIGN MODEL	NOTES
KEF-1	TYPE 1 KITCHEN HOOD	ROOF	UPBLAST	1917	1.5	5.5	1	208	3	GREENHECK	CUE-140-A	1.
EF-1	RESTROOM EXHAUST	CEILING	CEILING	75	0.5	-	25W	115	1	PANASONIC	FV-05-11VK2	2.

NOTES:

1. FAN MOTOR SHALL BE UL 762 LISTED, PROVIDE WITH GREASE CUP AND HINGE KIT FOR TOP ACCESS.
2. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER
3. -

MAKE-UP AIR UNIT SCHEDULE

DESIGNATION	AREA SERVED	SUPPLY CFM	OA %	ESP (IN W.G.)	TSP (IN W.G.)	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL PHASE	HEATING MBHin	HEATING MBHout	HEATING GAS CONNECT	HEATING RISE	FILTERS	BASIS OF DESIGN MFR.	BASIS OF DESIGN MODEL	NOTES
MUA-1	KITCHEN	2,500	100	0.35"	1.10"	1-1/2	208	3	293	270	3/4"	110F	SEE NOTE	GREENHECK	DGX-P115-H12	1

NOTES:

1. UNIT IT DIRECT FIRED. FILTER AND DAMPER LOCATED UPSTREAM OF UNIT. MAU-1 SIZE TO PROVIDE ADDITIONAL 500 CFM FOR DIRECT VENTED OVENS

KITCHEN HOOD SCHEDULE

DESIGNATION	AREA SERVED	HOOD LENGTH	HOOD DEPTH	HOOD HEIGHT	HOOD MOUNTING HEIGHT	EXHAUST CFM	EX ESP (IN W.G.)	FILTERS	LIGHTS	WEIGHT	BASIS OF DESIGN MFR.	BASIS OF DESIGN MODEL	NOTES
KH-1	KITCHEN	102"	48"	24"	76" - 82" AFF	1917	0.61	5EA 16"X20" 1EA 20"X20"	3EA CFL	275 LB	GREENHECK	GXEW	1,2,3,4

NOTES:

1. HOOD SHALL BE EQUIPPED WITH ANSUL FIRE PROTECTION SYSTEM
2. HOOD SHALL INCLUDE TEMPERATURE SENSORS FOR AUTOMATIC ACTIVATION PER IMC AND NFPA 96
3. HOOD SHALL BE MOUNTED TO A WALL OF LIMITED COMBUSTIBLE CONSTRUCTION PER NFPA 96 AND HAVE A SMOOTH, CLEANABLE, NONABSORBENT AND NON COMBUSTIBLE BACKSPLASH
4. KEF-1 AND MUA-1 INTERLOCKED TO RUN AT THE SAME TIME

-

ROOF TOP UNIT SCHEDULE

DESIGNATION	AREA SERVED	SUPPLY CFM	OA CFM	ESP (IN W.G.)	TSP (IN W.G.)	ELECTRICAL MCA	ELECTRICAL VOLTS	ELECTRICAL PHASE	HEATING MBHin	HEATING MBHout	HEATING GAS CONNECT	COOLING NOMINAL TONS	COOLING # COMPS	FILTERS	BASIS OF DESIGN MFR.	BASIS OF DESIGN MODEL	NOTES
RTU-1	DINING	2,400	350	1.00"	1.70"	33A	208	3	293	270	3/4"	6	1	SEE NOTE	RUUD	RGECZT072-ACU12BAACAO	1

NOTES:

1. 2 STAGE COOLING, HIGH HEAT, HINGED ACCESS, STAINLESS HEAT EXCHANGER, 14 SEER, ECONOMIZER PACKAGE, PROVIDE WITH COMPATIBLE HEATING/ COOLING THERMOSTAT W OCCUPANCY PROGRAMMING

SEQUENCE OF OPERATIONS:

KITCHEN EXHAUST FANS - KEF-1
THE KITCHEN EXHAUST FAN SHALL OPERATE AUTOMATICALLY BASED ON HEAT SENSORS MOUNTED INSIDE THE HOOD PER MANUFACTURERS RECCOMENDATIONS. KFCC (KITCHEN FAN CONTROL CENTER) MOUNTED TO SIDE OF HOOD. KFCC CONTROLS HOOD LIGHTS, EXHASUT FAN AND SENDS RUN SIGNAL TO MAKEUP AIR UNIT. KFCC RECIEVES SIGNALS FROM HOOD MOUNTED HEAT SENSORS AND TOCUHSCREEN USER INTERFACE.

IN THE EVENT THE FIRE SUPPRESSION SYSTEM IS DEPLOYED, THE KFCC WILL TURN THE EXHAUST FAN ON AND MAKEUP AIR OFF. CONTACTS ARE PROVIDED IN THE KFCC FOR CONNECTION TO THE FIRE SUPPRESSION SYSTEM.

KFCC REQUIRES TWO 15A 115VAC CIRCUITS. ONE CIRCUIT IS DEDICATED TO THE HOOD LIGHTS, ONE IS FOR POWERING THE KFCC

MAKEUP AIR UNIT - MUA-1
MUA-1 SHALL BE INTERLOCKED TO RUN ANYTIME KEF-1 IS ON. MUA-1 PROVIDES 100% OSA. GAS HEATING CONTROLS ARE INTEGRAL TO THE MAKEUP AIR UNIT. FACTORY PROVIDED CONTROLS MODULATES THE HEAT INPUT TO PROVIDE A CONSTANT SUPPLY AIR TEMPERATURE

TOILET EXHAUST FANS - EF-2
EF-2 SHALL RUN WHEN BATHROOM LIGHTS ARE ACTIVATED

[redacted]

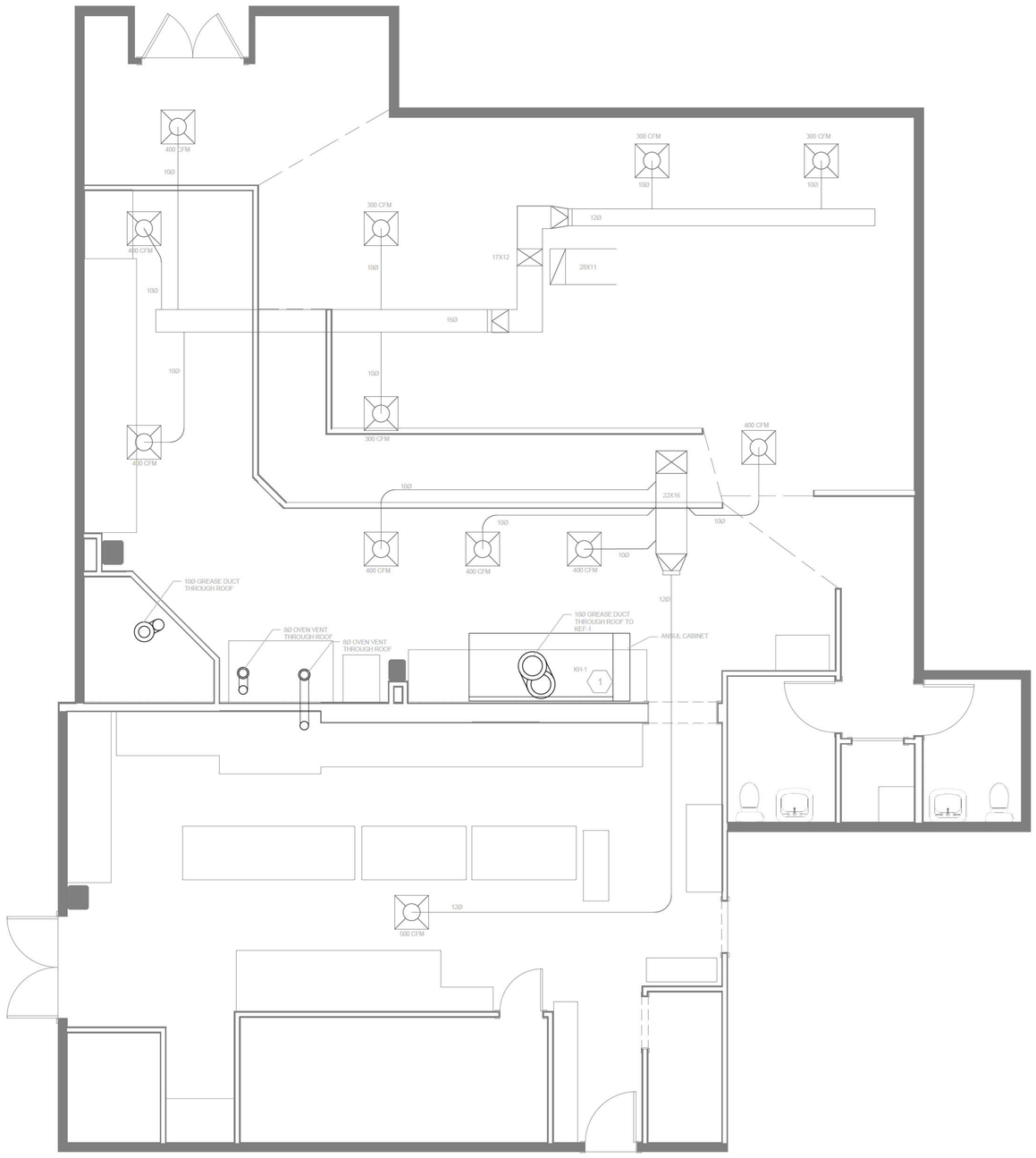
PRINT RECORD

3/262022

SHEET TITLE

VENTILATION LEGENDS AND SCHEDULES

M1.0



GENERAL NOTES:

ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE CODES CURRENTLY ADOPTED BY THE STATE OF ALASKA: THE INTERNATIONAL MECHANICAL CODE 2012 EDITION (IMC), CHAPTERS 1 - 15 AND APPENDIX A, ARE ADOPTED BY REFERENCE TO REGULATE ALL OCCUPANCIES AND BUILDINGS, EXCEPT THAT THE IMC IS REVISED BY DELETING ALL THE REFERENCES TO "ICC ELECTRICAL CODE" OR "NFPA 70" AND REPLACING THOSE REFERENCES WITH "ELECTRICAL CODE AS ADOPTED BY 8 AAC 70.025, AS AMENDED AS OF MARCH 6, 2016 AND AS AMENDED FROM TIME TO TIME" AND THE IMC IS REVISED BY DELETING ALL THE REFERENCES TO "INTERNATIONAL FUEL GAS CODE", WITH THE EXCEPTION OF CHAPTERS 6 AND 7, DELETING ALL THE REFERENCES TO "INTERNATIONAL PLUMBING CODE", AND REPLACING THE REFERENCES TO "INTERNATIONAL FUEL GAS CODE" AND "INTERNATIONAL PLUMBING CODE" WITH "PLUMBING CODE AS ADOPTED BY 8 AAC 63.010, AS AMENDED AS OF MARCH 6, 2016 AND AS AMENDED FROM TIME TO TIME

SHEET NOTES:

1. KITCHEN HOOD IS 8'-6" TYPE 1 HOOD. SEE SHEET M1.2 FOR DETAILS
2. SLOPE EXHAUST DUCT BACK TO HOOD, ALL SEAMS TO DRAIN CONDENSATE BACK TO HOOD
3. ROUTE 4" EXHAUST DUCTS UP THROUGH ROOF CURB, SEE SHEET M1.2 FOR DETAILS

[redacted]

PRINT RECORD

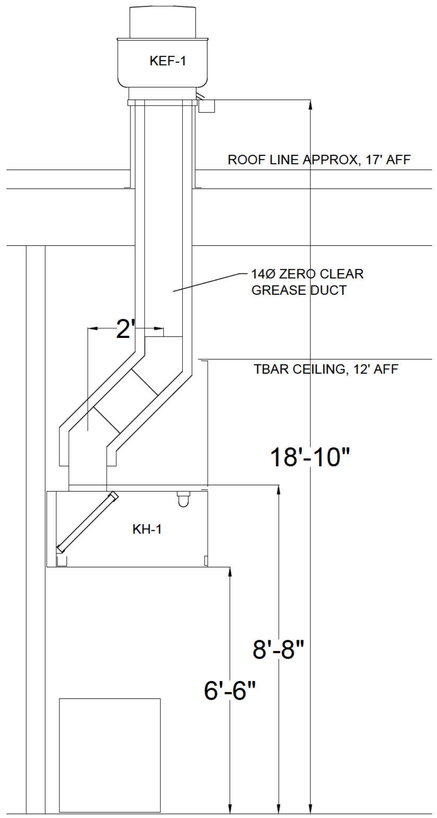
3/26/2022

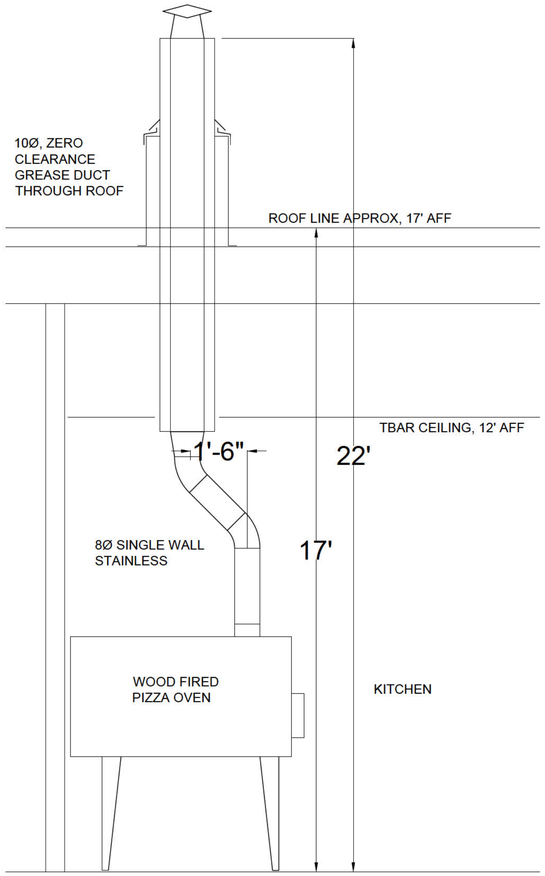
12/22/2022

SHEET TITLE

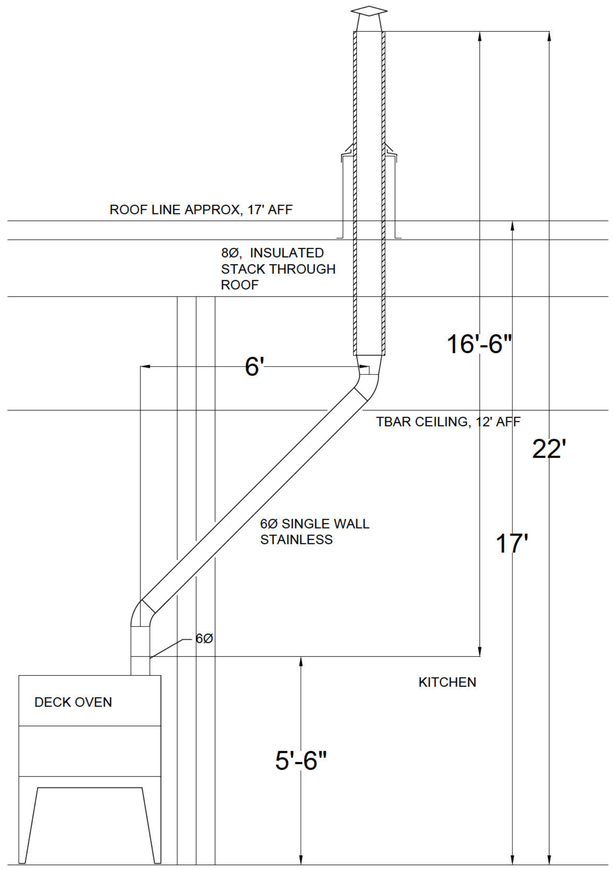
1ST FLOOR VENT PLANS

M1.1

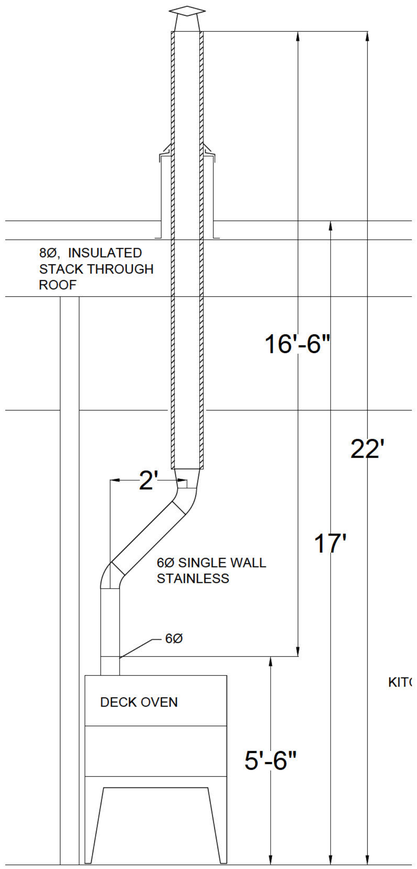




2 M1.2 WOOD FIRED OVEN DETAIL



3 M1.2 REAR DECK OVEN VENTING



1 M1.2 FRONT DECK OVEN VENTING

SHEET NOTES:

1. PROVIDE KEF-1 WITH HINGED BASE, GREASE COLLECTOR AND FLEXIBLE WIRE CONNECTION.
2. HOOD ENCLOSURE PANEL ALL EXPOSED SIDES OF HOOD FROM TOP OF HODO TO TBAR CEILING

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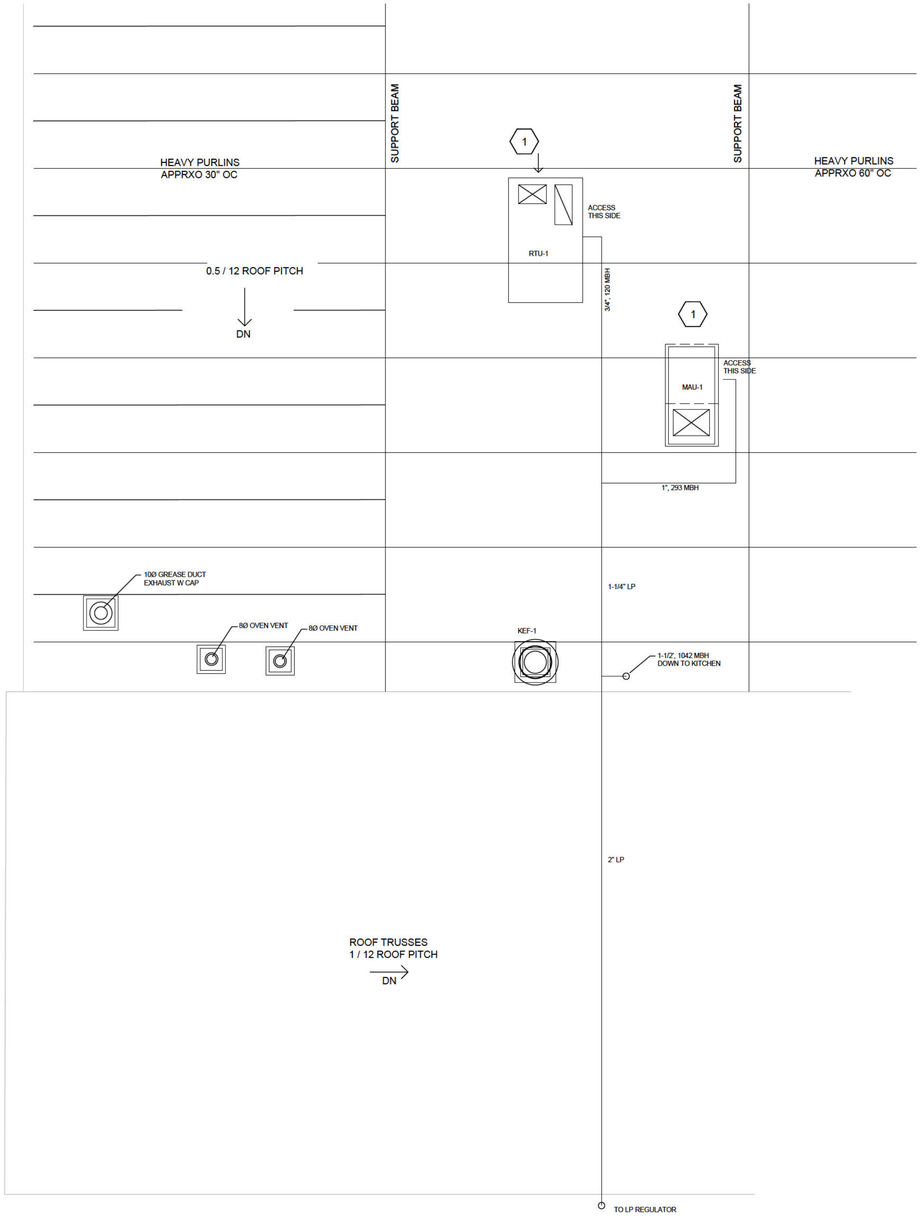
PRINT RECORD

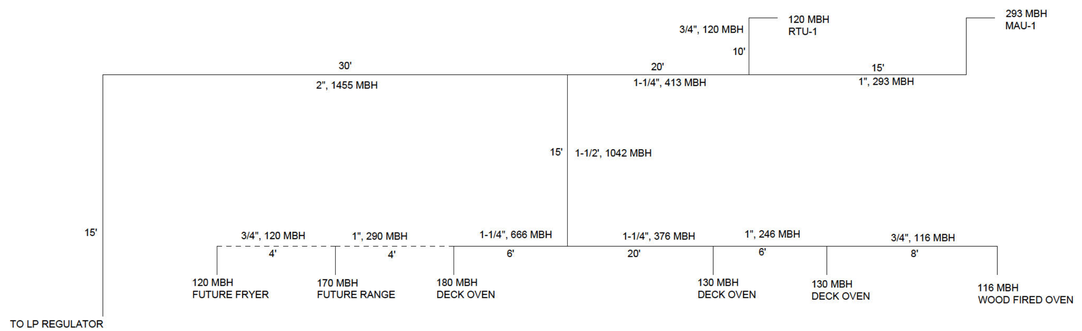
3/15/2022

SHEET TITLE

VENTILATION DETAILS

M1.2





2
M1.3
GAS PIPING SCHEMATIC

SHEET NOTES:

1. MAINTAIN MINIMUM 10" CLEARANCE FROM MECHANICAL INTAKES TO EXHAUST DUCTS

[redacted]

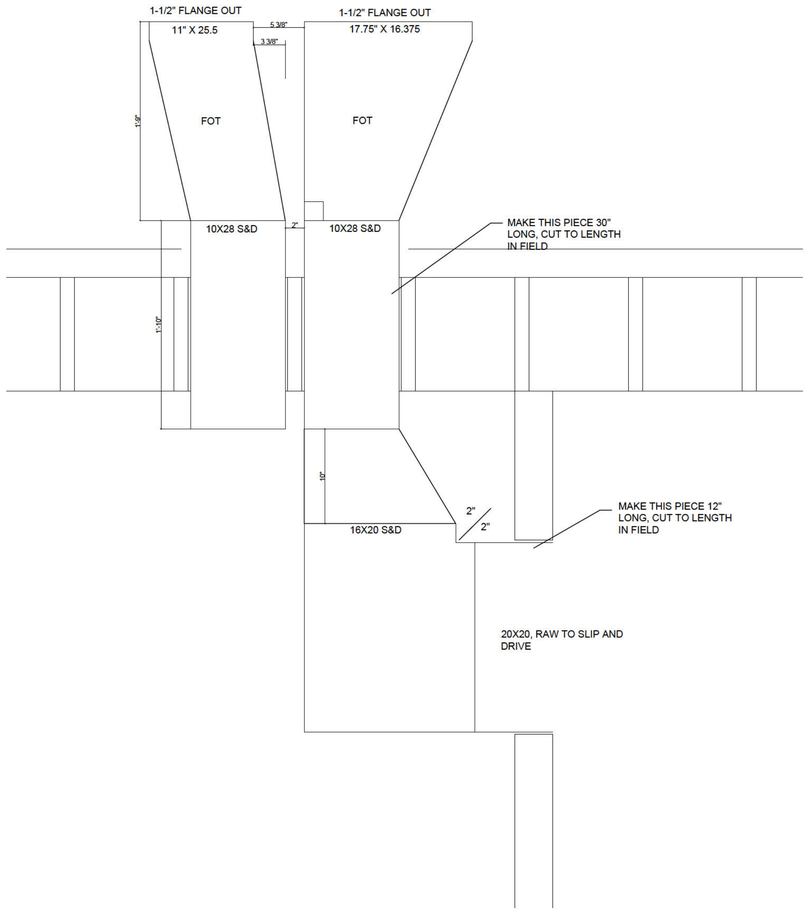
PRINT RECORD

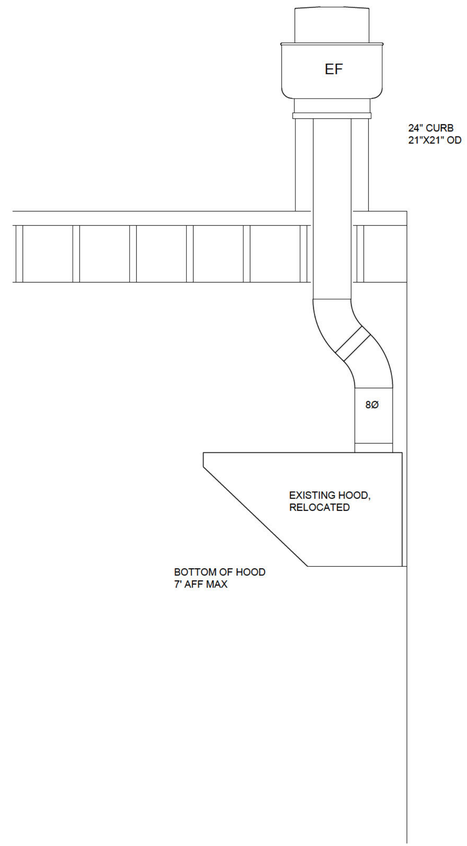
3/26/2022

SHEET TITLE

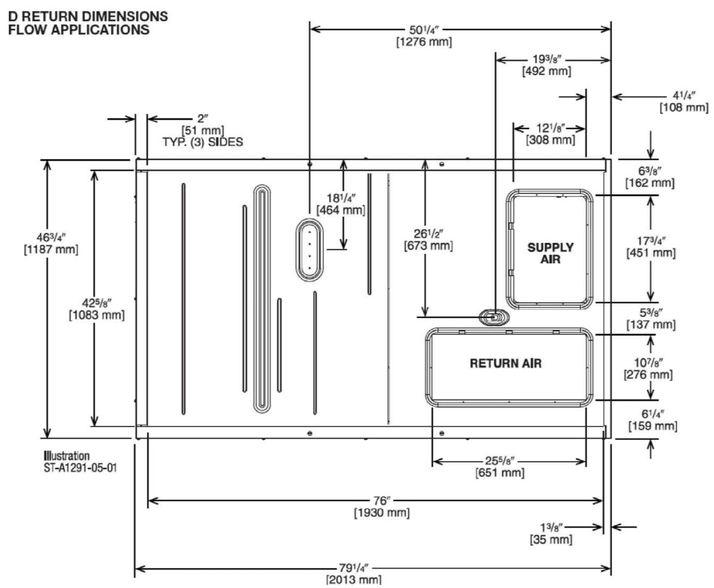
ROOF PLAN

M1.2





3
M1.3
EXHAUST HOOD



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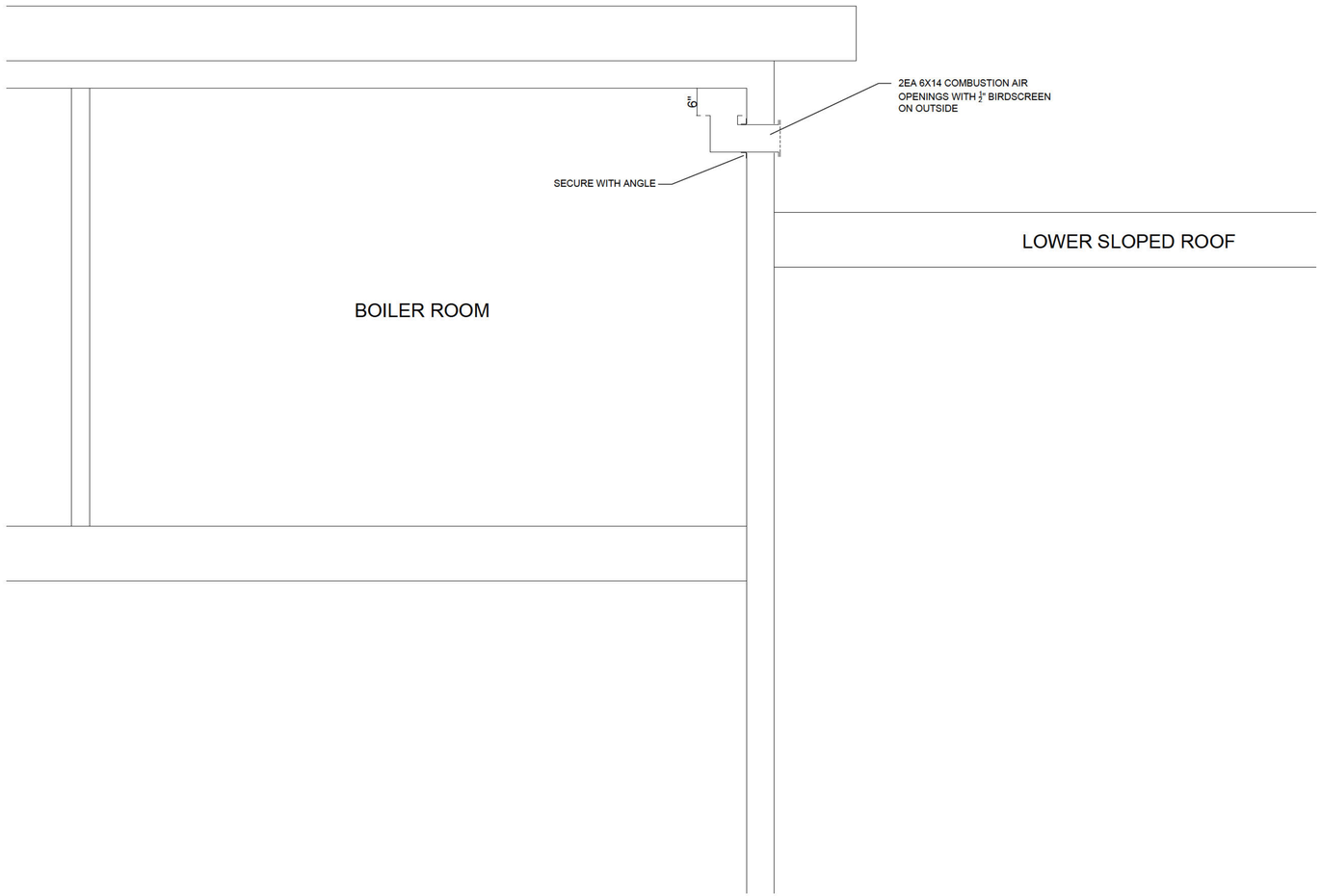
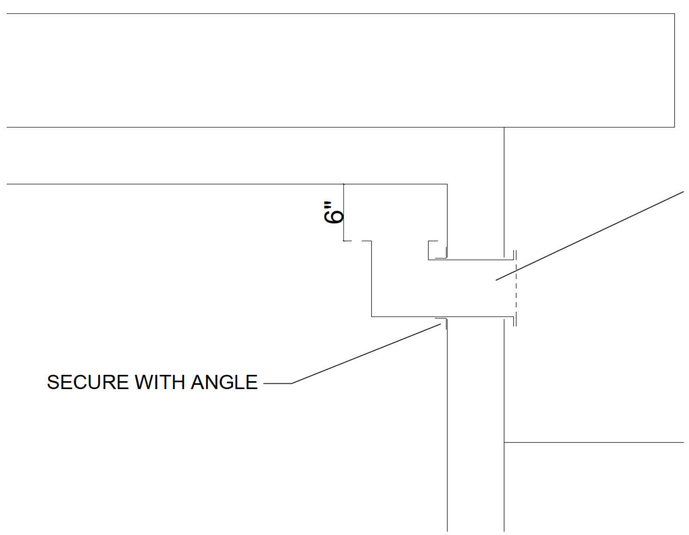
SHEET TITLE

ROOF PLAN

M1.4



1
M1.5
COMB AIR



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PRINT RECORD

3/26/2022

SHEET TITLE

ROOF PLAN

M1.5

[redacted]

Cut Sheet - Not for Submittal
Printed Date: 03/25/2022
Mark: KH-1
Model: [redacted]

[redacted]

Type 1, X-Tractor Filter Single Wall - Exhaust Only Wall Canopy

Model	Hood Length (in.)	Width (in.)	Bottom Width (in.)	Height (in.)		Exhaust Volume (CFM)	Exhaust Rate (CFM)	Exhaust SP (in. w.g.)	Double Island
				Front	Back				
GXEW	102	48	48	24	24	1917	226	0.661	No

Selected Options & Accessories:

Option or Accessory	Description
Mounting Height	80 in. off Finished Floor.
Integral Air Space	Factory Mounted on Back - 3" wide Zero Clearance29 lbs
Filter Type	Stainless Steel X-Tractor Filters 54 lbs
Right Mini End Skirt	30 in High 30 in Top Width 4 in Bottom Width 5 lbs
Filter Removal Tool	Easy reach tool for filter removal.

Material: 430 SS Where Exposed
UL Listing: UL 710 w/out Exhaust Fire Damper

Features:
Performance Enhancing Lip (PEL)
Standing Seam Construction for Superior Strength
Stainless Steel Finish for Higher Corrosion Resistance

Hood End Conditions:
Back Wall - Full Combustible

Section Data:

Section Num.	Length (in.)	Volume (CFM)	SP (in. wg)	Filter Qty		Filter Ht. (in.)	Cooking Load	Light Qty	Light Type	Foot Candles	Drain Location	Hood Weight (LBS)
				16" W	20" W							
1	102	1917	0.661	5	1	20	Heavy	3	Incandescent / CFL	41.85	Left/Right	274.93

Exhaust Collar Data:

Section Num.	Collar Num.	Collar Size (LxW) in. or Diameter (in.)		Pos. Off Left (in.)	Pos Off Back (in.)	Velocity (fpm)	Mounting Option
1	1		14	51	9	1793	Factory Mounted Exhaust Collar(s)

Utility Cabinet Data:

Descripiton	Length (in.)	Width (in.)	Height (in.)	Weight (lbs)
Left Utility Cabinet	48	12	24	163.7

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Mark: KH-1
Model: [redacted]

Cooking Equipment Layout, Section 1

Description	Fuel Type	Space (in)	Length (in)	Diameter (in)	Depth (in)	Cooking Area (ft²)	Updraft Velocity (CFM/ft²)	Contaminated Airflow (CFM)
Griddle	Gas	6	72	0	30	15.00	85	1275
Fryer - Full Vat with Dripboard	Gas	1	16	0	30	3.33	85	283
						18.33		**1558**

[(Hood Capture Area(cooking area + overhang on all sides*) - Total Cooking Area) X 50] + Total Contaminated Airflow = Net Exhaust Airflow
*** Calculation uses 6 inch as front overhang regardless of actual overhang.**

Calculation Method: Section 1 =[(25.50 - 18.33) X 50] + 1558 = 1917

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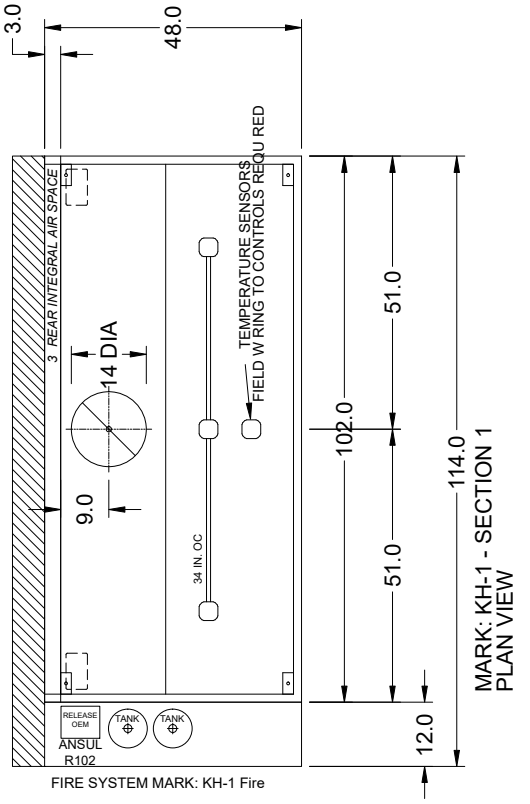
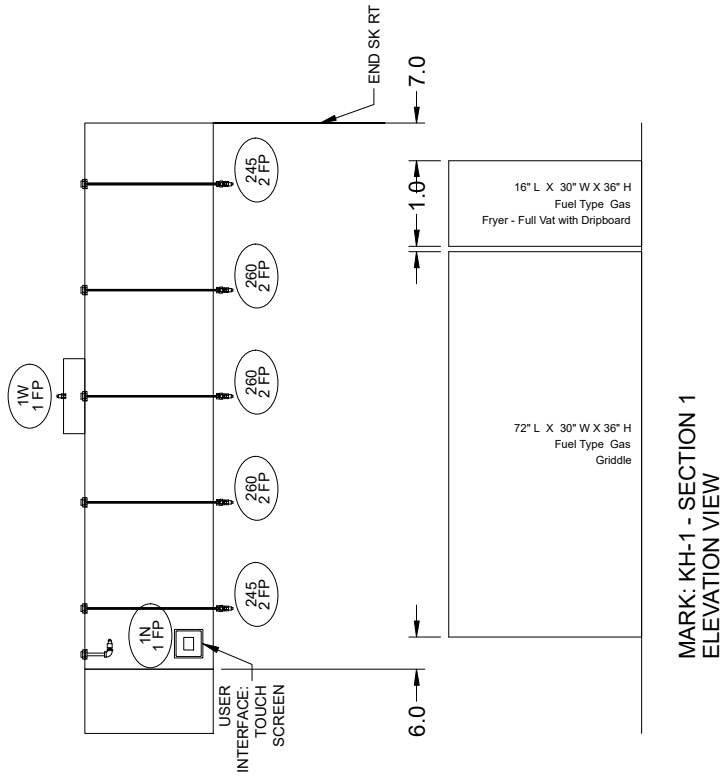
Mark: KH-1
Model: [redacted]





NOTE: All dimensions are in units of in.

[redacted]

[redacted]

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Printed Date: 03/25/2022
Mark: KH-1
Model: [redacted]

Hanger Bracket Locations			
Sec #	Brkt #	Distance Off Left (in)	Distance Off Front (in)
1	1	3.50	2.50
1	2	98.50	2.50
1	3	3.50	44.00
1	4	98.50	44.00

Bracket Mounting Position for a 4 Bracket Hood

NOTE: All dimensions are in units of in.

[redacted]

Gas Valve

Ansul
Mechanical
1.5 in.

[redacted]

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Mark: MAU-1
Model: [redacted]

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Unit Performance

Design Conditions

Elevation (ft)	Summer		Winter (°F)	Supply (CFM)	Outdoor Air (CFM)	Min Supply Airflow (CFM)
	DB (°F)	WB (°F)				
453	81.2	63.0	-43.0	2,500	2,500	1,267

Unit Specifications

Qty	Weight (lb)	Cooling Type	Heating Type	Unit Installation	Unit ETL Listing
1	713 (+/- 5%)	None	Direct Gas-Fired	Outdoor/Indoor	ANSI Z83.4 / CSA 3.7

Configuration

Unit Orientation	Unit Configuration	Outdoor Air Intake	Return Air Intake	Supply Air Discharge
Horizontal	Variable Volume	End	-	Bottom

Heating Specifications

Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	LP	3	0.5	293.5	270.0	100.0	-43.0	57.0

Air Performance

Type	Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Fan			
						Qty	Type	Size (in.)	Drive-Type
Supply	2,500	0.75	1.699	1798	1.27	1	Mixed Flow	18.3	Direct-Drive

Motor Specifications

Motor	Qty	Size (HP)	Enclosure	Efficiency	RPM
Supply Fan Motor	1	1-1/2	ODP	NEMA Premium	1725

Electrical Specifications

Power Supply	Rating (V/C/P)	MCA (A)	MOP (A)
Unit	208/60/3	8.9	15

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Printed Date: 03/25/2022
Mark: MAU-1
Model: [redacted]

CONSTRUCTION FEATURES AND ACCESSORIES

Unit	
Unit Installation - Indoor or Outdoor	Std
Unit Construction - Double Wall	X
Wall Insulation - 1in. fiberglass - Tempering on	X
Base Insulation - 1in. fiberglass - entire unit base pan	Std
Paneled Bottom - Sheet metal liner for base insulation	
Corrosion Resistant Fasteners	Std
Access and Connections - Right side when facing intake	X
Service Access - Hinged access doors	X
Unit Finish - G90 Galvanized	X
Finish Color	
Supply Fan - Direct-drive, mixed flow plenum	X
Supply Fan and Motor Vibration isolation - Neoprene	X
Controls	
Unit Controls - Terminal strip with remote panel	X
Remote Panel - Industrial (NEMA-1)	X
BMS Communication	
BMS Protocol	
Temperature Control - Discharge control	X
Supply Fan VFD - VFD by factory	X
Supply Fan Control	X
Unoccupied Mode (Night Setback)	
Control Accessories	
Remote display	
Heating Inlet Air Sensor	X
Cooling Inlet Air Sensor	
Dirty Filter Switch	X
Fire Stat Type III (Ships loose)	
120V/24V Smoke Detector (Ships loose)	
Inlet Damper End Switch	
External Cooling Lockout Relay	
Freeze Protection (Supply Air Low Limit)	X
Auxiliary Supply Starter Contacts	
Auxiliary Exhaust Starter Contacts	
Airflow Proving Monitoring Contact	

Accessories	
Factory Installed, Lockable, NEMA 3R Disconnect	Std
Weatherhood - Birdscreen	X
Supply Air Filters - 2" MERV 8, 16x20x2 - (4)	X
Outdoor Air Inlet Damper	
Supply Air Outlet Damper - Insulated, low leakage (Ships loose)	X
Return Air Damper	
Diffuser	
Roof Curb	
Combination Curb	
Electrofin Coil Coating	
Fan Bearing Extended Lube Lines	
Inlet Damper Module	
Spare Belts	
Spare Filters	
Motor with Shaft Grounding	
Service Outlet	
Service Lights	
Gas Heating Accessories	
Pilot Ignition	Std
Flame Sensing - Flame rod	X
Flame Safeguard Display	
Agency Approval - ETL	Std
FM Compliant	X
High Gas Pressure Switch	
Low Gas Pressure Switch	
Visual Indication Valves	
Proof of Closure Valve	
External Gas Pressure Regulator (Ships loose)	
Carbon Dioxide Sensor (Ships loose)	
Warranty Options	
Unit Warranty - 1 Year	X
5 Year Compressor Warranty	
5 Year Burner Warranty	
10 Year Burner Warranty	

Standard Option	Std
Not Included	
Included	X

Notes
Birdscreen weatherhoods ship knocked down and require field installation.

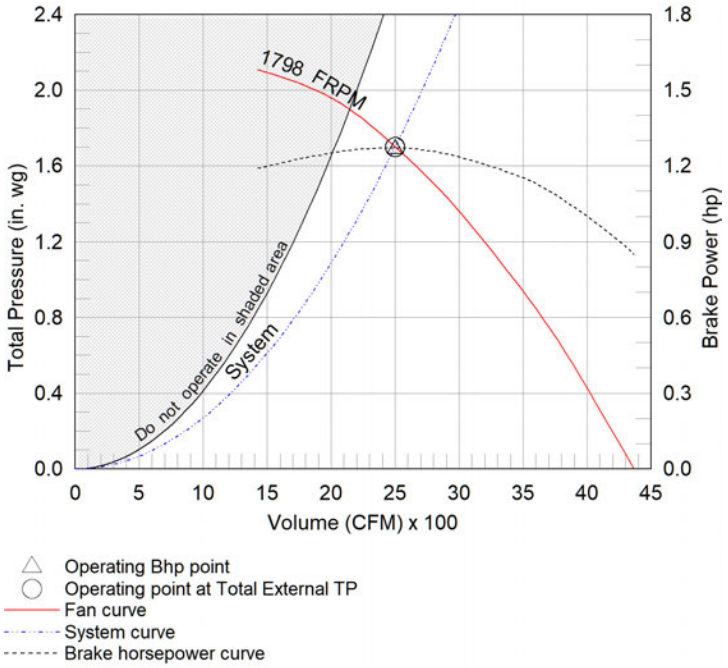
Fan Charts And Performance

Supply Fan Performance									
Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	RPM	Operating Power (hp)	Motor		Fan		
					Qty	Size (HP)	Qty	Type	Drive-Type
2,500	0.75	1.699	1798	1.27	1	1-1/2	1	Mixed Flow	Direct

Pressure Drop (in. wg)							
Diffuser	Weatherhood	Filter	Damper	Cooling	Heating	External	Total
-	0.014	0.124	0.012	-	0.8	0.75	1.699

Sound Performance in Accordance with AMCA										
Sound Power by Octave Band								Lwa	dBA	Sones
62.5	125	250	500	1000	2000	4000	8000			
77	74	75	79	75	74	73	68	81	70	17.7

Supply Fan



Heating Specifications

Heating Performance

Type	Gas Type	Gas Pressure		Capacity (MBH)		Temperature Rise (°F)	Performance	
		Min (in. wg)	Max (Psi)	Input	Output		EAT (°F)	LAT (°F)
Direct Gas	LP	3	0.5	293.5	270.0	100.0	-43.0	57.0

Gas Train Details

Redundant Main Valves	Electronic Modulating Valve	Pilot Valve	Internal Regulator	Visual Indication Valve	Proof of Closure Valve	Gas Pressure Switch(es)	External Regulator
Std	Std	Std	Std	-	-	-	-

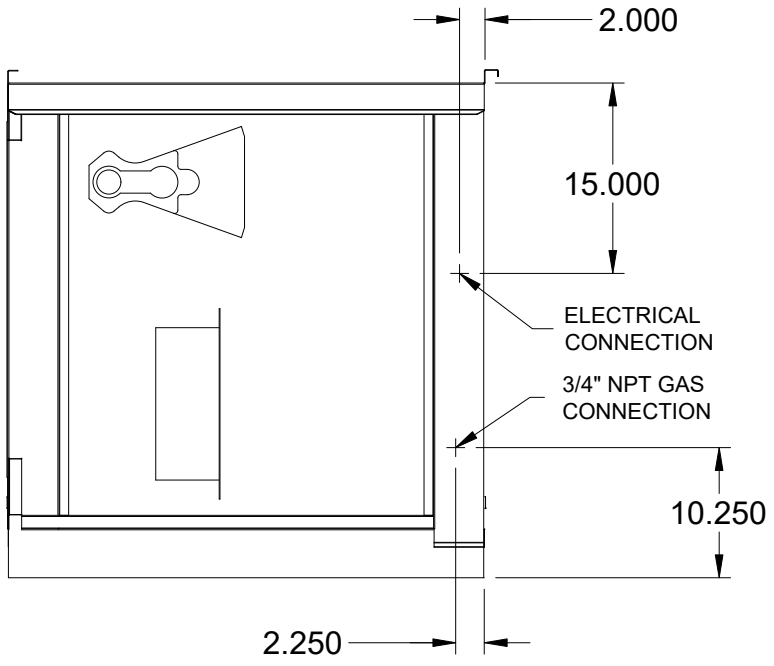
Additional Heating Information

ETL Approved	FM Compliant	Temperature Control	Flame Sensing	Ignition Control	CO2 Sensor	Flame Safeguard Display
Std	Yes	Discharge	Flame Rod	Pilot	-	-

Unit Details
92% thermal efficiency
Cast aluminum burner manifold with stainless steel mixing plates
Electronic modulation burner control

10 second pre-purge sequence
Low fire start

Gas Connections



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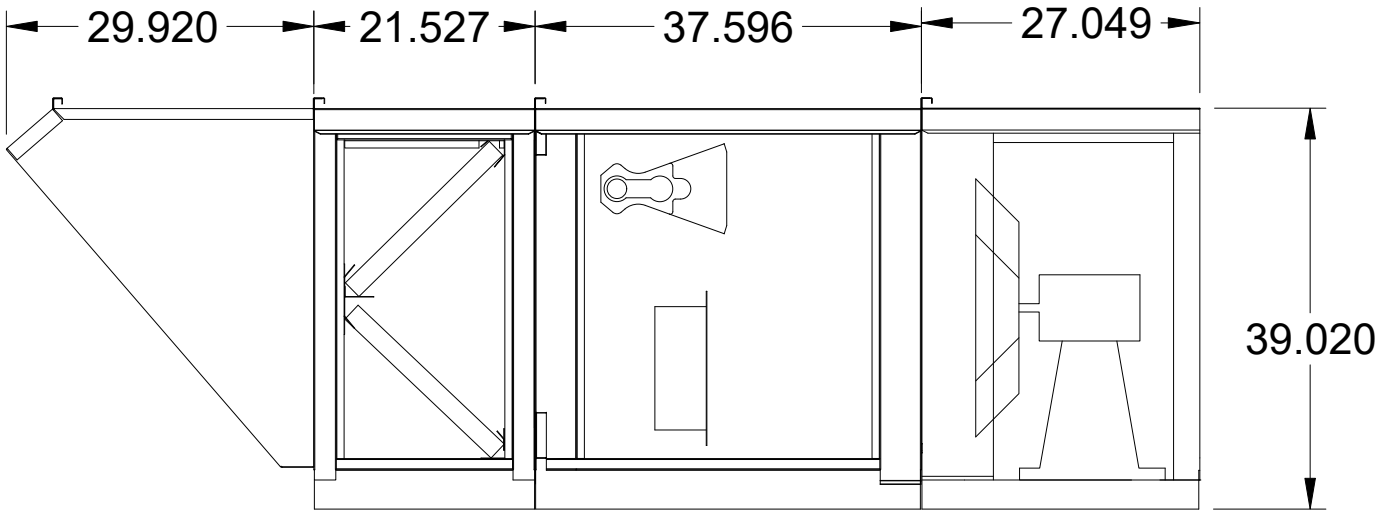
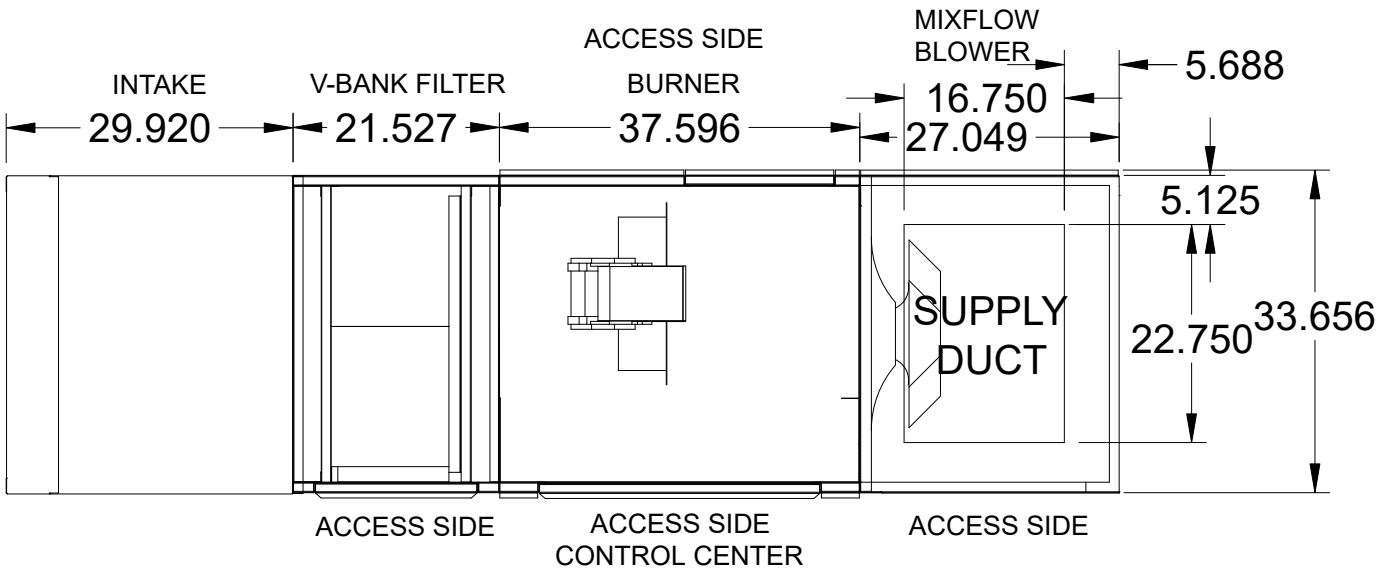
Mark: MAU-1
Model: [redacted]

ELEVATION VIEW



Notes - Elevation View
Standard configuration for unit access is on the right-hand side, when looking into the unit intake in the direction of airflow.
Order of unit sections is from intake of unit to discharge of unit.
Sections included on this unit: Weatherhood Section, Filter Section, Heating Section, Blower Section
Insulation: Double Wall, from Burner Section through end of unit.

PLAN VIEW



Notes - Plan View
Standard configuration for unit access is on the right-hand side, when looking into the unit intake in the direction of airflow.

[redacted]

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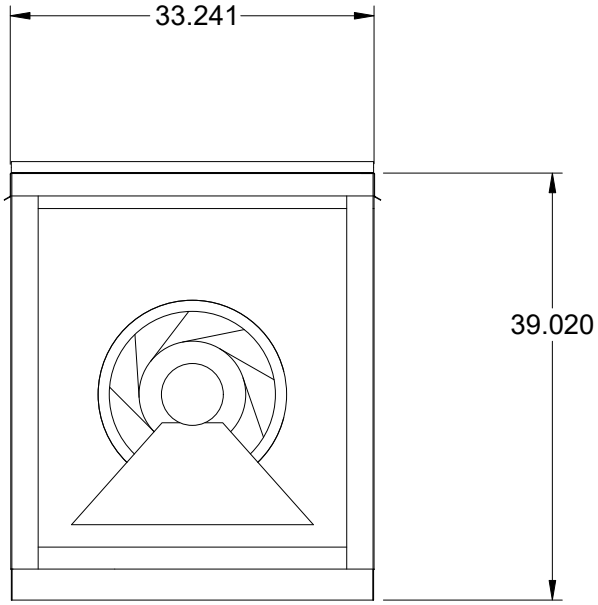
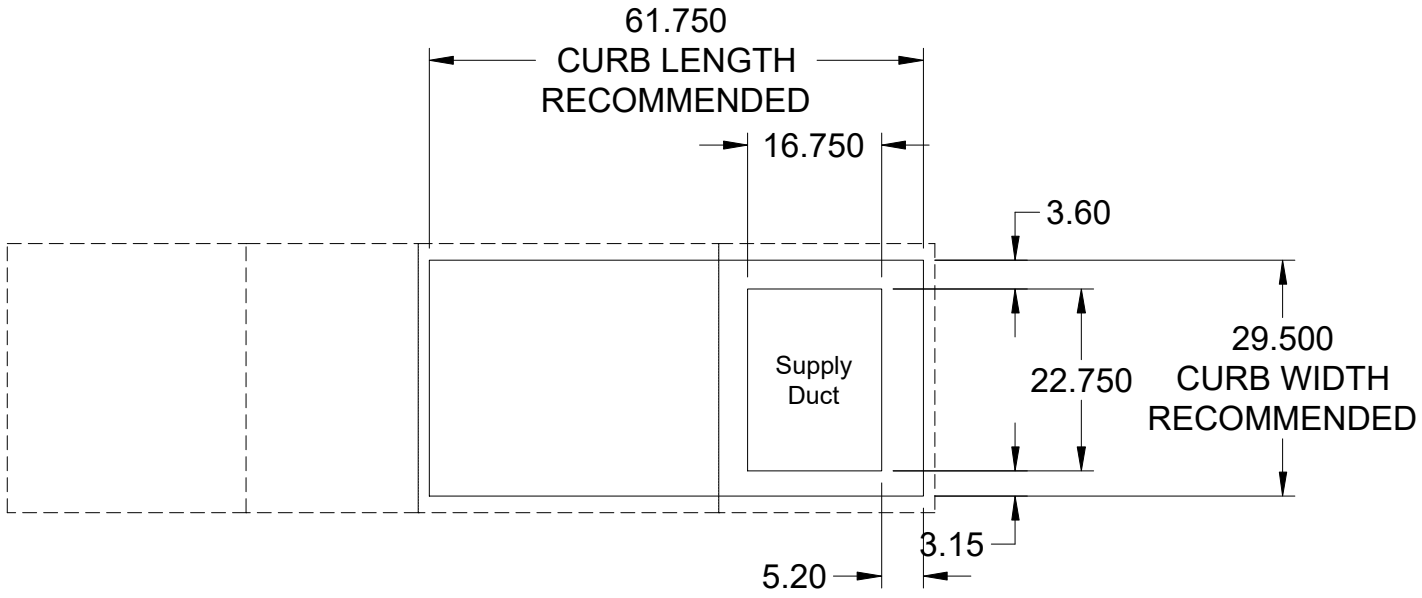
Mark: MAU-1
Model: [redacted]

END VIEW



FOOTPRINT VIEW



Notes - Footprint View
Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.
Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb. For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.
The weatherhood and filter sections of the make-up air unit extend beyond the curb. This is by design, to prevent water infiltration.

Clearance Specifications

Recommended Minimum Combustible Clearances				
	Floor (in.)	**Top (in.)**	**Sides (in.)**	**Ends (in.)**
Insulated Units	0	0	0	0
Non-Insulated Units	0	6	6	6

Notes - Combustible Clearances

Clearance to combustibles is defined as the minimum distance required between the heating source and the adjacent combustible surfaces to ensure the adjacent surface's temperature does not exceed 90 F above the ambient temperature.

Recommended Minimum Service Clearances	
Housing 32 and less (in.)	**Housing 35 and higher (in.)**
42 on the controls side of the unit	48 on the controls side of the unit

Notes - Service Clearances

To ensure ample space for component removal (evaporative cooling media, coils, filters, etc.), service clearances should be 6 in. wider than the width of the module itself.

[redacted]

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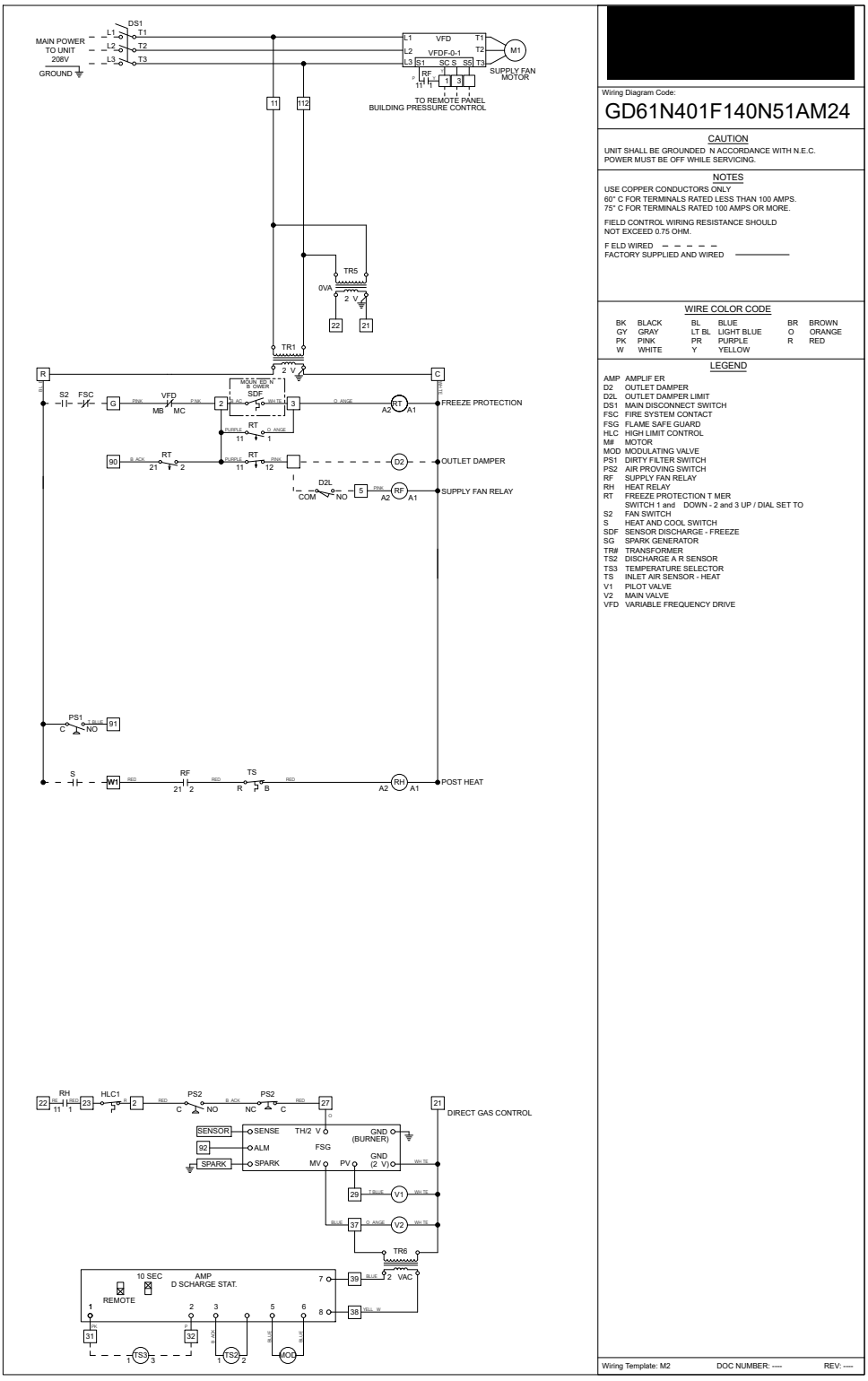
Model: [redacted]

Wiring Diagram



[redacted]

Wiring Diagram Code:

GD61N401F140N51AM24

CAUTION

UNIT SHALL BE GROUNDED N ACCORDANCE WITH N.E.C.
POWER MUST BE OFF WHILE SERVICING.

NOTES

USE COPPER CONDUCTORS ONLY
60° C FOR TERMINALS RATED LESS THAN 100 AMPS.
75° C FOR TERMINALS RATED 100 AMPS OR MORE.

FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM.

F ELD WIRED – – – – –
FACTORY SUPPLIED AND WIRED ————

WIRE COLOR CODE

BK	BLACK	BL	BLUE	BR	BROWN
GY	GRAY	LT BL	LIGHT BLUE	O	ORANGE
PK	PINK	PR	PURPLE	R	RED
W	WHITE	Y	YELLOW		

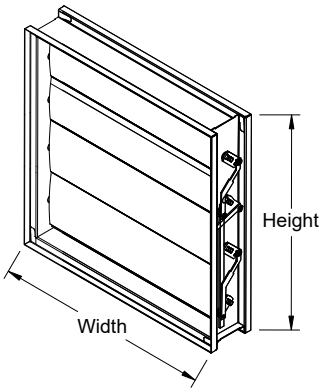
LEGEND

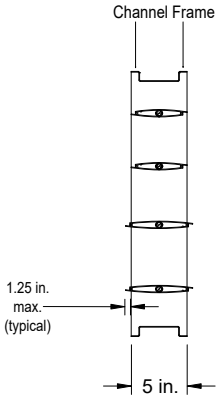
AMP AMPLIF ER
D2 OUTLET DAMPER
D2L OUTLET DAMPER LIMIT
DS1 MAIN DISCONNECT SWITCH
FSC FIRE SYSTEM CONTACT
FSG FLAME SAFE GUARD
HLC HIGH LIMIT CONTROL
M# MOTOR
MOD MODULATING VALVE
PS1 DIRTY FILTER SWITCH
PS2 AIR PROVING SWITCH
RF SUPPLY FAN RELAY
RT FREEZE PROTECTION T MER
SWITCH 1 and DOWN - 2 and 3 UP / DIAL SET TO
S2 FAN SWITCH
S HEAT AND COOL SWITCH
SDF SENSOR DISCHARGE - FREEZE
SG SPARK GENERATOR
TR# TRANSFORMER
TS2 DISCHARGE A R SENSOR
TS3 TEMPERATURE SELECTOR
TS INLET AIR SENSOR - HEAT
V1 PILOT VALVE
V2 MAIN VALVE
VFD VARIABLE FREQUENCY DRIVE

Wiring Template: M2 DOC NUMBER: ---- REV: ----

Manufacturer reserves the right to change, modify, or improve this product at anytime

OUTLET DAMPER





Notes: All dimensions shown are in units of inches. Width & Height furnished approximately 0.25 under size. Installation instructions available at www.greenheck.com. Customer supplied actuators configured with a jackshaft will be provided with a jackshaft this is one inch in diameter.

QTY	WIDTH	HEIGHT
1	22.75 in.	16.75 in.

NOTE: Width and Height are shown in nominal dimensions

Application & Design

The model VCD-34 is a low leakage control damper with thermally insulated blades. This model is intended for application in medium pressure and velocity systems. Non-jackshafted dampers will be supplied with a blade drive lever for internal actuator mounting. When external actuator mounting is specified, an extension pin with clip kit will be provided. Note: The extension pin with clip kit includes extension pin and clip.

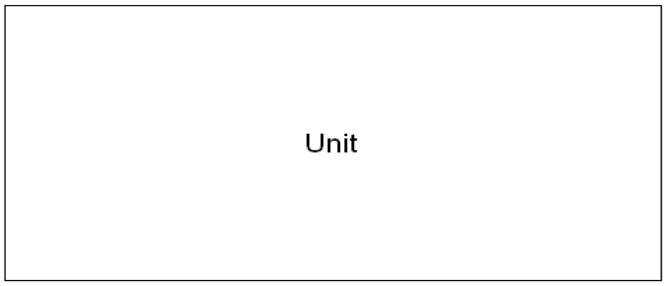
Ratings

Pressure:	Up to 10 in. wg pressure differential
Velocity:	4,000 ft/min
Leakage:	Class 1A @ 1 in. wg, Class 1 @ up to 8 in. wg
Temperature:	Up to 250F

Manufacturer reserves right to change, alter, or improve this product at any time.

Corner Weights

180 lb 174 lb



183 lb 176 lb

[redacted]

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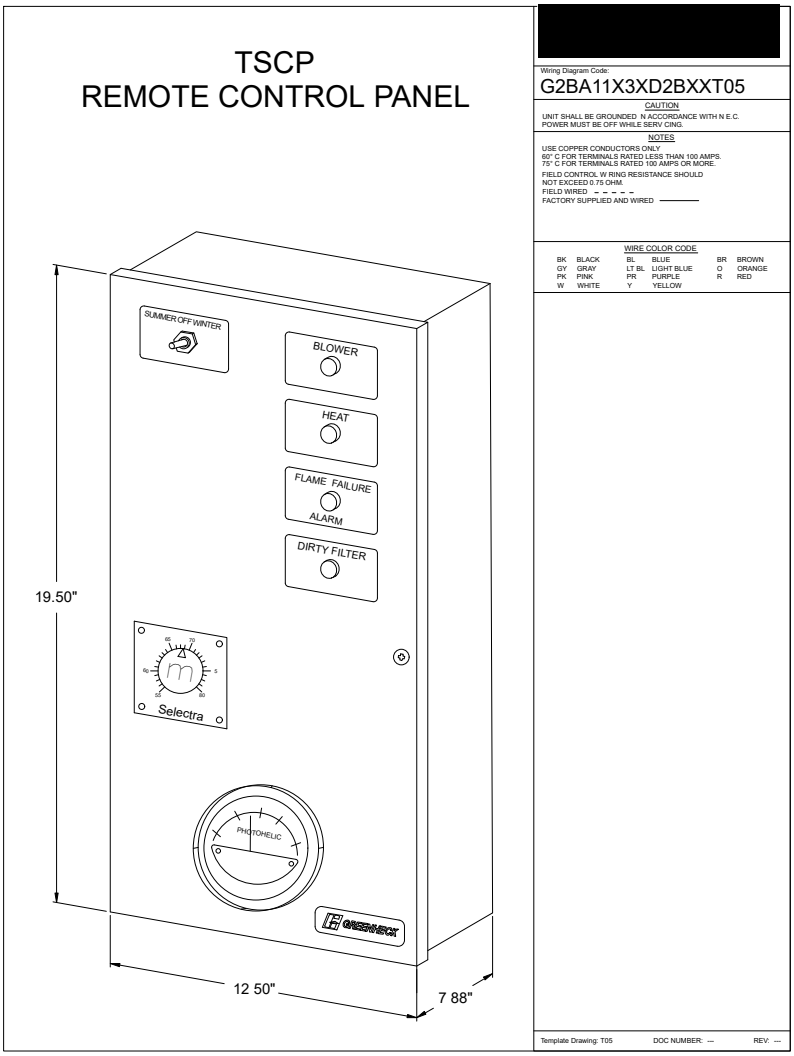
Mark: MAU-1
Model: [redacted]

TSCP - Remote Control Panel



Standard Construction Features And Notes
Location of switches, lights and controls may vary.
All dimensions shown are in units of inches.
Galvanized steel with baked enamel finish.
Numbered terminal strip to match unit wiring.

[redacted]

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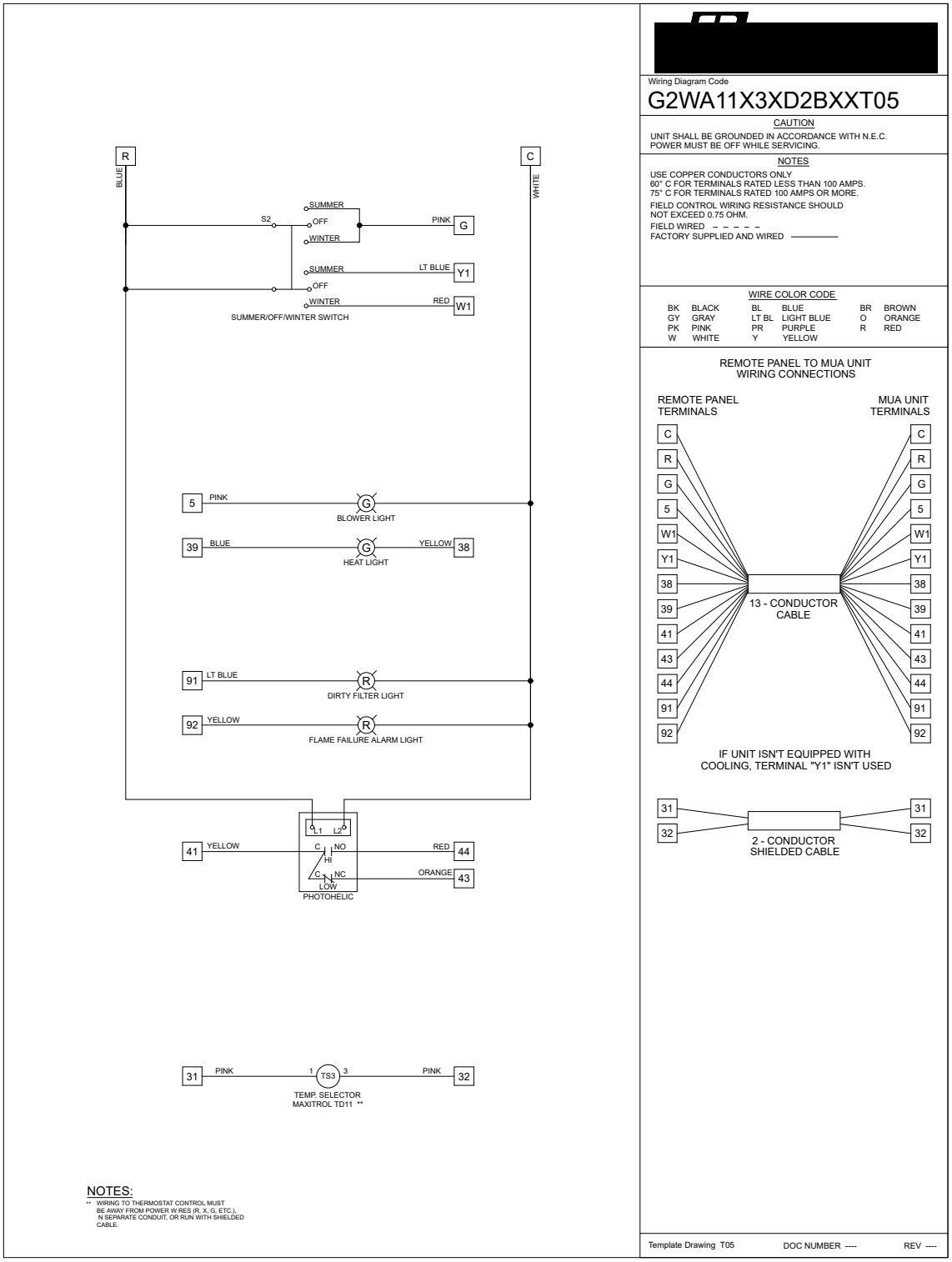
Mark: MAU-1
Model: [redacted]

Remote Panel Wiring Requirements



The wiring drawings details the number of the wires and the type of wire that needs to be run from the unit control center to the panel. A detailed wiring schematic will be provided with the panel when the unit ships.

SEQUENCE OF OPERATIONS

Unit Controls
The unit shall be provided from the factory with:

- 24VAC Transformer
- Terminal Strip
- Supply fan VFD
- Factory provided, field installed supply air insulated outlet damper with actuator
- Remote Control Panel

Remote Control Panel
A Permatector coated NEMA-1 rated remote control panel shall be shipped loose to control the basic operation of the unit. The panel shall contain the following:

- Summer / Off / Winter Switch
  Summer: Supply fan is enabled, heat is disabled.
  Off: Supply fan is disabled.
  Winter: Supply fan is enabled, heat is enabled.
- Blower Light
- Main Valve Light
- Dirty Filter Light
- Building pressure Photohelic to control Variable Frequency Drive (VFD) position.

Unit Start-Up Sequence

- Supply Fan Enable Is Received
- Supply air outlet damper actuator is energized
- Supply air outlet damper actuator limit switch is proven closed
- Supply Fan Is Enabled

Supply Fan Sequence
The unit has been provided with a factory mounted variable frequency drive (VFD). The variable frequency drive shall control the supply fan speed as indicated by the following sequence:

Building Static Pressure Control
A Photohelic shall measure the pressure difference between the space and outdoors and control the VFD to maintain a building static pressure range. If pressure differential is below the low set point needle, the VFD speed is increased. If the pressure differential is above the high set point needle, the VFD speed is decreased. If pressure differential is between the high and low set points, VFD speed is not changed.

Heating Control
A heating enable signal must be present and the supply fan must enabled before the unit will enable heating.

Heating Inlet Air Sensor (Heating Lockout)
The heating will be locked out when the outside air temperature is above the heating inlet air sensor set point (typical 65 F, adj.)

Direct Gas Fired Heating (Discharge Control)
The gas control amplifier located in the unit shall modulate the heating to maintain a supply temperature set point (55 F-90 F, adj.).

- A remote panel mounted set point dial shall control the supply temperature set point.

Building Freeze Protection
If the supply air temperature drops below 35 F for 300s (adj.), the supply fan will be disabled. Cycling the fan enable will reset the timer. This sequence is intended to prevent the unit from supply cold air into the building.

[redacted]

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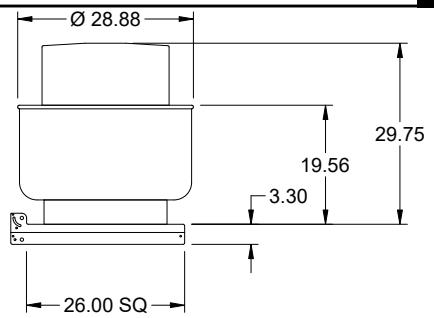
Mark: KEF-1
Model: [redacted]

Model: [redacted]

Direct Drive Upblast Centrifugal Roof Exhaust Fan

Previously: CUE-141-A

Dimensional	
Quantity	1
Weight w/o Acc's (lb)	79
Weight w/ Acc's (lb)	101
Max T Motor Frame Size	145
Standard Curb Cap Size (in.)	26 x 26
Roof Opening (in.)	18.5 x 18.5

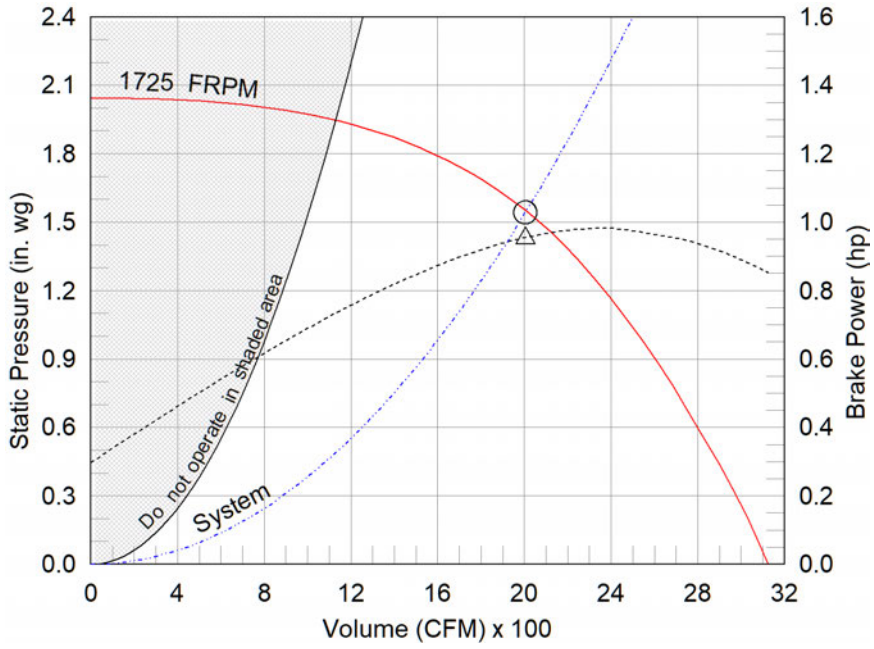


OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

Performance	
Requested Volume (CFM)	1,917
Actual Volume (CFM)	2,005
Total External SP (in. wg)	1.543
Fan RPM	1725
Operating Power (hp)	0.95
Elevation (ft)	453
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.074
Tip Speed (ft/min)	6,605
Static Eff. (%)	51

Misc Fan Data	
Fan Eff. Index (FEI)	1.33
Outlet Velocity (ft/min)	1,166
FEI based on default motor calculation showing lowest efficiency option, for motor specific calculations please contact factory.	

Motor	
Motor Mounted	Yes
Size (hp)	1
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Efficiency Rating	Standard
Windings	1
NEC FLA* (Amps)	4.6
Min. Circuit Ampacity (MCA)	5.75
Max. Overcurrent Protec ion (MOP)	15
Short Circuit Current Rtg (SCCR)	5 kA



△ Operating Bhp point
○ Operating point at Total External SP
Fan curve
System curve
Brake horsepower curve

Static Pressure Calculations

External SP	1.411 in. wg
Direct Drive RPM Adjustment	0.132 in. wg
Total External SP	1.543 in. wg

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	75	53	82	82	64	52	58	59	80	68	13.7

Notes:

All dimensions shown are in units of in.
*NEC FLA, MCA and MOP are for reference only – based on tables 430.248 or 430.25 of National Electric Code 2020. Actual motor FLA may vary, for sizing thermal overload, consult factory. MCA and MOP values shown only account for the motor, not accessories (damper actuator, field supplied VFD, etc).
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using ANSI/AMCA 301 at 5 ft
The motor provided on this fan is inverter ready and meets NEMA MG1 Part 31.4.4.2

Model: [redacted]

Direct Drive Upblast Centrifugal Roof Exhaust Fan

Standard Construction Features:

- Aluminum housing - Backward inclined aluminum wheel - Aluminum curb cap with prepunched mounting holes - Drain trough - Ball bearing motors (sizes 85-300 and all Vari Green), sleeve bearing motors (sizes 60-80) - Motor isolated on shock mounts - Corrosion resistant fasteners

Selected Options & Accessories:

Motor VFD Rated without Shaft Grounding Protection
Larger Curb Cap Size - 26 Square
UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
Switch, NEMA-1, Toggle, Shipped with Unit
Junction Box Mounted & Wired
Hinge, Factory Installed
Hinge Latch (PN: 879145), Factory Installed
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Grease Trap (PN 475538)
Unit Warranty: 1 Yr (Standard)

AMCA

AMCA Licensed for Sound and Air Performance and FEI ratings. Power rating (BHP/kW) does not include transmission losses.

Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA certified ratings seal applies to sound and air performance and FEI ratings only. FEI calculation is based on default motor calculation in accordance with ANSI/AMCA Standard 208. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per ANSI/AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal applies to sone ratings only.

[redacted]

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Mark: KH-1 Controller
Model: [redacted]

Variable Volume [redacted] Kitchen Controls

Standard Construction Features:
Includes control system, VFDs (unless otherwise stated), Temperature Sensors, Touchscreen. IMC 507.2.1.1 compliant.

Options & Accessories:

Mounting Option	Ship Loose Enclosure - (18 x 20 x 9)
Exhaust Fan Quantity	1
Hood Light Control	Yes
User Interface	Full Color Touchscreen
Touchscreen Mounting Location	Face Mount Left Side of Hood - KH-1 Section 1
Exhaust During Fire	Exhaust fans will run at max speed when in fire mode
Gas Reset	Provides power and control for a fire system electric gas valve

Controlled Fans:

Fan Mark	Fan Type	Supplied By	Phase	HP	Voltage	NEC FLA	Starter/VFD Required	Starter/VFD Provided
KEF-1	Exhaust	Manufacturer	3	1	208	4.6	Yes	Yes

Controlled Hood Sections and Fan Relationships:

KH-1 Section - Number of Sensors = 1	
	Exhaust Fan Name - KEF-1

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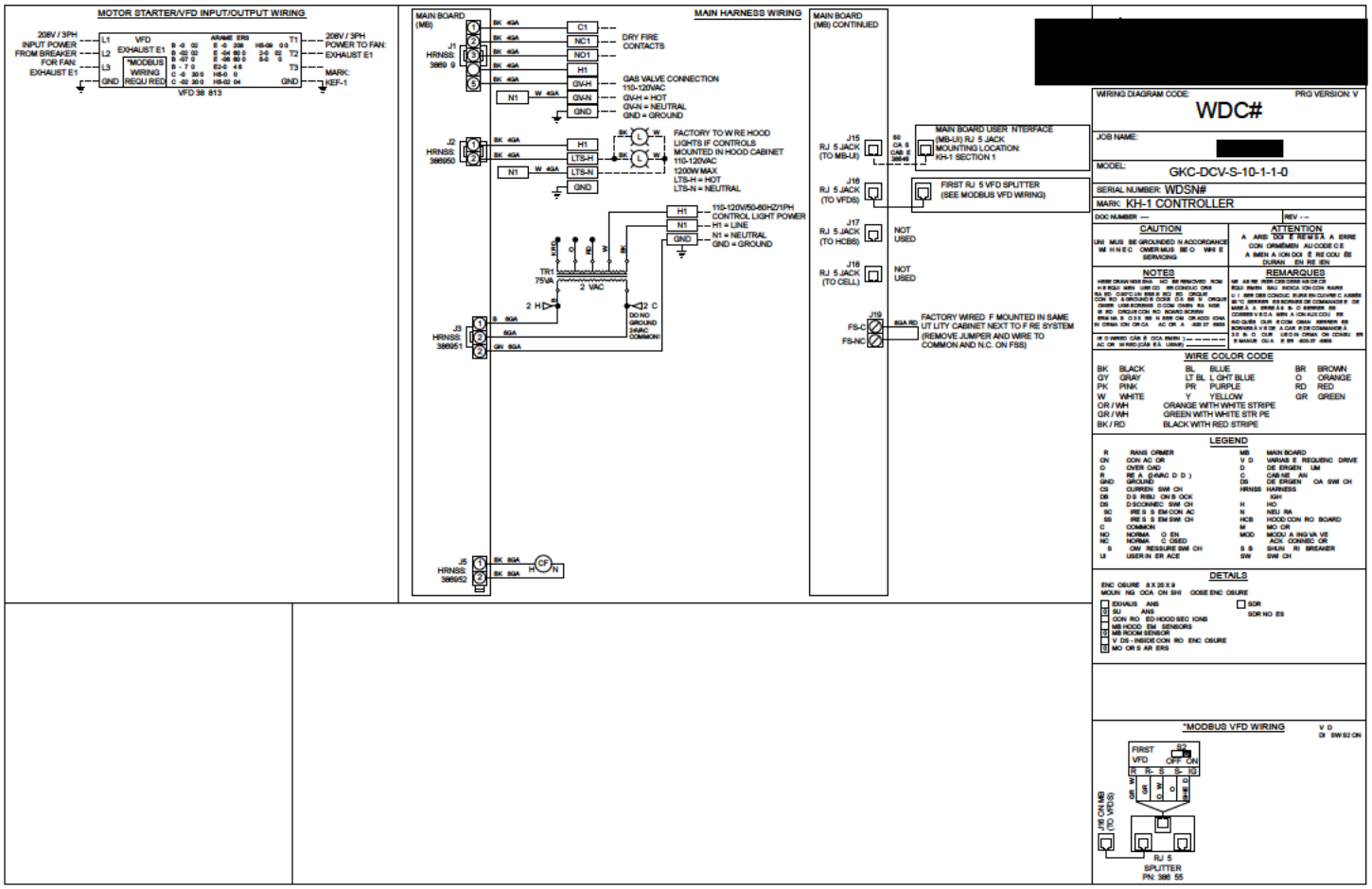
Model: [redacted]



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Printed Date: 03/25/2022
Mark: KH-1 Controller
Model: [redacted]

DOC NUMBER — | REV —

CAUTION
UNIT MUST BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

ATTENTION
L'APPAREIL DOIT ÊTRE MIS À LA TERRE CONFORMÉMENT AU CODE C.E. L'ALIMENTATION DOIT ÊTRE COUPÉE DURANT L'ENTRETIEN.

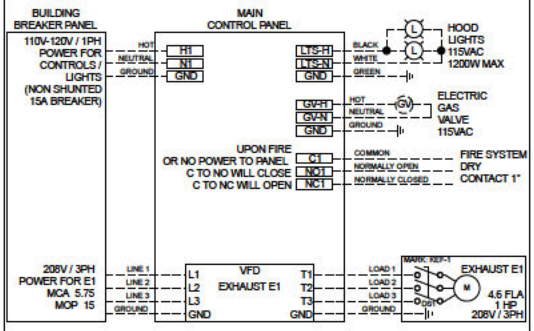
COMMERCIAL APPLIANCE OUTLET CENTER
ELECTRICAL RATINGS 11D-240V,1PHASE, 50 -60HZ,15A
BASE FILE #E200616, ML FILE #E313951
43BM

THESE DRAWINGS SHALL NOT BE REMOVED FROM TH S EQUIPMENT. USE COPPER CONDUCTORS RATED TO 90°C UNLESS SPECIF ED. TORQUE CONTROL & GROUND BLOCKS TO 8 LBS. IN. TORQUE POWER LUGS/SCREWS TO COMPONENT RATINGS L STED. TORQUE CONTROL BOARD SCREW TERMINALS TO 3.5 LBS. IN. FIELD CONTROL WIR NG RESISTANCE SHOULD NOT EXCEED 0.75 OHM. SEE IOM FOR ADDITIONAL NFORMATION, OR CALL FACTORY AT 1-800-371-8855.
PRG VERSION V
F ELD WIRED (CÂBLE LOCALEMENT)
FACTORY WIRED (CÂBLE À L'USINE)

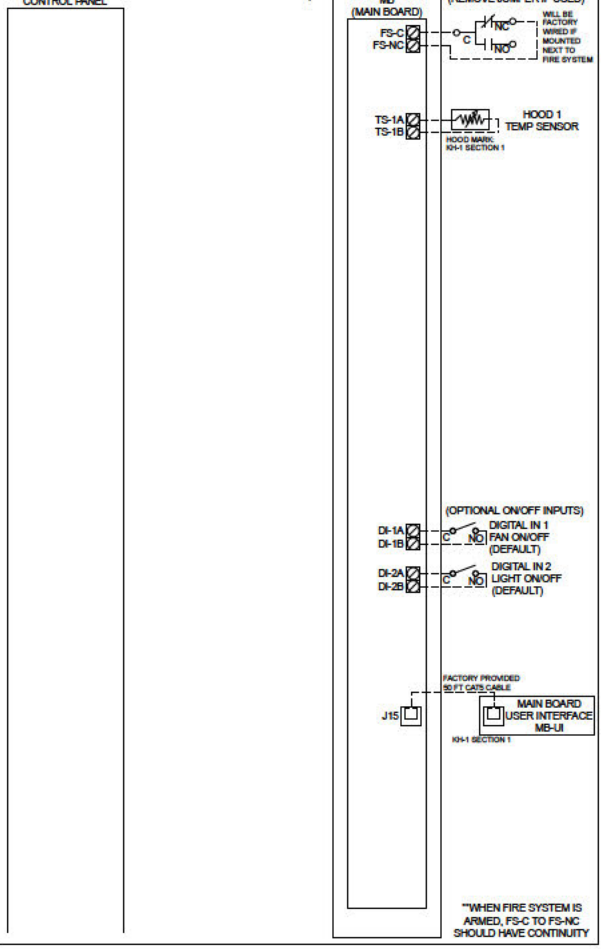
NE PAS RET RER CES DESSINS DE CET ÉQUIPEMENT. SAUF IND CATION CONTRAIRE, UTILISER DES CONDUCTEURS EN CUIVRE CLASSÉS 90 °C. SERRER LES BORNES DE COMMANDE ET DE MISE À LA TERRE À 8 LB-PO. SERRER LES COSSES VIS D'AL MENTATION AUX COUPLES INDIQUÉS POUR LE COMPOSANT. SERRER LES BORNES À VIS DE LA CARTE DE COMMANDE À 3,5 LB-PO. LA RÉS S TANCE DU CÂBLAGE DE COMMANDE LOCAL NE DOIT PAS DÉPASSER 0,75 OHM. POUR PLUS D' NFORMAT ON, CONSULTER LE MANUEL OU APPELER 1-800-371-8855

WIRING DIAGRAM CODE: WDC#
JOB NAME: HOPF 3 NP
MODEL: [redacted]
SERIAL NUMBER: [redacted]
MARK: KH-1 CONTROLLER

POWER WIRING FOR KITCHEN CONTROLS
(WIRING TO BE DONE BY ELECTRICIAN)



CONTROL WIRING FOR KITCHEN CONTROLS
(WIRING TO BE DONE BY ELECTRICIAN, IF NO CONTROLS CONTRACTOR. USE 18-22GA WIRE UNLESS SPECIFIED.)



*FIRE SYSTEM DRY CONTACT WIRING EXAMPLES