

FOR QUESTIONS, CALL THE  
 FLD AIRE NATIONAL  
 REGION 22  
 PHONE: (610) 239-8405  
 EMAIL: courtney.hardin@floaire.com

**MUA FAN INFORMATION - JOB#5934902**

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MCCP	WEIGHT (LBS)	SONES
1	3000CFM	1	F2-D.250-20D	20MF-2-MDD	A2-D.250	2000	3000	0.500	1224	DDP,PREMIUM	2.000	1.0540	3	208	6.1	9.8A	15A	672	9.8

**GAS FIRED MAKE-UP AIR UNIT(S)**

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
1	3000CFM	296116	272427	85°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

**FAN OPTIONS**

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	3000CFM	1	SIZE 2 TEMPERED COMMERCIAL DOWN DISCHARGE FOR DIRECT DRIVE AHUS
		1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE)
		1	SHIP LOOSE GAS STRAINER 1"
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	LOW FIRE START
		1	FREEZESTAT (10)
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
		1	VFD FACTORY MOUNTED AND WIRED IN COMMERCIAL CONTROL VESTIBULE FOR TEMPERED SUPPLY FAN
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
		1	CONTROL PANEL ENCLOSURE HEATER - RECOMMENDED FOR WINTER DESIGN TEMPERATURES LESS THAN 0°F
		1	CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION - INCLUDES RECEPTACLE AND J-BOX
1	2 YEAR PARTS WARRANTY		

**FAN ACCESSORIES**

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	3000CFM						YES	

**CURB ASSEMBLIES**

NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	3000CFM	76 LBS	CURB	31.000"W X 79.000"L X 16.000"H ALONG WIDTH, RIGHT INSULATED.

**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	3000CFM	SUPPLY	72.4	9.79408469799439	60.9	5	69.1	76.8	71.7	70	66.5	63.9	60.9	57.3



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JOB 3000cfm\*\* Heater Stock  
 LOCATION Southborough, MA,  
 DATE 4/3/2023 JOB # 5934902  
 DWG # 1 DRAWN BY courtneyh  
 REV. SCALE 3/8" = 1'-0"

- FAN #1 F2-3000-200 - HEATER 3000CFM
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
  2. INTAKE HOOD WITH E2 FILTERS.
  3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
  4. DOWN DISCHARGE CONSTRUCTION FOR SIZE E DIRECT DRIVE AHUS.
  5. GAS PRESSURE GAUGE, 0-30", 2 1/2" DIAMETER, 1/4" THREAD SIZE.
  6. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC, 2 1/2" DIAMETER, 1/4" THREAD SIZE.
  7. BUTTERFLY HOOD VALVE OPTION FOR HOOD SIZE E (1" HOOD VALVE).
  8. SHIP LOOSE GAS STRAINER, TO BE INSTALLED UPSTREAM OF UNIT CONNECTION, 1" CONNECTION.
  9. MOTORIZED BACK DRAFT DAMPER 26 7/8" X 24" FOR SIZE E STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF200S ACTUATOR INCLUDED.
  10. LOW FIRE START, ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
  11. FREEZE STAT WITH 10" SENSOR, FACTORY SET AT 39°F AND 10 MINUTES.
  12. VAV (VARIABLE-AIR-VOLUME) WIRING PACKAGE FOR COMMERCIAL FANS.
  13. VFD FACTORY MOUNTED AND WIRED IN UNIT CONTROL VESTIBULE.
  14. PROFILE PLATE CONFIGURATION FOR SIZE E DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
  15. CONTROL PANEL ENCLASURE HEATER, INCLUDES 100V, 120V HEATER, RECOMMENDED FOR WINTER DESIGN TEMPERATURE LESS THAN 0°F, OPERATES ON PCB CONTROLS IN 1BT SINGLE MODULES OR RTU.
  16. GFCI IS AMP CONVENIENCE OUTLET FOR HEATER ENCLOSURE, POWER SUPPLY BY OTHERS - INCLUDES RECEPTACLE AND J BOX.
  17. HINGED DOUBLE WALL INSULATED DODD ASSEMBLY (BURNER/BLOWER SECTION).
  18. 2 YEAR PARTS WARRANTY

NOTED: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN ANCA PUBLICATION 200. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

SUPPLY SIDE HEATER INFORMATION

WINTER TEMPERATURE = -10°F, TEMP. RISE = 65°F.  
 BTUH CALCULATED OFF ACTUAL AIR DENSITY.  
 OUTPUT BTUH AT ALTITUDE OF 0.0 FT. = 278427.  
 INPUT BTUH AT ALTITUDE OF 0.0 FT. = 296116.



DIRECT FIRED GAS BURNER PLATE ASSEMBLY

**WARNING: READ AND UNDERSTAND ALL INFORMATION ON THIS PRODUCT. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE PERSONAL INJURY, PROPERTY DAMAGE, OR DEATH.**

**INSTALLATION INSTRUCTIONS:**

1. THE UNIT MUST BE INSTALLED IN A WELL-VENTILATED AREA. DO NOT INSTALL IN AN UNFINISHED BATTLED SPACE, GARAGE, OR OTHER UNFINISHED AREA.

2. THE UNIT MUST BE INSTALLED ON A LEVEL SURFACE. DO NOT INSTALL ON A SLOPE.

3. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO COMBUSTIBLES AS SHOWN ON THIS DRAWING.

4. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO OTHER EQUIPMENT AS SHOWN ON THIS DRAWING.

5. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE CURB AS SHOWN ON THIS DRAWING.

6. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE ROOF AS SHOWN ON THIS DRAWING.

7. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE GROUND AS SHOWN ON THIS DRAWING.

8. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE WALL AS SHOWN ON THIS DRAWING.

9. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE CEILING AS SHOWN ON THIS DRAWING.

10. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE FLOOR AS SHOWN ON THIS DRAWING.

11. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE DOOR AS SHOWN ON THIS DRAWING.

12. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE WINDOW AS SHOWN ON THIS DRAWING.

13. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE STAIRWELL AS SHOWN ON THIS DRAWING.

14. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE ELEVATOR AS SHOWN ON THIS DRAWING.

15. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE ESCAPE ROUTE AS SHOWN ON THIS DRAWING.

16. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE EXIT AS SHOWN ON THIS DRAWING.

17. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE ENTRANCE AS SHOWN ON THIS DRAWING.

18. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE REAR EXHAUST AS SHOWN ON THIS DRAWING.

19. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE FRONT EXHAUST AS SHOWN ON THIS DRAWING.

20. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE SIDE EXHAUST AS SHOWN ON THIS DRAWING.

21. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE TOP EXHAUST AS SHOWN ON THIS DRAWING.

22. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE BOTTOM EXHAUST AS SHOWN ON THIS DRAWING.

23. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE LEFT EXHAUST AS SHOWN ON THIS DRAWING.

24. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE RIGHT EXHAUST AS SHOWN ON THIS DRAWING.

25. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE FRONT EXHAUST AS SHOWN ON THIS DRAWING.

26. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE REAR EXHAUST AS SHOWN ON THIS DRAWING.

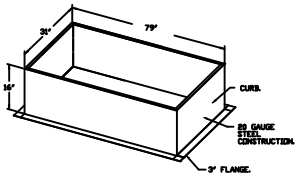
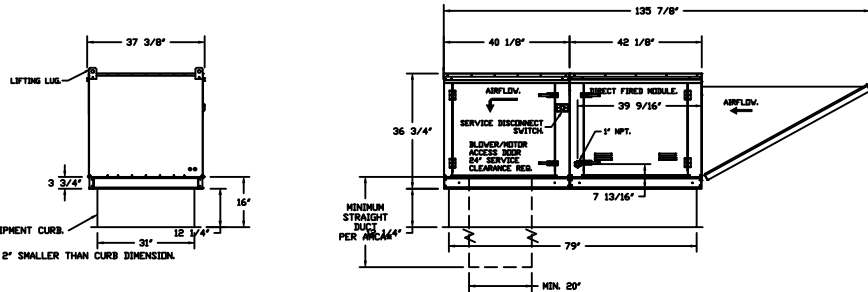
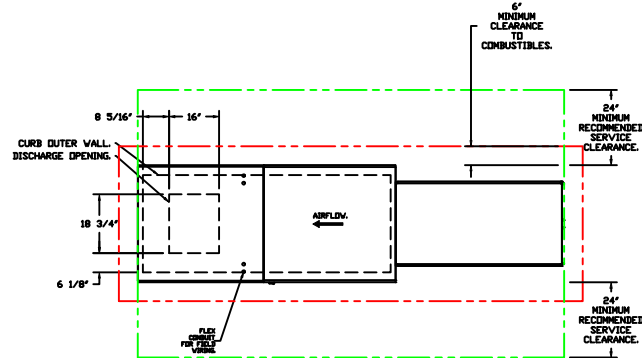
27. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE SIDE EXHAUST AS SHOWN ON THIS DRAWING.

28. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE TOP EXHAUST AS SHOWN ON THIS DRAWING.

29. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE BOTTOM EXHAUST AS SHOWN ON THIS DRAWING.

30. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE LEFT EXHAUST AS SHOWN ON THIS DRAWING.

31. THE UNIT MUST BE INSTALLED WITH A MINIMUM CLEARANCE TO THE RIGHT EXHAUST AS SHOWN ON THIS DRAWING.



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JOB 3000cfm\*\* Heater Stock

LOCATION Southborough, MA,

DATE 4/3/2023

JOB # 5934902

DWG # 2

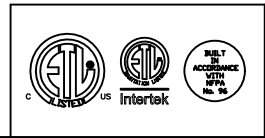
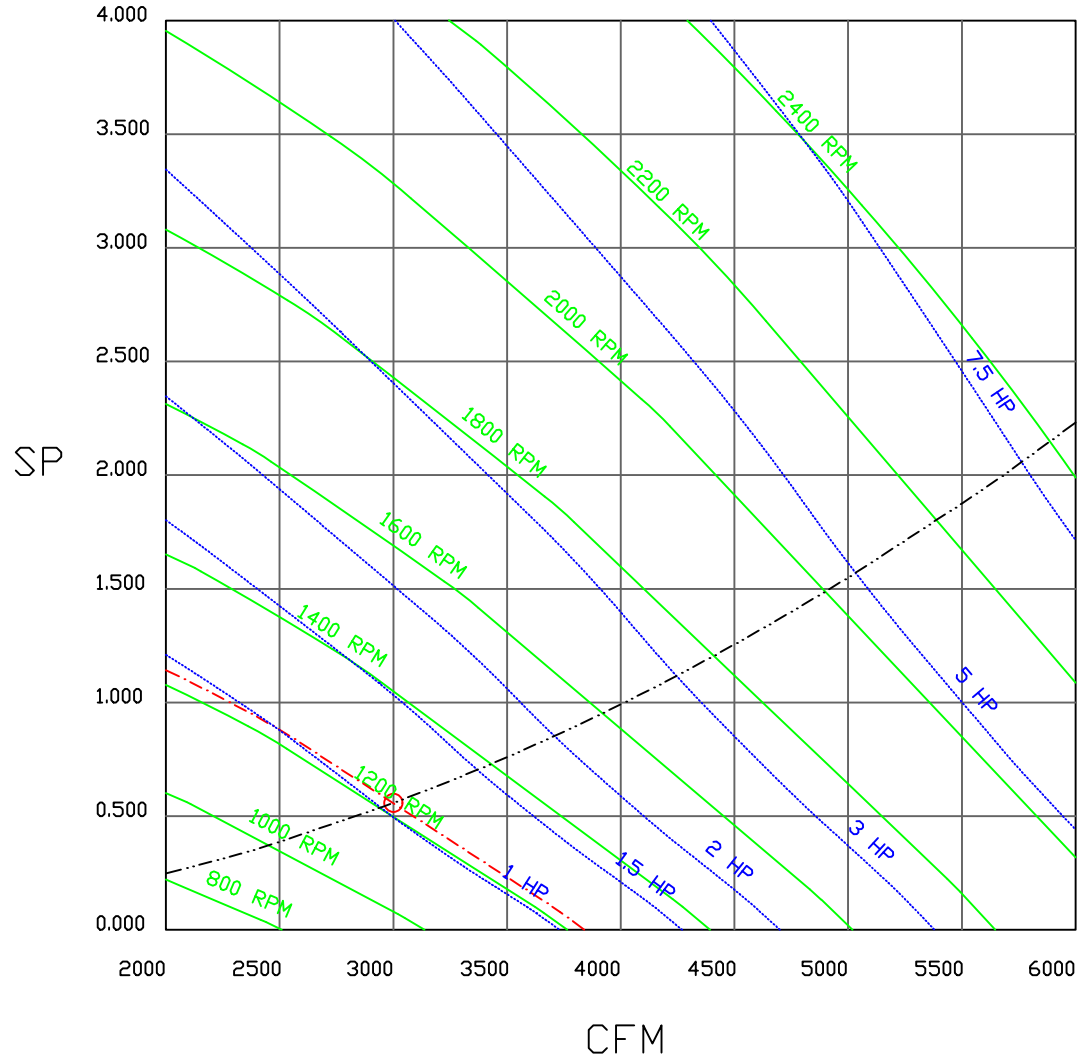
DRAWN BY courtneyh

REV.

SCALE 3/16" = 1'-0"

FAN#1 (3000CFM) - HEATER PERFORMANCE CURVES.

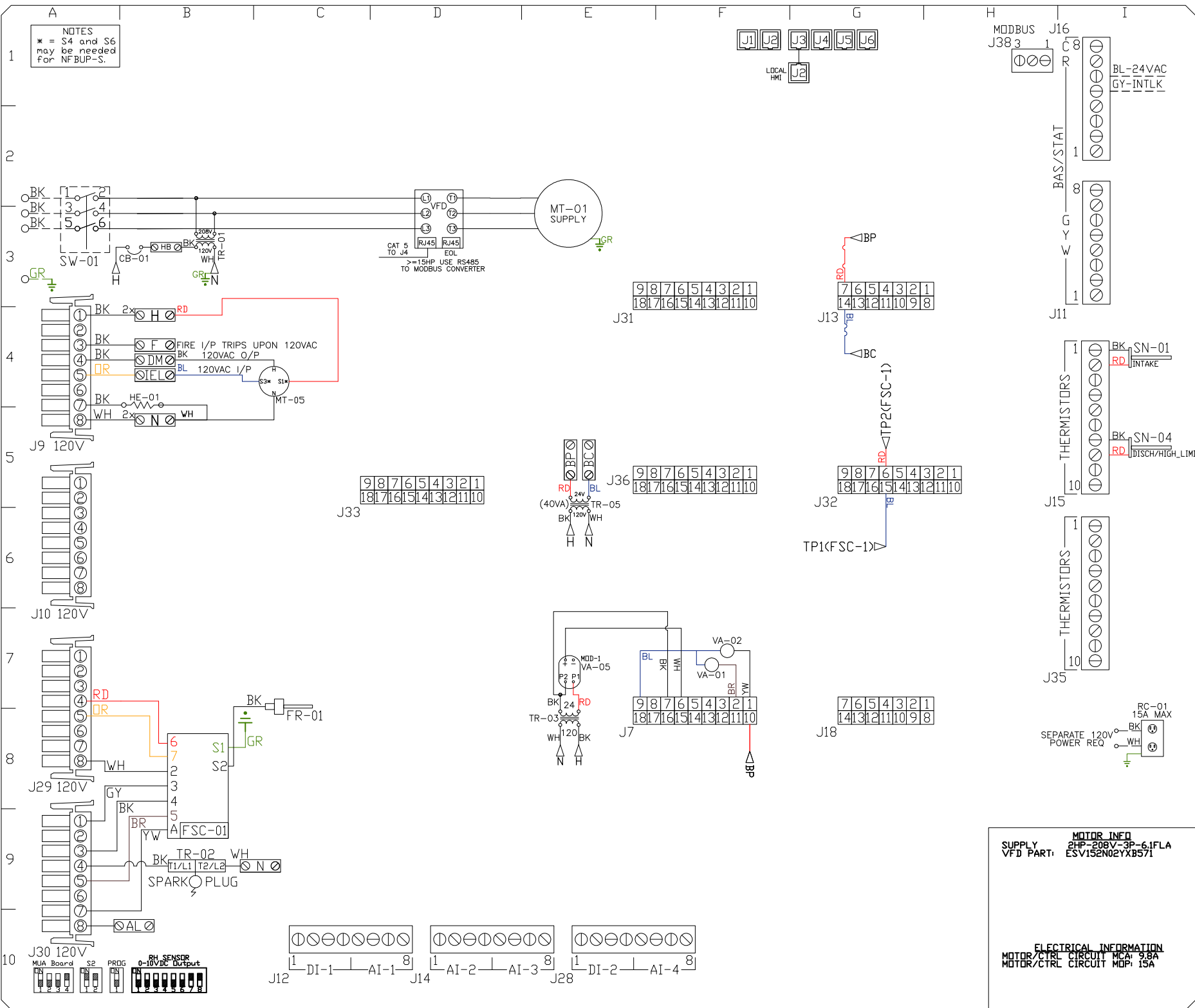
3000 CFM, 0.558 SP @ 1224 RPM AND 1.054 BHP AT 0 FEET AND 75 DEG F.  
 \* PLEASE NOTE THAT THESE CURVES WERE ADJUSTED FOR JOB SPECIFIC TEMPERATURE AND ALTITUDE.



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JOB 3000cfm** Heater Stock	
LOCATION Southborough, MA,	
DATE 4/3/2023	JOB # 5934902
DWG # 3	DRAWN BY courtneyh
REV.	SCALE 3/8" = 1'-0"

**NOTES**  
 \* = S4 and S6 may be needed for NF-BUP-S.



COMPONENT LIST	
LABEL	DESCRIPTION
CB-01	CIRCUIT_BREAKER
FR-01	EVD/ECM-ACU+S1.1-MP
FSC-01	FIREYE_FLAME_SAFETY
HE-01	CABINET_HEATER
MT-01	SUPPLY_MOTOR
MT-05	INTAKE_DAMPER_MTR
RC-01	CONV_OUTLET
SN-XX	TEMP_SENSOR 14/15/16/17
SW-01	DISCONNECT_SWITCH
TR-01	CTRL_TRANSFMR
TR-02	IGNITION_TRANSFMR
TR-05	BOARD_POWER_TRFMR
VA-01	PILOT_GAS_VALVE
VA-02	MAIN_GAS_VALVE
VA-05	MOD_GAS_VALVE

LEGEND	
FIELD WIRING	
FACTORY WIRING	
BK- BLACK	YW- YELLOW
BL- BLUE	GY- GREY
BR- BROWN	PR- PURPLE
OR- ORANGE	RD- RED
WH- WHITE	GR- GREEN
DR/BL- DR/BL STRIPE	BL/RD- BL/RD STRIPE
RD/GN- RD/GN STRIPE	WH/BL- WH/BL STRIPE

**MOTOR INFO**  
 SUPPLY 2HP-208V-3P-6.1FLA  
 VFD PART: ESV152N02YXB571

**ELECTRICAL INFORMATION**  
 MOTOR/CTRL CIRCUIT MCA: 9.8A  
 MOTOR/CTRL CIRCUIT MDP: 15A

**JOB NAME**  
 3000cfm\*\* Heate...

**DRAWING TITLE**  
 MUA BOARD

**DESCRIPTION OF OPERATION**  
 (DETAILS TO FOLLOW)

**JOB NO**  
 5934902

**DRAWN BY**  
 AUTO

**TYPE**  
 FACTORY

**DATE**  
 4/3/2023

**DWG**  
 HW5934902-1

VFD Wiring

JOB 5934902 - 3000cfm\*\* Heater Stock

DRAWING NUMBER VFD5934902-1

SHIP DATE 4/3/2023

MODEL F2-D.250-80D

Installed Options

Component Identification

SMV 571 SERIES VARIABLE FREQUENCY DRIVE

TERMINAL	FUNCTION
1	Digital Input<Start/Stop>
11	Internal 12VDC Supply for External Devices
2	Analog Common
30	Analog Output: Configurable with P150..P155
5	RJ45
6	To J4 on IBT Board
7	EDL RESISTOR
8	PE
9	L1 L2 L3 (N)
10	U V W

POWER SUPPLY

MOTOR

SUPPLY DRIVE PARAMETER SETTINGS\*

EPM PROGRAM: IBT 571

- P100 (Start Source) = 01 (Terminal Strip)
- P102 = Minimum Frequency (Hz)
- P103 = Maximum Frequency (Hz)
- P150 (TB-30 Output) = 1
- P194 (Password) = 225
- P410 (Modbus Address) = 21

All external control wires to motor speed control should be 16-20 AWG shielded multiconductor cables and must not be run in the same conduit or raceway with any high power wiring. Ground Shielded Cable at the drive chassis ONLY.

PG. 11 OF THE DRIVE MANUAL DESCRIBES THE PROPER INSTALLATION PROCEDURE

PG. 19 OF THE DRIVE MANUAL DESCRIBES THE PROGRAMMING PROCEDURE OF THE DRIVE

PG. 23 OF THE DRIVE MANUAL DESCRIBES THE PARAMETER SETTINGS OF THE DRIVE

\*NOTE: THE DEFAULT PASSWORD FROM THE FACTORY REQUIRED TO PROGRAM THE DRIVE IS '225'.

- Adjust manually on all drives
- P107 - 00 (if 120 or 208 VAC) or 01 (if 230, 480 or 575 VAC)
- P108 Motor FLA x 100 / Drive Output Rating
- P165 (Base Speed) = 100 (Settable) (V/Hz)
- P166 (Base Torque) = 100 (Settable) (Nm)
- P167 (Base Frequency) = Calculated Per Fan
- P121 For Large HP >15HP set it to 9

IT MAY BE REQUIRED TO FULLY POWER DOWN THE DRIVE AND TURN BACK ON IN ORDER TO INITIATE NEW PARAMETER SETTINGS.

Min. and Max. Frequency Settings override all other Preset speeds/Parameters.

GENERAL NOTES

- NOTES
- - - DENOTES FIELD WIRING
  - - - DENOTES INTERNAL WIRING
- WIRE COLOR
- BK - BLACK
  - BL - BLUE
  - BR - BROWN
  - RD - RED
  - YV - YELLOW
  - GR - GREEN
  - GY - GRAY
  - PR - PURPLE
  - PK - PINK
  - WH - WHITE

ELECTRICAL INFORMATION  
MOTOR/CTRL CIRCUIT MCA: 9.8A  
MOTOR/CTRL CIRCUIT MDP: 15A

SUPPLY MOTOR\_INED  
VFD PART: 2HP-208V-3P-6.1FLA  
ESV15EN02YXBS71

# Installation Wiring

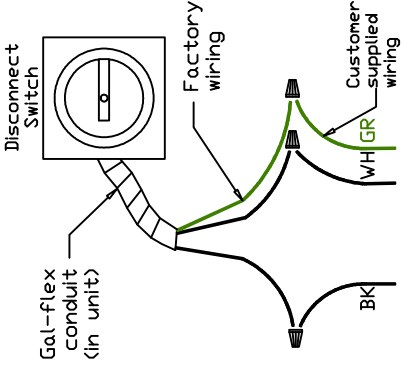
DRAWING NUMBER RP5934902-1

SHIP DATE 4/3/2023

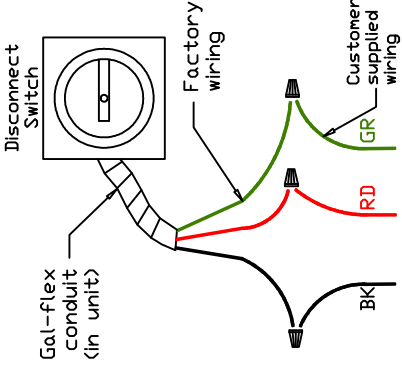
MODEL F2-D.250-20D

JOB 5934902 - 3000cfm\*\* Heater Stock

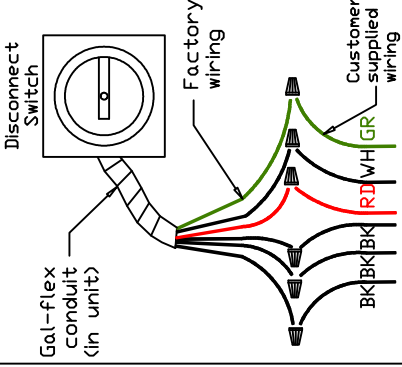
120 V 1 PH.



240 V 1 PH.



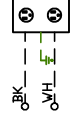
208/460/600 V 3 PH.



Field Wired Switch

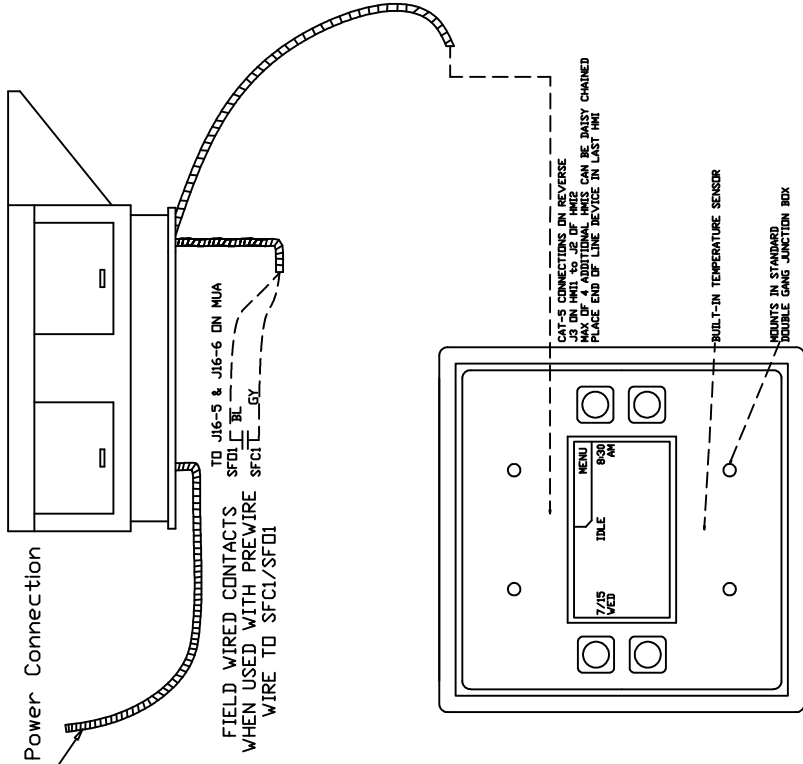
Installed Options

STANDING POWER  
RD & WH Wire (115V, 1 PHASE)



SEPARATE CIRCUIT REQUIRED  
FOR SERVICE RECEPTACLE  
(15amp)

See above details.



NOTES

WIRE COLOR

BK	-	BLACK	YW	-	YELLOW
BL	-	BLUE	GR	-	GREEN
BR	-	BROWN	GY	-	GRAY
OR	-	ORANGE	PR	-	PURPLE
RD	-	RED	PK	-	PINK
WH	-	WHITE			