

HOOD INFORMATION - Job#2966659

HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	EXHAUST PLENUM RISER(S)							TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG.	
					TOTAL EXH. CFM	WIDTH	LENG.	HEIGHT	DIA.	CFM	S.P.			END TO END	ROW
1		5424 ND-2-PSP-F	14' 0.00'	600 Deg.	3010	10'	12'	4'		1505	-0.674'	2408	430 SS Where Exposed	ALONE	ALONE

PATENT NUMBERS

AC-PSP (United States) - US Patent 7963830 B2
 AC-PSP Wall (Canada) - CA Patent 2820509
 AC-PSP Island (Canada) - CA Patent 2520330

HOOD INFORMATION

HOOD NO.	TAG	TYPE	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WGHT	
			QTY.	HEIGHT	LENGTH	EFFICIENCY @ 9 MICRONS	QTY.	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM		ELECTRICAL			SWITCHES
1		Captrate Solo Filter	10	20'	16'	85% See Filter Spec.	4	Screw In Compact	NO							NO	1004 LBS

HOOD OPTIONS

HOOD NO.	TAG	OPTION
1		FIELD WRAPPER 18.00' High Front, Left, Right
		BACKSPLASH 80.00' High X 168.00' Long 430 SS Vertical
		INSULATION FOR TOP OF HOOD
		INSULATION FOR BACK OF HOOD
		RIGHT VERTICAL END PANEL 27' Top Width, 21' Bottom Width, 80' High Insulated 430 SS
		LEFT VERTICAL END PANEL 27' Top Width, 21' Bottom Width, 80' High Insulated 430 SS

PERFORATED SUPPLY PLENUM(S)

HOOD NO.	TAG	POS.	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG.	DIA.	CFM	S.P.
1		Front	168'	16'	6'	MUA	12"	28"		802	0.207'
						MUA	12"	28"		802	0.207'
						MUA	12"	28"		802	0.207'

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

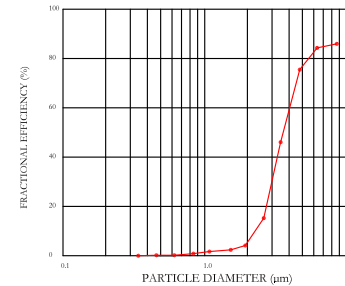
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

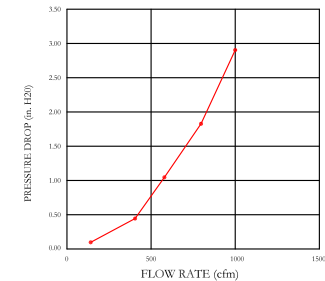
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES NINE MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.

EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
 NFPA #96
 NSF STANDARD #2
 UL STANDARD #1046
 INT. MECH. CODE (IMC)
 ULC-S649



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

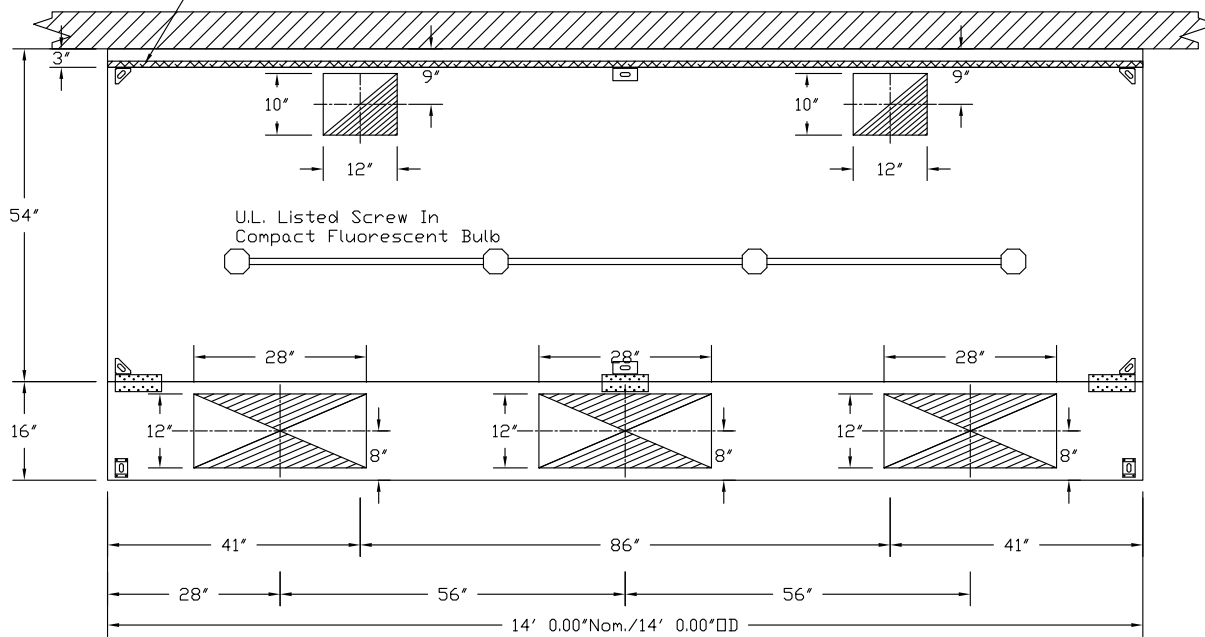
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Your Title _____ Date _____



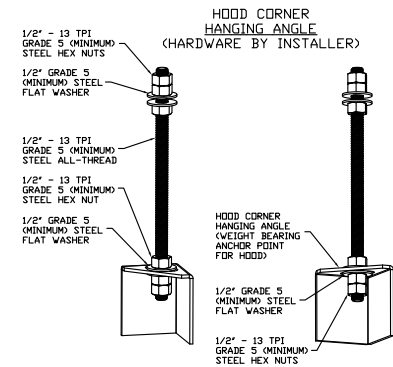
JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 1	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

1" LAYER OF INSULATION FACTORY
 INSTALLED IN INTERNAL BACK STANDOFF.
 MEETS 0 INCH REQUIREMENTS FOR
 CLEARANCE TO COMBUSTIBLE SURFACES.



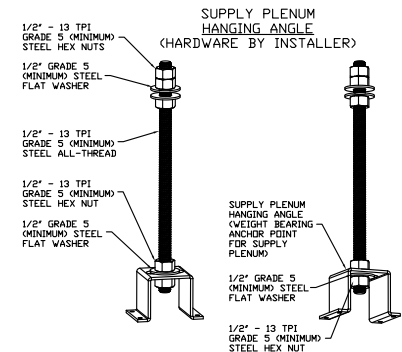
PLAN VIEW - Hood #1
 14' 0.00" LONG 5424ND-2-PSP-F

NOTE: Additional hanging angles provided for hoods 12' and longer.



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



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HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

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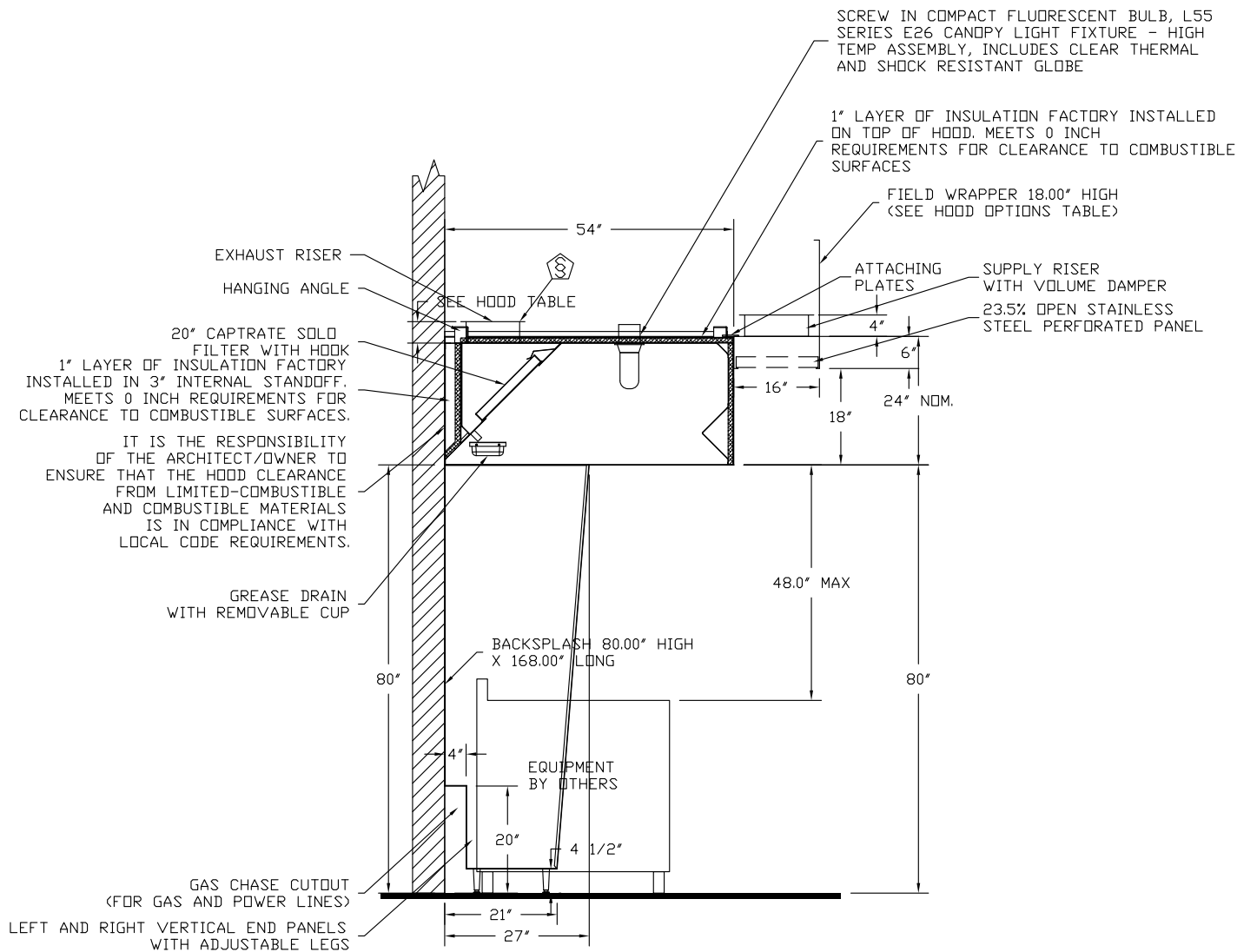
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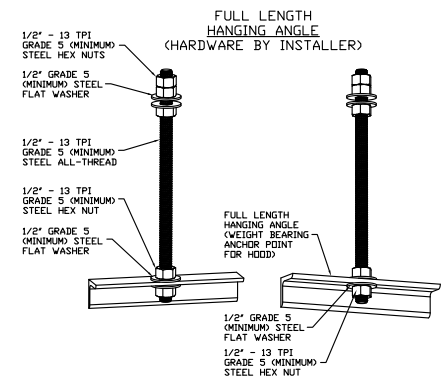
Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 2	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"



**SECTION VIEW - MODEL 5424ND-2-PSP-F
HOOD - #1**



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

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Your Title _____ Date _____

CAPTIVEAIRE

JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 3	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

EXHAUST FAN INFORMATION - Job#2966659

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SONES
1		DUI80HF A	3010	1.500	1314	3.000	1.2140	3	208	9.5	221	19.2

MUA FAN INFORMATION - Job#2966659

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SONES	BURNER EFFICIENCY(%)
2		A1-D.250-G10	G10	A1-D.250	1000	2408	0.500	1203	2.000	1.2620	3	208	5.9	700	22	92

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO.	TAG	INPUT BTUs	OUTPUT BTUs	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
2		240276	221054	85 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1		1 - Grease Box
		1 - Full Crating For Exhaust Fans
		1 - 3 Year Extended Motor Warranty
		1 - Fan Base Ceramic Seal - Ship Loose - For Grease Ducts
2		1 - AC Interlock Relay - 24VAC Coil
		1 - Motorized Backdraft Damper for A1-D Housing
		1 - Full Crating For Commercial Heater
		1 - Low Fire Start
		1 - Inlet Pressure Gauge, 0-35'
		1 - Manifold Pressure Gauge, -5 to 15' wc
		1 - Separate 120V Wiring Package (Required and used only for DCV or Prewire with VFD) - Three Phase Only
		1 - 3 Year Extended Motor Warranty
	1 - Extra Set of Belts	

FAN ACCESSORIES

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

CURB ASSEMBLIES

NO.	DN FAN	WEIGHT	ITEM	SIZE
1	# 1	34 LBS	Curb	26.500"W x 26.500"L x 24.000"H 3.000:12.000 Pitch Vented Hinged
2	# 2	74 LBS	Curb	21.000"W x 71.000"L x 24.000"H 3.000:12.000 Pitch Along Width, Right Insulated

FAN SOUND INFORMATION

FAN UNIT NO.	MOTOR	RPM	LWA	SONES	DBA	DISTANCE FT	OCTAVE 1	OCTAVE 2	OCTAVE 3	OCTAVE 4	OCTAVE 5	OCTAVE 6	OCTAVE 7	OCTAVE 8
1	Exhaust	1314	83	19.2	71.5	5	77	82.1	88.6	79.7	72.3	69.9	63.8	57.7
2	Supply	1203	84.1	22	72.6	5	85.6	85.6	84	80.6	76.8	77.2	73	69.5

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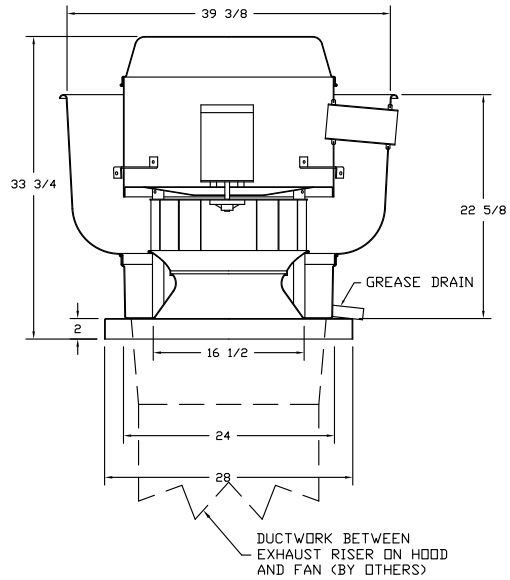
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Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 4	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

FAN #1 DU180HFA - EXHAUST FAN



FEATURES:

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

NORMAL TEMPERATURE TEST

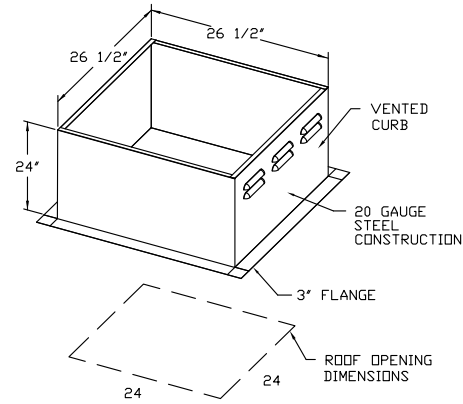
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETRIMENTAL EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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.

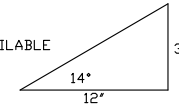
OPTIONS

- GREASE BOX
- FULL CRATING FOR EXHAUST FANS
- 3 YEAR EXTENDED MOTOR WARRANTY
- FAN BASE CERAMIC SEAL - SHIP LOOSE - FOR GREASE DUCTS



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.

SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE



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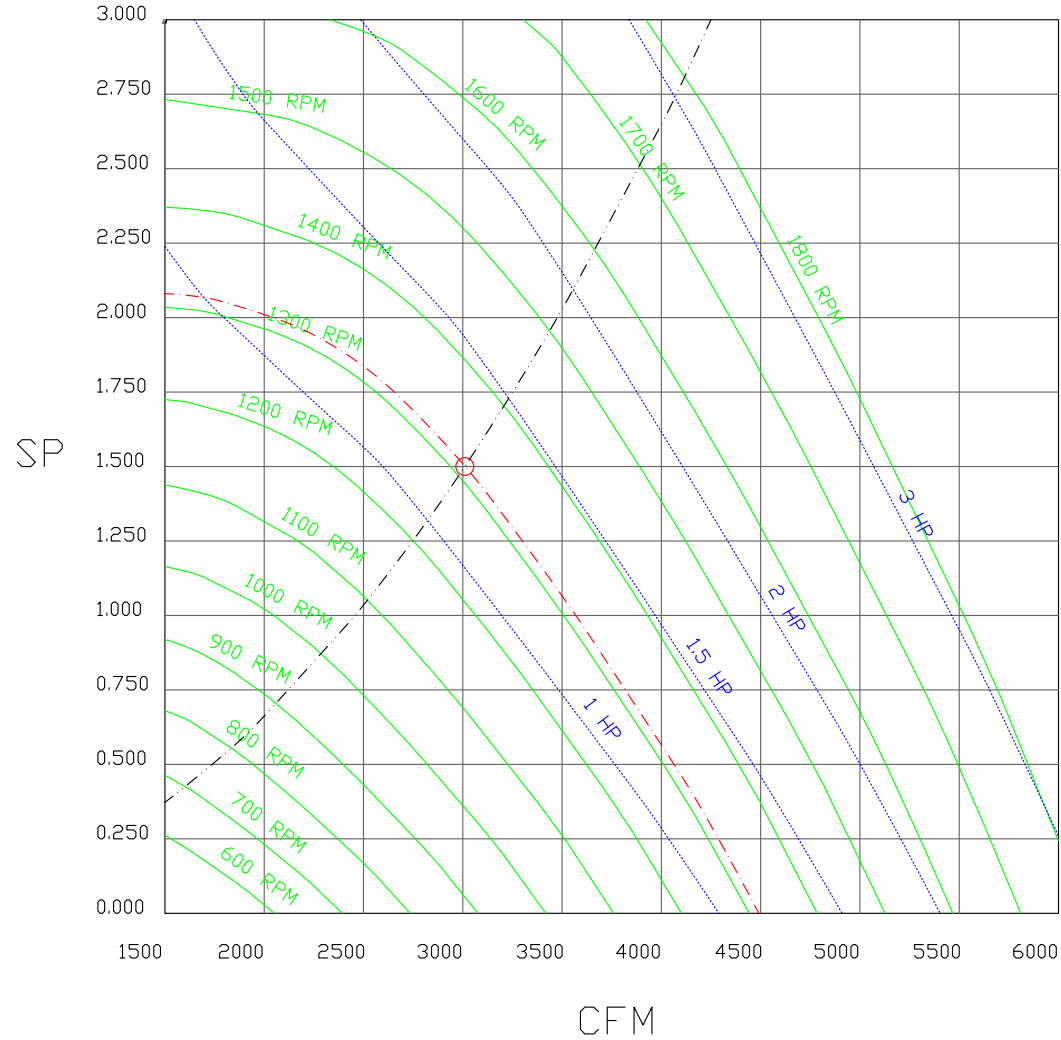
Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 5	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

FAN#1 - EXHAUST PERFORMANCE CURVES.

3010 CFM, 1.5 SP @ 1314 RPM and 1.214 BHP at 86 feet and 70 deg F
 * Please note that these curves were adjusted for job specific temperature and altitude.



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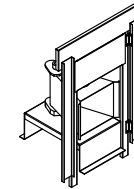
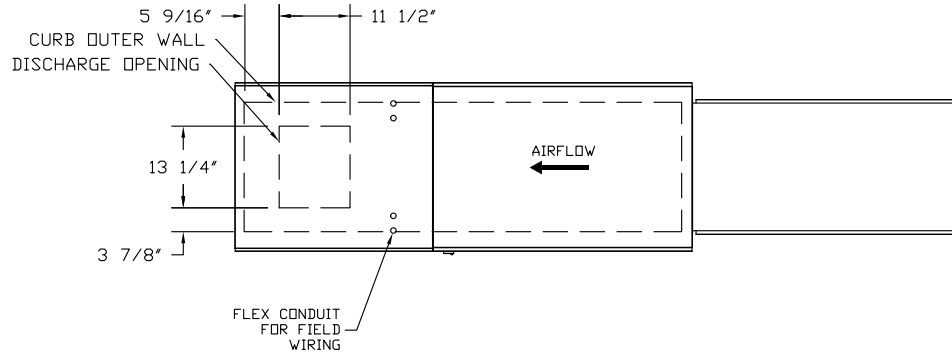
JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 6	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

FAN #2 A1-D.250-G10 - HEATER

1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 10' BLOWER
2. INTAKE HOOD WITH EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. COOLING INTERLOCK RELAY. 24VAC COIL. 120V CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
5. MOTORIZED BACK DRAFT DAMPER 16" X 18" FOR SIZE 1 STANDARD & MODULAR DIRECT FIRED HEATERS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED
6. FULL CRATING FOR COMMERCIAL HEATERS FOR SHIPPING.
7. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
8. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
9. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE
10. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
11. 3 YEAR EXTENDED WARRANTY FOR FAN MOTOR. PARTS ONLY; DOES NOT INCLUDE LABOR.
12. EXTRA SET OF V-BELTS. ONLY TO BE ORDERED AS FAN OPTION AT TIME FAN IS ORDERED.

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 4°F. TEMP. RISE = 85°F.
 BTUs CALCULATED OFF STANDARD AIR DENSITY
 OUTPUT BTUs AT ALTITUDE OF 0.0 ft. = 221054
 INPUT BTUs AT ALTITUDE OF 0.0 ft. = 240277



Direct Fired (DF) Profile Plate Assembly

Direct Fired Profile Plate Specifications:

Description:

Direct Fired burners shall have patented (US Patent No. US6629523B2), self-adjusting profile plates designed to ensure proper air velocity and pressure drop across the burner. Profile plates shall allow burners to achieve clean combustion by limiting by-product levels to a maximum of 5ppm of carbon monoxide (CO), and 0.5ppm of nitrogen dioxide (NO2).

Application:

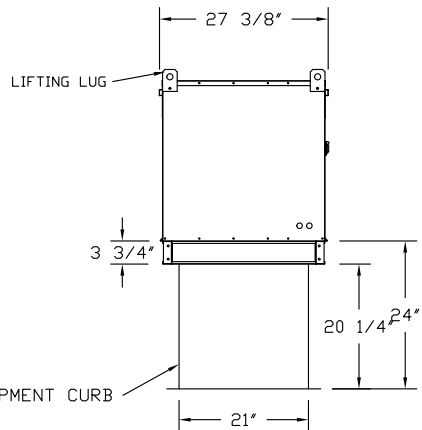
Spring-loaded burner profile plates are engineered to automatically react to the momentum of a fresh air stream, without the need for any motors or actuators to mechanically adjust them. With this feature, all DF units are designed for demand control ventilation (DCV) requirements.

Certifications:

All profile plate assemblies shall be included in the DF unit's ETL listing and comply with combined safety standards ANSI Z83.4 and CSA 3.7 (non-recirculating DF heaters) and ANSI Z83.18 (recirculating DF heaters).

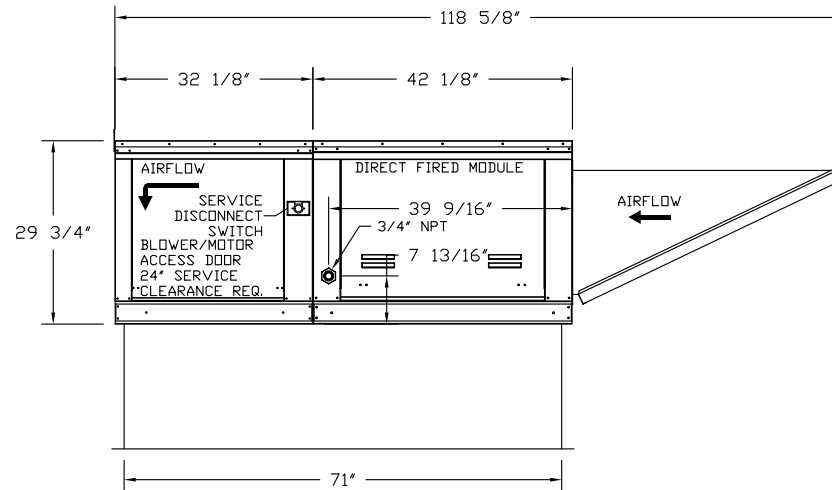
General Construction:

- Profile plates shall be formed from G90 galvanized steel.
- Profile plates shall vary in size per unit.
- Profile plates shall be mounted along the same plane as the discharge of the burner.
- Design shall incorporate properly torqued, permanently mounted spring hinges.
- Spring hinges shall be made from plated steel.



24" EQUIPMENT CURB

ROOF OPENING 2" SMALLER THAN CURB DIMENSION.



CUSTOMER APPROVAL TO MANUFACTURE:

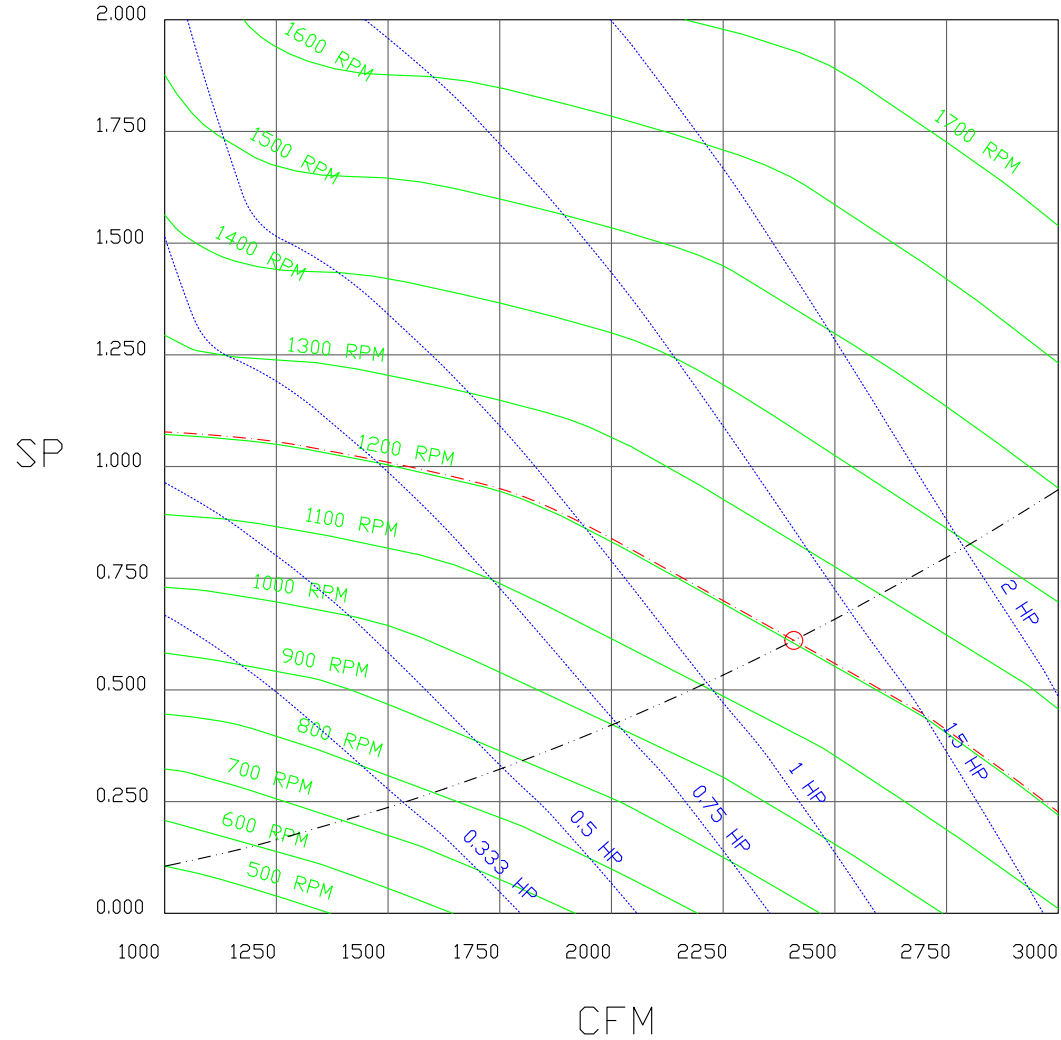
Approved as Noted	<input type="checkbox"/>
Approved with NO Exception Taken	<input type="checkbox"/>
Revise and Resubmit	<input type="checkbox"/>
SIGNATURE _____	
Your Title _____	Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 7	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

FAN#2 - HEATER PERFORMANCE CURVES.

2408 CFM, 0.611 SP @ 1203 RPM and 1.262 BHP at 86 feet and 89 deg F
 * Please note that these curves were adjusted for job specific temperature and altitude.



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JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 8	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

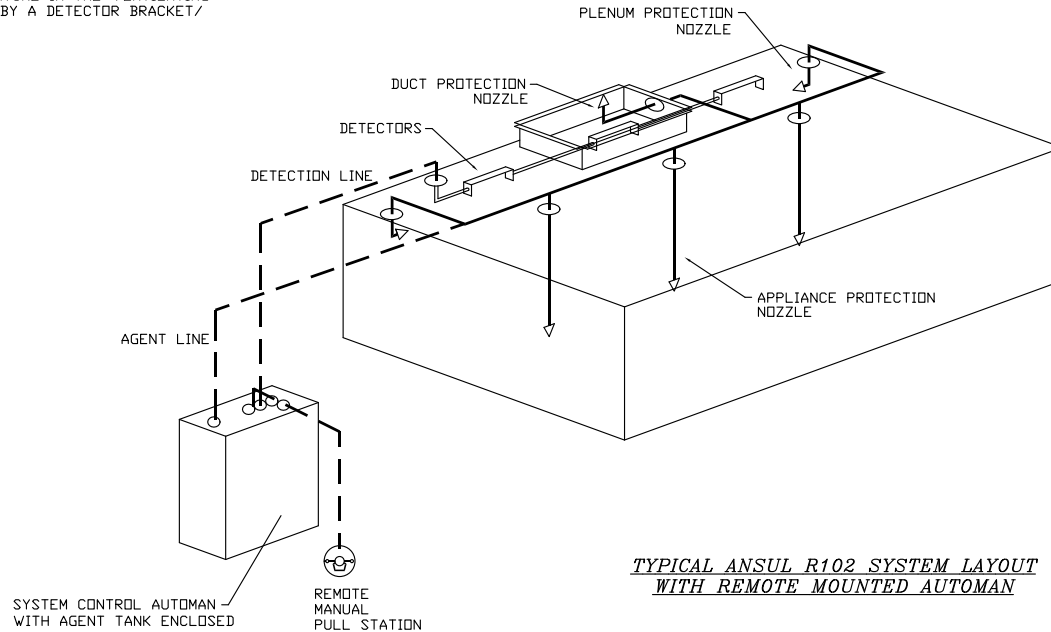
SPECIFICATIONS

THE RESTAURANT FIRE SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC. (UL)

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTUATION. ACCESSORIES SHALL BE AVAILABLE FOR MECHANICAL OR ELECTRICAL GAS LINE SHUT-OFF APPLICATIONS.

THE EXTINGUISHING AGENT SHALL BE A POTASSIUM CARBONATE, POTASSIUM ACETATE-BASED FORMULATION DESIGNED FOR FLAME KNOCKDOWN AND SECUREMENT OF GREASE RELATED FIRES. IT SHALL BE AVAILABLE IN PLASTIC CONTAINERS WITH INSTRUCTIONS FOR LIQUID AGENT HANDLING AND USAGE.

THE REGULATED RELEASE MECHANISM SHALL BE COMPATIBLE WITH A FUSIBLE LINK DETECTION SYSTEM. THE FUSIBLE LINK SHALL BE SELECTED AND INSTALLED ACCORDING TO THE OPERATING TEMPERATURE IN THE VENTILATING SYSTEM. THE FUSIBLE LINK SHALL BE SUPPORTED BY A DETECTOR BRACKET/ LINKAGE ASSEMBLY.



*TYPICAL ANSUL R102 SYSTEM LAYOUT
WITH REMOTE MOUNTED AUTOMAN*

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Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 9	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

Exhaust Fan Wiring

JOB 2966659 - Little Giant r5

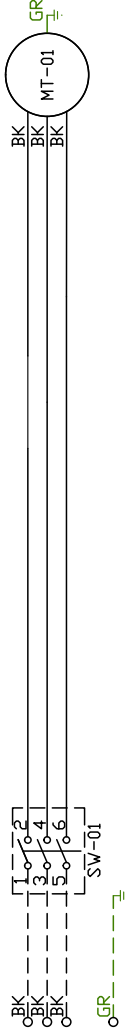
DRAWING NUMBER EXH2966659-1

SHIP DATE 3/27/2017

MODEL DU180HFA

Installed Options

1



Label	Component Description	Location
MT-01	Fan Motor	[20]
SW-01	Main disconnect switch	[20]

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23

EXHAUST MOTOR_INFO
3HP-208V-3P-9.5FLA

ELECTRICAL INFORMATION
MOTOR/CTRL MOP: 119A
MOTOR/CTRL MOP: 20A

NOTES
--- DENOTES FIELD WIRING
___ DENOTES INTERNAL WIRING

WIRE COLOR

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

Direct Fired Heater Wiring

JOB 2966659 - Little Giant r5

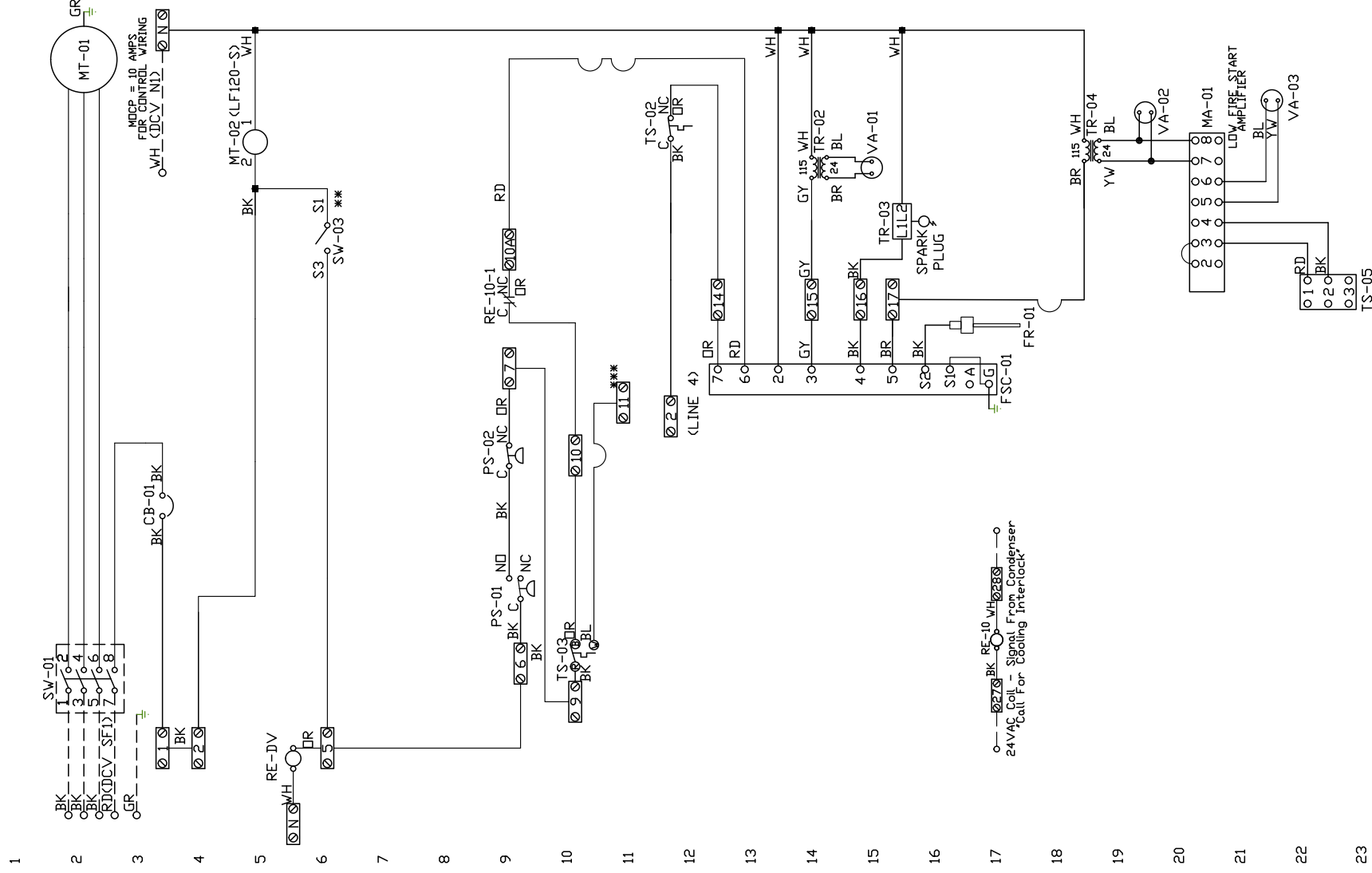
DRAWING NUMBER DF2966659-2

SHIP DATE 3/27/2017

MODEL A1-D.250-G10

ATTENTION ELECTRICIAN
 DROP FOR DISCONNECT CONNECTION WIRE TO IL1A AND IL1B IN DCV IN DCV
 IS FACTORY SUPPLIED IN DCV IN DCV
 CONNECT POWER TO THE DROP (D3&D7 IN EMSPLUS)

Installed Options
 Motorized Back Draft Damper
 Discharge Temp. Control
 DCV Wiring
 24V AC Interlock Relay



Label	Description	Location
CB-01	Circuit breaker (comp)	[3]
FR-01	Fine eye FSC	[16]
FSC-01	Fine eye FSC	[11-14]
MA-01	Modulating amplifier	[19]
MT-01	Supply motor	[2]
MT-02	Damper motor	[5]
PS-01	Low Air-flow Switch	[9]
PS-02	High Air-flow Switch	[5]
RE-DV	DCV Relay	[10E5]
RE-10	AC Interlock Relay	[10D17]
SW-01	Main disconnect switch	[2]
SW-03	Damper end limit switch	[4]
TR-01	Power transformer(200v/230)	[2]
TR-02	Power transformer(20v/230)	[2]
TR-03	Ignition transformer(20v/230)	[14]
TR-04	Power transformer(20v/117)	[14]
TS-02	High temp limit switch	[10]
TS-03	Intake Air Sensor	[10]
TS-05	Discharge Air Sensor	[21]
VA-01	Pilot gas valve	[13]
VA-02	Main gas valve	[18]
VA-03	Modulating gas valve	[20]

SUPPLY MOTOR INFO
 2HP-208V-3P-59FLA

ELECTRICAL INFORMATION
 MOTOR ELECTRICAL DATA
 CONTROL CIRCUIT MCA: 15.2A
 MOTOR CIRCUIT MCA: 25.0A
 CONTROL CIRCUIT MOP: 15A

NOTES
 --- DENOTES FIELD WIRING
 - - - - - DENOTES INTERNAL WIRING

*** TERMINALS S4 AND S6 USED ON NF & AF SERIES ACTUATORS
 *** TERMINAL 11 PROVIDES COOLING CONNECTION

WIRE COLOR	RD - RED	WH - WHITE	PK - PINK
BK-BLACK	YV - YELLOW	GR - GREEN	BR - BROWN
BL-BLUE	RD - RED	WH - WHITE	GY - GRAY
BR - BROWN	YV - YELLOW	GR - GREEN	PR - PURPLE
DR - DRANGE	RD - RED	WH - WHITE	PK - PINK

SOCKET STYLE
 4 3
 4 3
 2 1
 6 7
 6 5

Installation Wiring

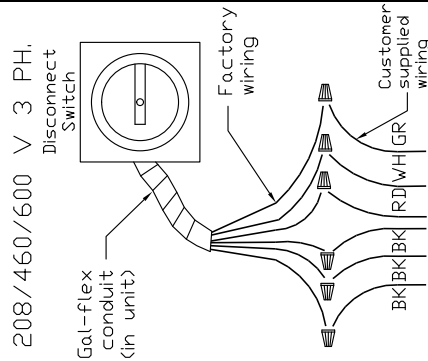
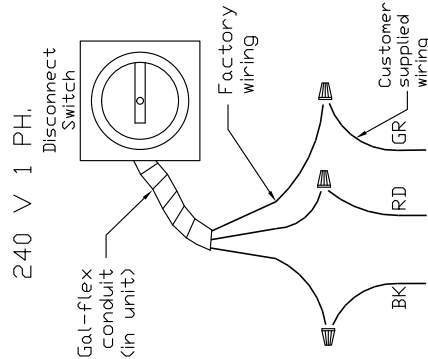
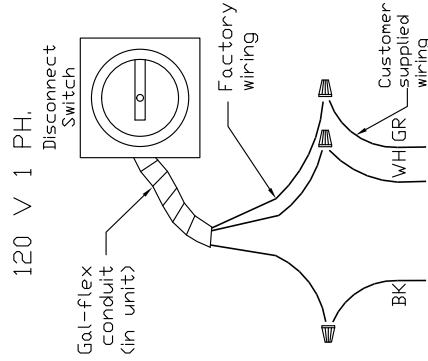
JOB 2966659 - Little Giant r5

DRAWING NUMBER RP2966659-2

SHIP DATE 3/27/2017

MODEL A1-D.250-G10

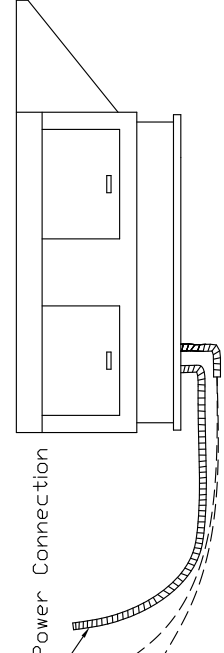
Installed Options
DCV Connections



POWER FROM DEDICATED BREAKER

See above details, Power Connection

D3 IN HEATER TO IL1A IN DCV
D7 IN HEATER TO IL1B IN DCV
WIRE TO
DCV

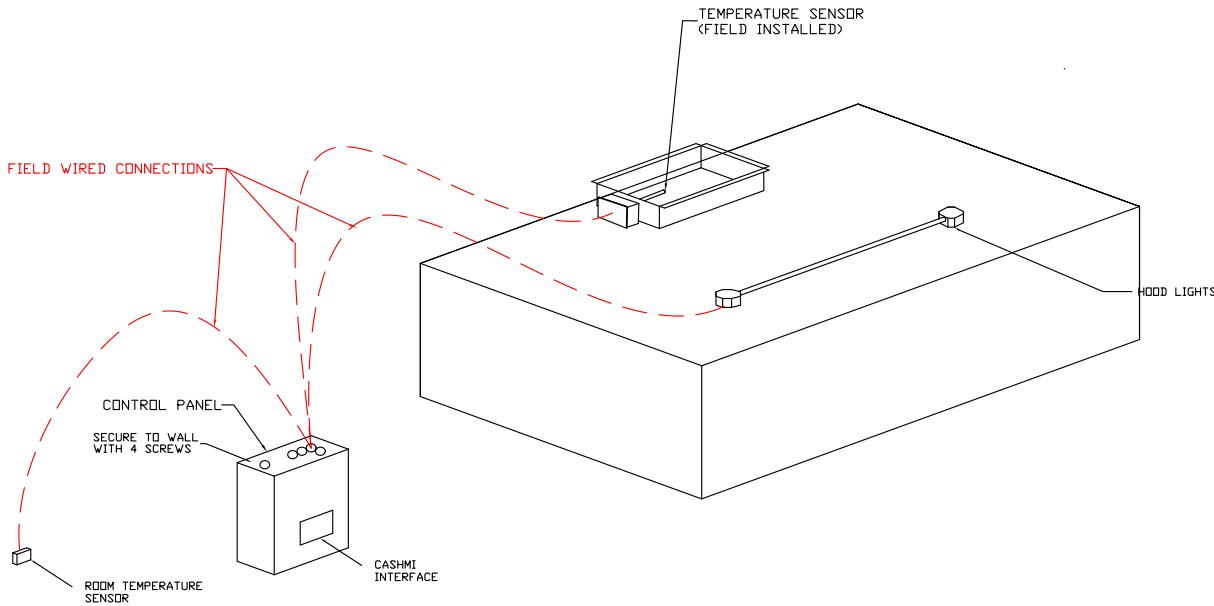


NOTES

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

ELECTRICAL PACKAGES - Job#2966659

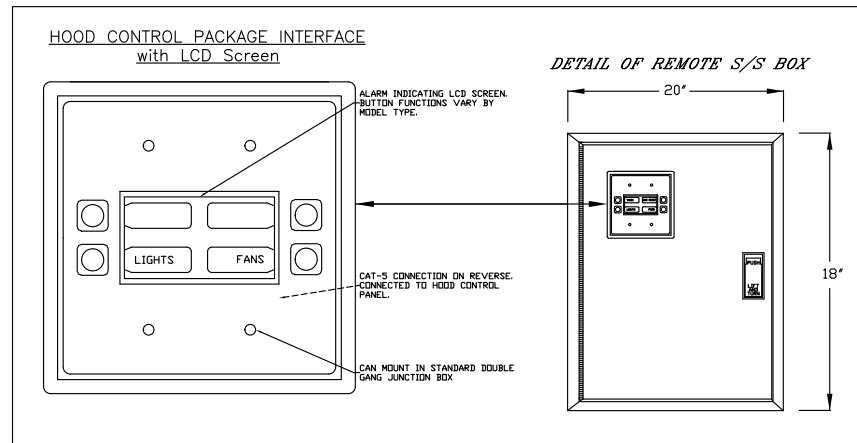
NO.	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	?	H.P.	VOLT	FLA
1		DCV-1111	Wall Mount In SS Box	05 - SS Wall Mount Box	1 Light 1 Fan	Smart Controls DCV	Exhaust	3	3.000	208	9.5
							Supply	3	2.000	208	5.9



TYPICAL SC-ENERGY MANAGEMENT SYSTEM WITH REMOTE MOUNTED PANEL

Room Override Thermostat

Provides room override based on temperature differential between the room and duct. Installed by electrician on a wall, 5'-6" off the finished floor, in the space but not directly under the hood or close to an appliance (including the electrical control box) so the reading is accurate for space.



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

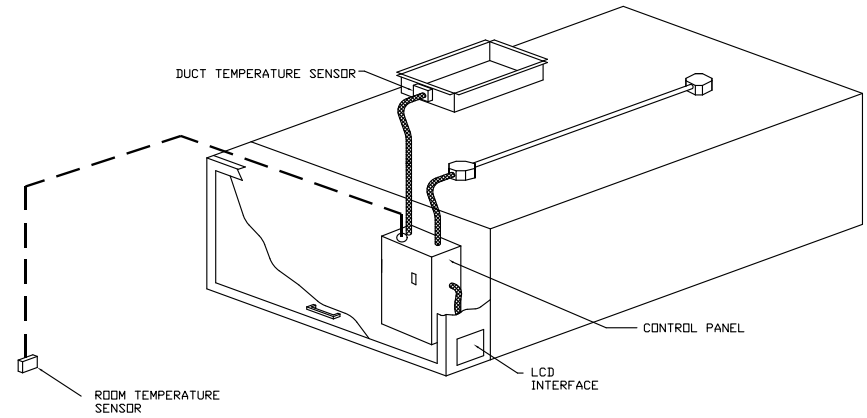
Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 13	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

Demand Control Ventilation Hood Control Panel Specifications:

- Controls shall be listed by ETL (UL 508A) and shall comply with demand ventilation system turndown requirements outlined in IECC 403.2.8 (2015).
- The control enclosure shall be NEMA 1 rated and listed for installation inside of the exhaust hood utility cabinet. The control enclosure may be constructed of stainless steel or painted steel.
- Temperature probe(s) located in the exhaust duct riser(s) shall be constructed of stainless steel.
- A digital controller shall be provided to activate the hood exhaust fans dynamically based on a fixed differential between the ambient and duct temperatures sensors. This function shall meet the requirements of IMC 507.2.1.1
- A digital controller shall provide adjustable hysteresis settings to prevent cycling of the fans after the cooking appliances have been turned off and/or the heat in the exhaust system is reduced.
- A digital controller shall provide an adjustable minimum fan run-time setting to prevent fan cycling.
- Variable Frequency Drives (VFDs) shall be provided for fans as required. The digital controller shall modulate the VFDs between a minimum setpoint and a maximum setpoint on demand. The duct temperature sensor input(s) to the digital controller shall be used to calculate the speed reference signal.
- The VFD speed range of operation shall be from 0% to 100% for the system, with the actual minimum speed set as required to meet minimum ventilation requirements.
- An internal algorithm to the digital controller shall modulate supply fan VFD speed proportional to all exhaust fans that are located in the same fan group as the supply fan.
- The system shall operate in PREP MODE during light cooking load or COOL DOWN MODE when sufficient heat remains underneath the hood system after cooking operations have completed. Operation during either of these periods will disable the supply fans and provide an exhaust fan speed that is equal to the minimum ventilation requirement.
- A digital controller shall disable the supply fan(s), activate the exhaust fan(s), activate the appliance shunt trip, and disable an electric gas valve automatically when fire condition is detected on a covered hood.
- A digital controller shall allow for external BMS fan control via Dry Contact (external control shall not override fan operation logic as required by code).
- An LCD interface shall be provided with the following features:
 - a. On/Off push button fan & light switch activation
 - b. Integrated gas valve reset for electronic gas valves (no reset relay required)
 - c. VFD Fault display with audible & visual alarm notification
 - d. Duct temperature sensor failure detection with audible & visual alarm notification
 - e. Mis-wired duct temperature sensor detection with audible & visual alarm notification
 - f. A single low voltage Cat-5 RJ45 wiring connection
 - g. An energy savings indicator that utilizes measured kWh from the VFDs



TYPICAL HOOD CONTROL PANEL INSTALLATION

Sequence of Operations:

The hood control panel is capable of operating in one or more of the following states at any given time:

- **Automatic:** The system operates based on the differential between room temperature and the temperature at the hood cavity or exhaust duct collar. Fans activate at a configurable temperature differential threshold. Depending on the job configuration each fan zone can be configured as static or dynamic. These terms refer to whether a variable motor (such as EC Motors or VFD driven motors) modulate with temperature. If the panel is equipped with variable speed fans and the zone is defined as "dynamic", these will modulate within a user-defined range based on the temperature differential. Panels equipped with variable speed fans and a fan zone defined as "static", fans will run at a set speed calculated for the drive. Demand control ventilation systems are capable of modulating exhaust and make up air fan speeds per the requirements outlined in IECC 403.2.8.
- **Manual:** The system operates based on human input from an HMI.
- **Schedule:** A weekly schedule can be set to run fans for a specified period throughout the day. There are three occupied times per day to allow for the user to set up a time that is suitable to their needs. Any time that is within the defined occupied time, the system will run at modulation mode and follow the fan procedure algorithm based on temperature during this time. During unoccupied time, the system will have an extra offset to prevent unintended activation of the system during a time where the system is not being occupied.
- **Other:** The system operates based on the input from an external source (DDC, BMS or hard-wired interlock)

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 14	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

JOB NO
2966659

MODEL NUMBER
DCV-1111

DRAWN BY
INSTALL

DESCRIPTION OF OPERATION:
Demand Control Ventilation, w/ control for 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY THREE PHASE MOTOR REQUIRED! Room temperature sensor shipped loose for field installation. Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.

JOB NAME
Little Giant r5

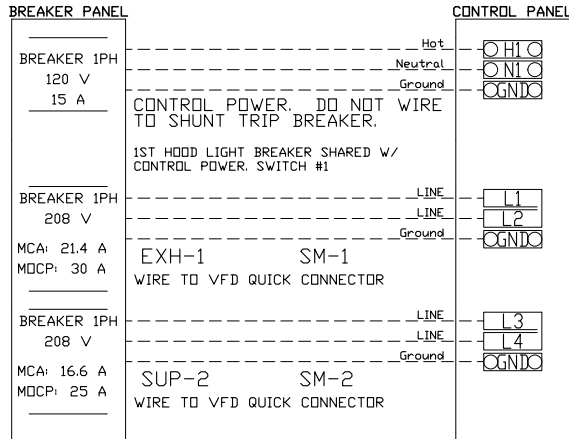
DATE
3/27/2017

DWG NO
ECP #1-1

BREAKER PANEL TO CONTROL PANEL

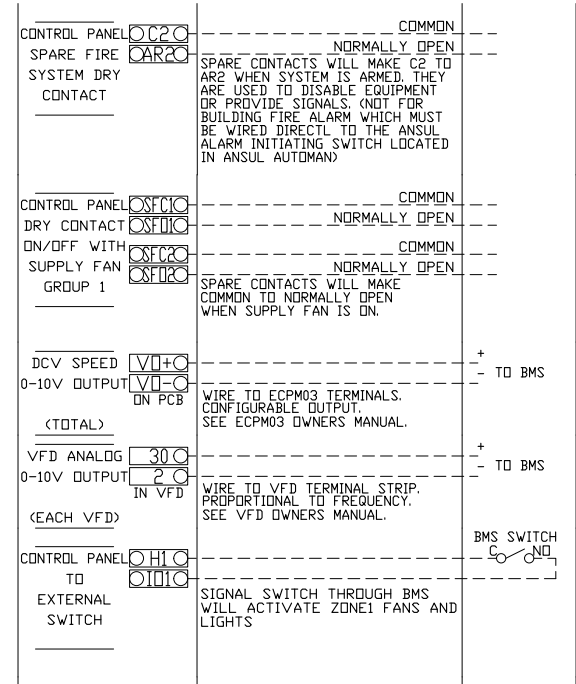
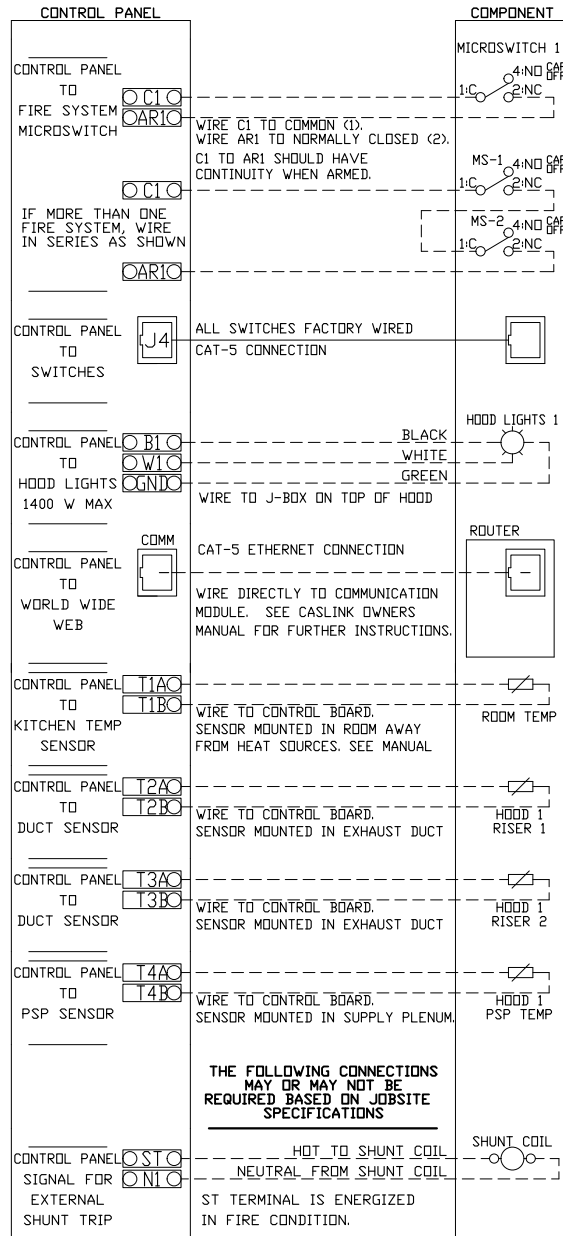
Responsibility: Electrician

BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED



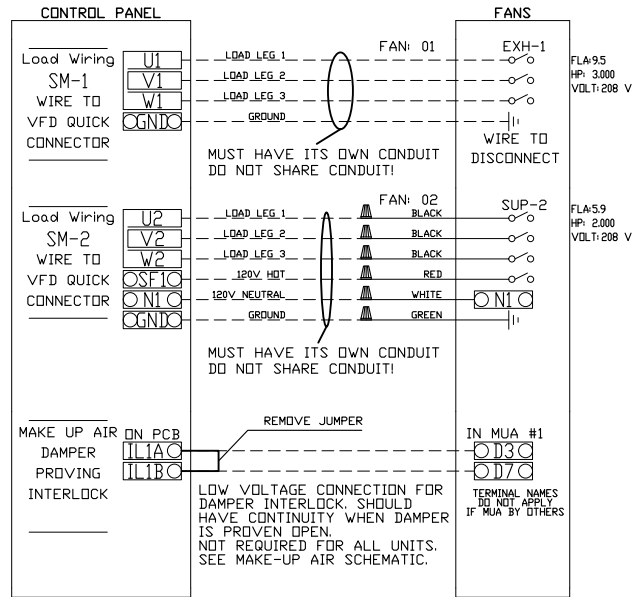
CONTROL PANEL TO ACCESSORY ITEMS

Responsibility: Electrician



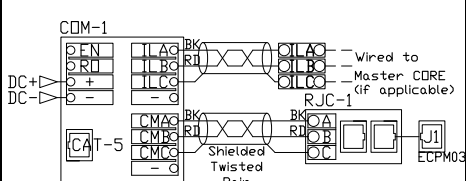
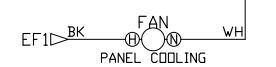
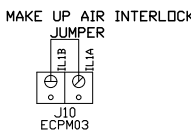
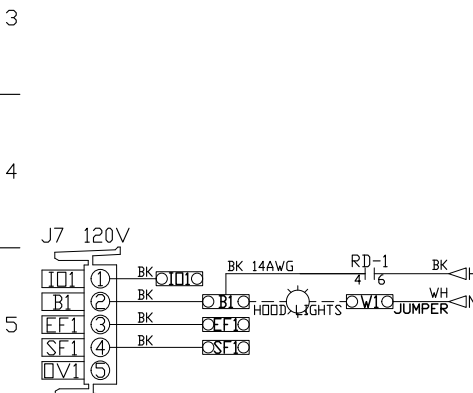
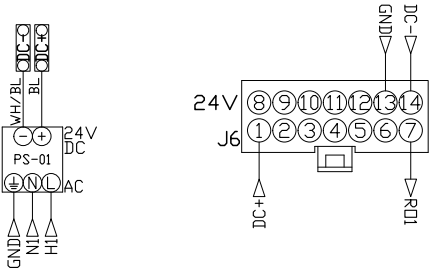
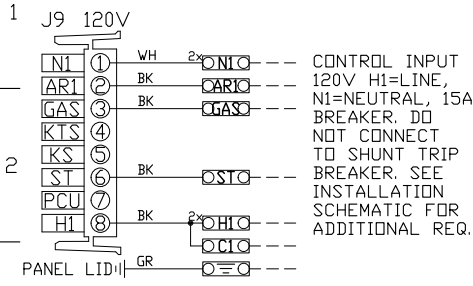
CONTROL PANEL TO FANS

Responsibility: Electrician

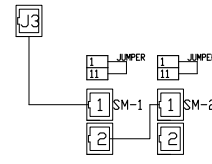


THE FOLLOWING CONNECTIONS
MAY OR MAY NOT BE
REQUIRED BASED ON JOBSITE
SPECIFICATIONS

UNLESS SPECIFIED OTHERWISE, ALL FACTORY AC WIRING 16 AWG. ALL FACTORY DC WIRING 18 AWG.

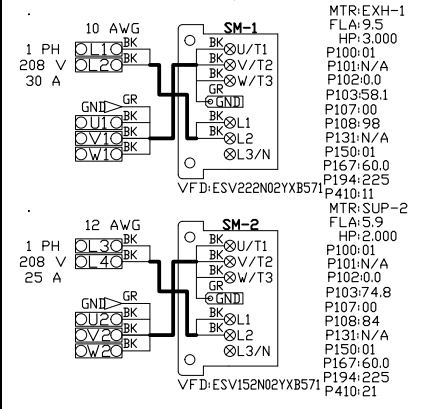


NOTE: All items on ECPM03 J3 line to be daisy chained from one component to the next, with EDL120A at end of line. Place PN: EDL120A in empty RJ45 port.
 ECPM03/DAISY CHAIN



MOTOR POWER CIRCUIT

NOTE: IF VFD HAS 1PH 240V INPUT, USE L1 & L2 ONLY. IF VFD HAS 1PH 120V INPUT, USE L1 & N ONLY.



FACTORY WIRING SCHEMATIC CIRCUIT BOARDS ECPM03

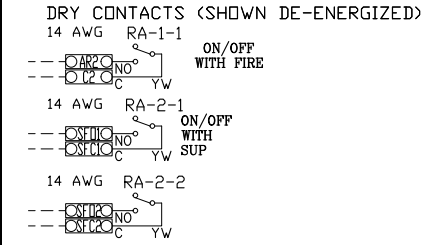
DCV	Rev. 2.00
HMI	Rev. 2.00
RA-x	RD-x
120 VAC RELAY	24 VDC RELAY
NO 4 3	NO 4 3
NC 2 1	NC 2 1
COIL 8 7	COIL 8 7
COM 6 5	COM 6 5

COMPONENT LIST

LABEL	DESCRIPTION
ST-X	Starters PN-varies
DL-X	Overload PN-varies
C-X	Contactors PN-varies
PS-1	Power Sup. 24VDC PN-MDP18-24A-1C
RA-x	120V Relay DPDT PN-34.110.0184.0
RD-x	24VDC Light Relay PN-34.110.0186.0
RJC-x	RJ45 to Twist.Pair PNRJ45_M0DBUS_CONV.
CDM-1	CASLink MODULE PN:CDM01

LEGEND

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



JOB NAME
Little Giant r5

DRAWING TITLE
DCV-1111

DESCRIPTION OF OPERATION
 Demand Control Ventilation, w/ control For 1 Exhaust Fan, 1 Supply Fan, Exhaust on in Fire, Lights out in Fire, Fans modulate based on duct temperature. INVERTER DUTY THREE PHASE MOTOR REQUIRED! Room temperature sensor shipped loose for field installation. Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.

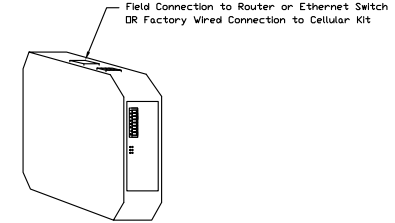
JOB NO	DRAWN BY
2966659	
TYPE	DATE
FACTORY	3/27/2017
DWG NO ECP	#1-2

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.



CASlink Monitor and Control

- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood control panel to allow remote changes to system setting such as: VFD Frequencies, ECM speeds, temperature set points, fan and wash schedules, etc.

MONITORING AND CONTROL POINTS LIST

DCV Packages	Function	SC Packages	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR	Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR	MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR	Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Controller Faults	MONITOR
Fan Amperage	MONITOR	Fan Faults	MONITOR
Fan Power	MONITOR	Fan Status	MONITOR
VFD Faults	MONITOR	PCU Faults	MONITOR
Controller Faults	MONITOR	PCU Filter Clog Percentages	MONITOR
Fan Faults	MONITOR	Fire Condition	MONITOR
Fan Status	MONITOR	CDRE Fire System	MONITOR
PCU Faults	MONITOR	Building Pressures	MONITOR
PCU Filter Clog Percentages	MONITOR	Fans Button(s)	MONITOR & CONTROL
Fire Condition	MONITOR	Lights Button(s)	MONITOR & CONTROL
CDRE Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Pressures	MONITOR		
Prep Time Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Lights Button	MONITOR & CONTROL		
Wash Button	MONITOR & CONTROL		

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____



JOB Little Giant r5	
LOCATION PORTLAND, ME, 04102	
DATE 3/27/2017	JOB # 2966659
DWG # 17	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"