

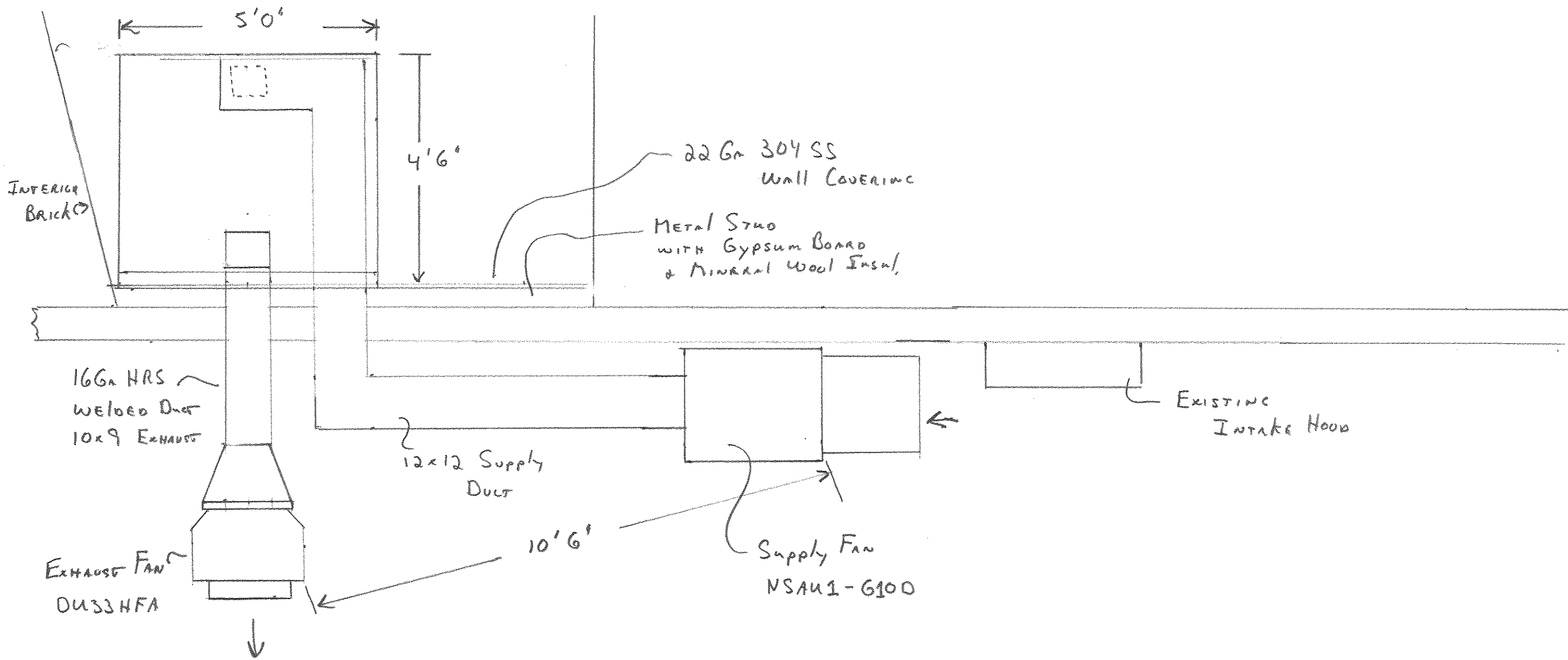
**JIM McGOVERN**  
COMFORT SPECIALIST / ESTIMATOR

539 Elm Street  
Biddeford, Maine 04005  
www.haleysmetal.com

(207) 284-8571  
Fax (207) 284-9597  
Email: jim@haleysmetal.com

1/2" Scale

DAVID'S RESTAURANT  
22 MONUMENT SQUARE  
PORTLAND, ME 04101



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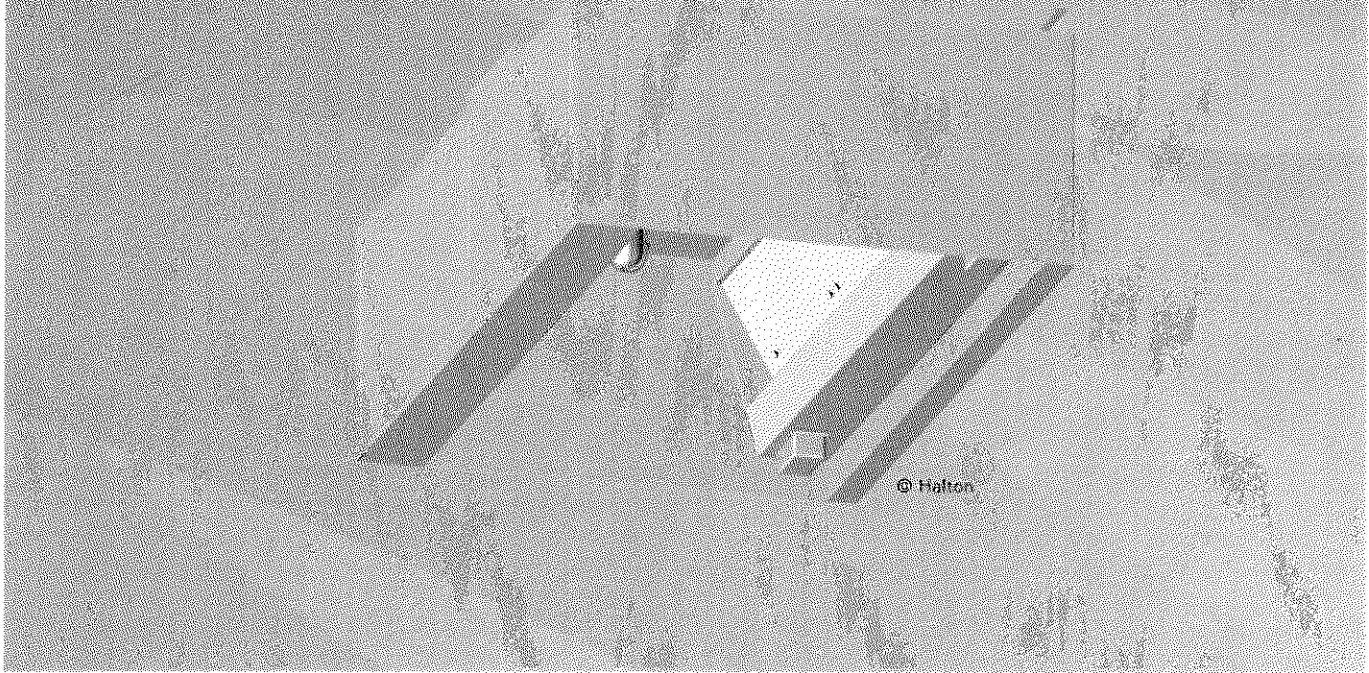
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## CM-B-MA

Cyclo Maze Dry Exhaust Hood with Front Discharge Make-up Air



20/CM-B-MA/XXXX/0107/EN

- Balancing dampers standard on all Cyclo Maze Dry series exhaust hoods. (Unique to Halton)
- • All stainless steel construction
- Full access through front removable panels.
- Full length intake slot and a series of full length adjustable extraction baffles within the exhaust plenum.
- Service chase enclosed with stainless steel, where exposed, to accommodate services
- Listed exhaust collar fire dampers available on all Cyclo Maze Dry series exhaust hoods. (Optional for U.S./Standard in Canada).
- Flexible option and modifications. (Consult Factory)
- Ease of installation, cleaning and servicing.
- Available in lengths 3'-0" to 16'-0" (914mm to 4877 mm) in 6" (152mm) increments.

### Application

Box style exhaust hoods are recommended for all types of cooking equipment. Suitable for wall or island mount installations. Exhaust hoods should overhang front and ends of equipment by minimum of 6" (152mm) and minimum 12" (305mm) over open broilers.



## Consultant Specification

Kitchen exhaust hood shall be a Halton Model \_\_\_\_\_, UL/ULC listed.

The exhaust hood shall be constructed of 18 gauge or heavier, 300 series stainless steel. The exhaust hood shall be provided with a stainless steel all welded exhaust duct collar with connection flange. All joints and seams are welded and/or liquid tight. All exposed welds are ground and polished to the original finish of metal. End panels shall be hemmed to the interior. Continuous hanging brackets shall be supplied on each unit for ceiling or wall mount installations.

Cyclo Maze Dry Series exhaust hoods will be equipped with a UL/ULC listed self-closing spring loaded exhaust collar fire damper (Optional for U.S./ Standard for Canada) assembly which shall be activated by a fusible link, rated at 286°F (141°C). A UL/ULC listed exhaust collar air volume control damper shall also be provided for optimum balancing of single and multiple exhaust hood systems. All dampers shall be accessible through the exhaust hood plenum.

The exhaust hood shall be equipped with a full length intake slot and a series of full length extraction baffles within the exhaust plenum. The face of the exhaust plenum is provided with removable panels allowing complete access to the extraction chamber for routine

maintenance and cleaning. Each panel shall have an individual, adjustable extraction baffle permitting air velocity adjustment across the entire length of hood.

The upper portion of the exhaust plenum is expanded in cross sectional area to allow the reduction of air velocity prior to exiting the hood. The lower extraction chamber is provided with a centrally located splitter baffle which divides the incoming air into two separate air streams, each with it's own intercepting baffles, to optimize grease extraction.

An intergrated make-up air plenum shall be located at the front of the exhaust hood. Make-up air is discharged through removable perforated stainless steel panels.

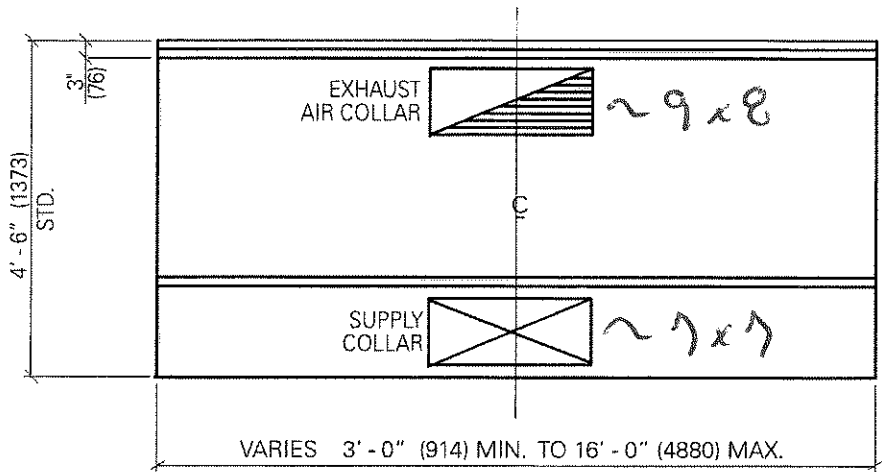
Exhaust hood shall contain an integral 3" (76mm) rear air space.

Exhaust hoods shall be listed by Underwriters Laboratories and/or Underwriters Laboratories of Canada and meet all NFPA 96 requirements.

## Modifications & Options

- **LIGHTS** - Exhaust hood shall contain -  
Quantity \_\_\_\_\_, (bulbs/lamps by others)
  - Flush mount fluorescent light fixtures 36" (914mm) or 48" (1219mm) long (2x40 watts).
  - Flush mount vapor proof incandescent light fixture (2x75 watts).
  - Surface mount globe type light fixtures complete with clear thermal shock proof glass with plated steel wire guard (1x100 watts).
- **MAKE-UP AIR GRILLES** - Double deflection grilles with opposed blade balancing dampers in lieu of perforated panels.
- **FIRE DAMPERS** - Listed exhaust collar fire dampers on Cyclo Maze Dry series hoods.  
(Optional for U.S./Standard for Canada)
- **STAINLESS STEEL MAIN BACK** - Where exposed, for island applications.
- **REAR DUCT** - Rear duct collar take-off.
- **OFFSET COLLAR** - Duct collars can be offset
- **DIMENSIONS** - Height, length and depth can be altered as required.

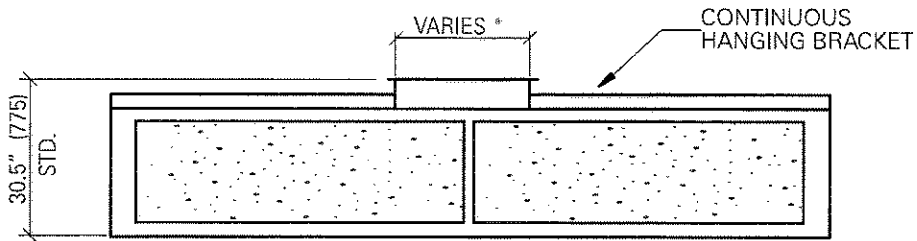
Dimension:  $\frac{\text{Inches}}{\text{mm}}$



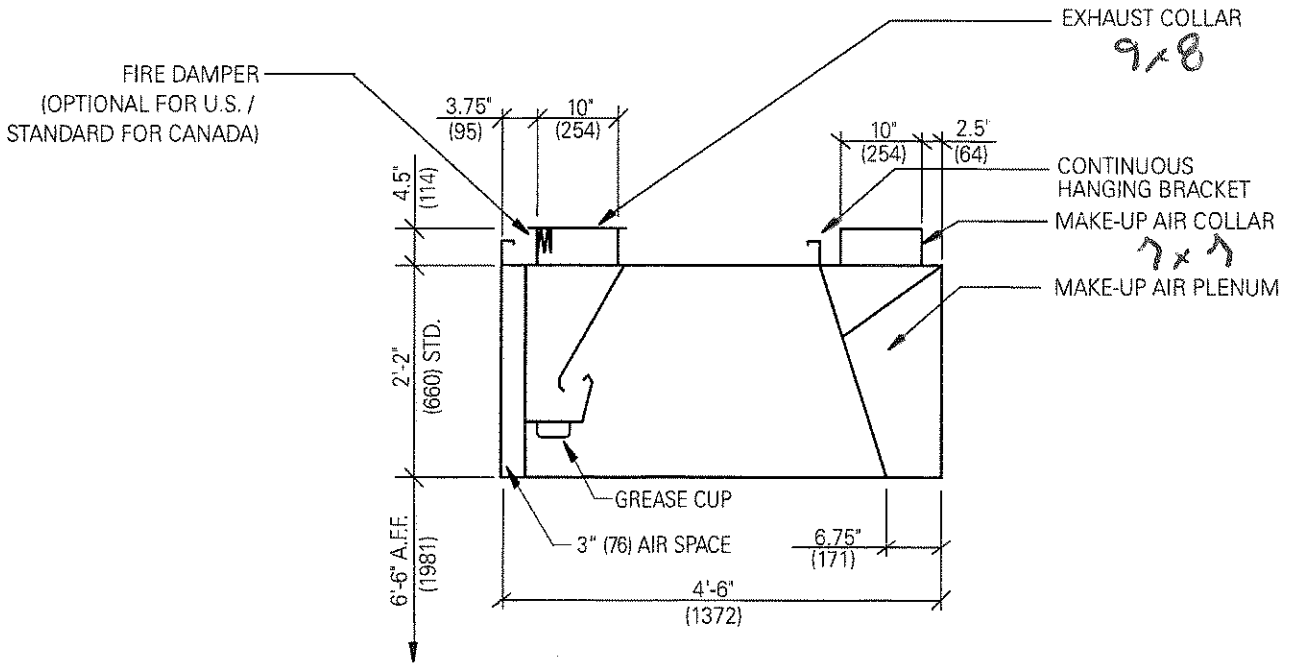
54"

**PLAN VIEW**

60"



**FRONT ELEVATION VIEW**



**LEFT SECTION VIEW**

## Design Criteria

Cylco Maze Dry Exhaust Air Volume  
& Collar Sizing Data Chart

Exhaust Air Volumes		Duct Collars 10" (254mm) x _____
CFM	m <sup>3</sup> /s	INCHES (mm)
600 - 799	.28 - .38	6" (152)
800 - 999	.38 - .47	8" (203)
1000 - 1199	.47 - .57	10" (254)
1200 - 1399	.57 - .66	12" (305)
1400 - 1599	.66 - .75	14" (356)
1600 - 1799	.75 - .85	16" (406)
1800 - 1999	.85 - .94	18" (457)
2000 - 2299	.94 - 1.09	20" (508)
2300 - 2499	1.09 - 1.18	22" (559)
2500 - 2699	1.18 - 1.27	24" (610)
2700 - 2899	1.27 - 1.37	26" (660)
2900 - 3099	1.37 - 1.46	28" (711)
3100 - 3299	1.46 - 1.56	30" (762)
3300 - 3499	1.56 - 1.65	32" (812)
3500 - 3699	1.65 - 1.75	34" (864)
3700 - 3899	1.75 - 1.84	36" (914)
3900 - 4099	1.84 - 1.93	38" (965)
4100 - 4299	1.93 - 2.03	40" (1016)
4300 - 4499	2.03 - 2.12	2 @ 20" (508)
4500 - 4699	2.12 - 2.22	2 @ 22" (559)
4700 - 4899	2.22 - 2.31	2 @ 22" (559)
4900 - 5199	2.31 - 2.45	2 @ 24" (610)
5200 - 5399	2.45 - 2.55	2 @ 24" (610)
5400 - 5600	2.55 - 2.64	2 @ 24" (610)

Cylco Maze Dry Exhaust Air Volume  
& Collar Sizing Data Chart

Front Supply Air Volumes (80% of Exhaust Volume)		Duct Collars 10" (254mm) x _____
CFM	m <sup>3</sup> /s	INCHES (mm)
480 - 640	.266 - .302	10" (254)
640 - 800	.302 - .377	12" (305)
800 - 960	.377 - .453	14" (356)
960 - 1120	.453 - .528	16" (406)
1120 - 1280	.528 - .604	19" (483)
1280 - 1440	.604 - .679	21" (533)
1440 - 1600	.679 - .755	23" (584)
1600 - 1840	.755 - .868	27" (686)
1840 - 2000	.868 - .943	29" (737)
2000 - 2160	.943 - 1.019	31" (787)
2160 - 2320	1.019 - 1.094	34" (864)
2320 - 2480	1.094 - 1.170	36" (914)
2480 - 2640	1.170 - 1.245	38" (965)
2640 - 2800	1.245 - 1.321	40" (1016)
2800 - 2960	1.321 - 1.396	2 @ 22" (559)
2960 - 3120	1.396 - 1.472	2 @ 23" (584)
3120 - 3280	1.472 - 1.547	2 @ 24" (610)
3280 - 3440	1.547 - 1.623	2 @ 25" (635)
3440 - 3600	1.623 - 1.699	2 @ 26" (660)
3600 - 3760	1.699 - 1.774	2 @ 27" (686)
3760 - 3920	1.774 - 1.850	2 @ 28" (711)
3920 - 4160	1.850 - 1.963	2 @ 30" (762)
4160 - 4320	1.963 - 2.038	2 @ 31" (787)
4320 - 4480	2.038 - 2.114	2 @ 32" (813)

### Exhaust Hood Static Pressure Chart

Exhaust Air Volumes	Static Pressure
<b>150 cfm/ft</b> (0.071 m <sup>3</sup> /s per 305mm)	0.07" (.174kPa)
<b>200 cfm/ft</b> (0.094 m <sup>3</sup> /s per 305mm)	0.85" (.211kPa)
<b>250 cfm/ft</b> (.118 m <sup>3</sup> /s per 305mm)	1.0" (.248kPa)
<b>300 cfm/ft</b> (.142 m <sup>3</sup> /s per 305mm)	1.3" (.322kPa)
<b>350 cfm/ft</b> (.165 m <sup>3</sup> /s per 305mm)	1.6" (.397kPa)

Ventilator exhaust air volume requirements depend on type of equipment, model of ventilator, location of ventilator in relation to adjacent walls and the make-up air velocity and balance within the cooking area. Each kitchen's air system must be calculated individually and engineered to meet these conditions. It is essential that all air, ventilator and cooking equipment factors be established and co-ordinated by the design team to achieve proper ventilator exhausting of cooking equipment. Contact Halton for assistance to determine proper cooking equipment and ventilator exhaust air volumes.

#### EXHAUST AIR VOLUME AND DUCT COLLAR SIZE CHART.

- Duct collar sized to move air at a minimum velocity of 1500 fpm (762 m/s)

#### SUPPLY AIR VOLUME AND DUCT COLLAR SIZE CHART.

- Duct collar sized to move air at a minimum velocity of 1000 fpm (5.08 m/s)

Continuous product improvement is a Halton policy, therefore specifications and designs are subject to change without notice.

**EXHAUST FAN INFORMATION**

FAN UNIT NO.	FAN UNIT MODEL #	MODEL	TAG	CFM	ESP.	RPM	H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SDNES
1	DU33HFA	DU33HFA		1000	0.400	1522	0.333	1	115	4.1	103.96	10.6

**MUA FAN INFORMATION**

FAN UNIT NO.	FAN UNIT MODEL #	BLOWER	HOUSING	TAG	CFM	ESP.	RPM	H.P.	Ø	VOLT	FLA	WEIGHT (LBS.)	SDNES
2	NSAU1-G10D	G10D	NSAU.1		800	0.250	592	0.500	1	115	6.8	239.64	9.3

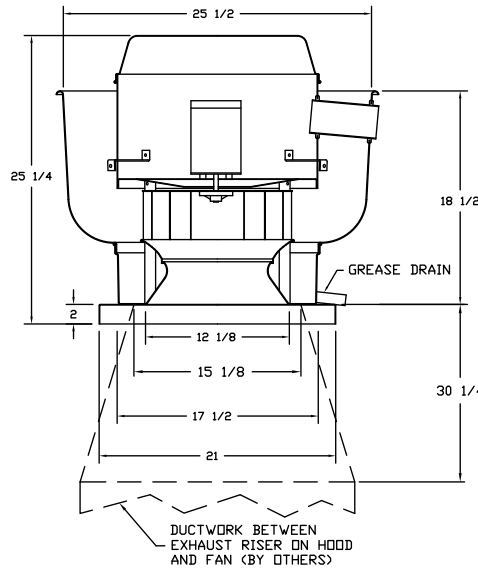
**FAN OPTIONS**

FAN UNIT NO.	OPTION (Qty. - Descr.)
1	1 - Grease Box
	1 - Full Crating For Exhaust Fans
	1 - Fan Base Ceramic Seal - For Grease Ducts
	1 - Hinge Kit - Ships Loose for Curb Supplied by Others
	1 - Wall Mount Construction for Fan
2	1 - Full Crating For Untempered Fans
	1 - Gravity Backdraft Damper for Size 1 Housing
	1 - Wall Mount Option for Size 1 Untempered Fan

**FAN ACCESSORIES**

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

FAN #1 DU33HFA - EXHAUST FAN



**FEATURES:**

- 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 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
- FULL CRATING FOR EXHAUST FANS
- FAN BASE CERAMIC SEAL - FOR GREASE DUCTS
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
- WALL MOUNT CONSTRUCTION FOR FAN

**CUSTOMER APPROVAL TO MANUFACTURE:**

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE \_\_\_\_\_

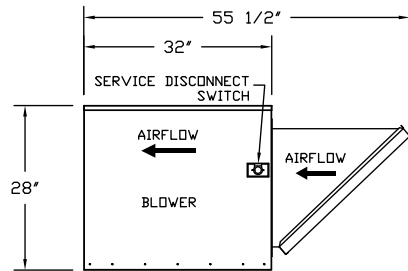
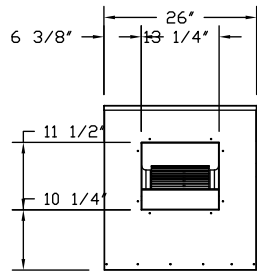
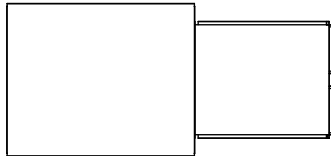
Your Title \_\_\_\_\_ Date \_\_\_\_\_



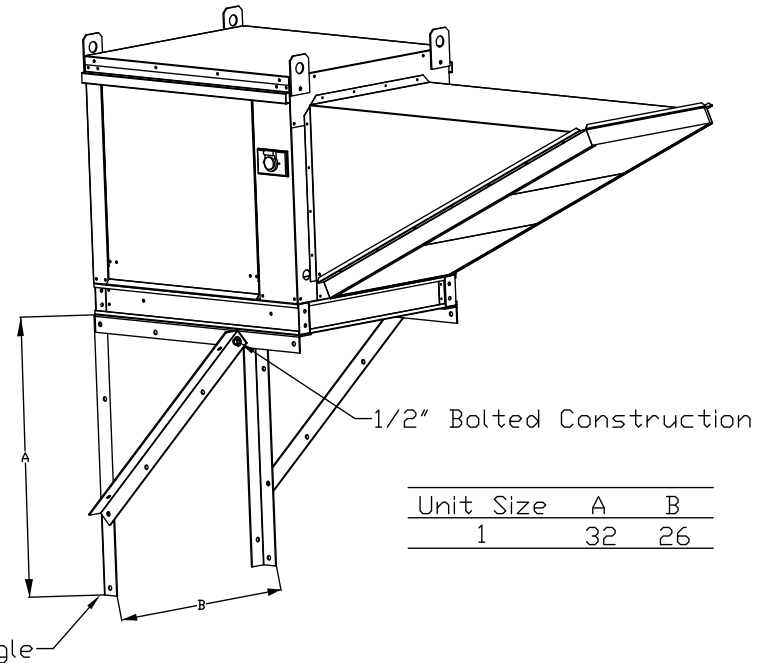
JOB	David's Restaurant		
LOCATION	BIDDEFORD, ME		
DATE	9/20/2012	JOB #	1632489
DWG #	1	DRAWN BY	BFC-21
REV.		SCALE	3/8" = 1'-0"

FAN #2 NSAU1-G10D - SUPPLY FAN

1. DIRECT DRIVE SUPPLY UNIT WITH 10" BLOWER IN SIZE #1 HOUSING WITH SPEED CONTROL, DISCONNECT SWITCH.
2. INTAKE HOOD WITH EZ FILTERS
3. SIDE DISCHARGE - AIR FLOW RIGHT -> LEFT
4. FULL CRATING FOR UNTEMPERED FANS FOR SHIPPING.
5. GRAVITY BACK DRAFT DAMPER, 16" WIDE X 18" HIGH, STANDARD GALVANIZED CONSTRUCTION, 1 1/4" REAR FLANGE, FOR SIZE 1 UNTEMPERED FAN HOUSING (5181)
6. WALL MOUNT OPTION FOR SIZE 1 UN-TEMPERED MAKE-UP AIR FAN. 32" LONG ANGLE IRON FRAME.



Untempered Supply Fan Wall Mount Bracket Detail



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE \_\_\_\_\_

Your Title \_\_\_\_\_ Date \_\_\_\_\_



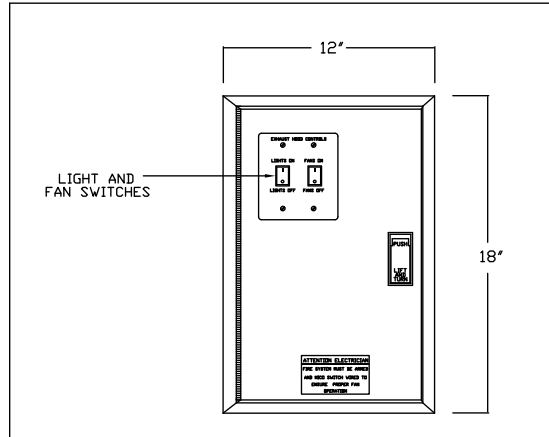
JOB David's Restaurant	
LOCATION BIDDEFORD, ME	
DATE 9/20/2012	JOB # 1632489
DWG # 2	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"



**ELECTRICAL PACKAGES**

NO.	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	Ø	H.P.	VOLT	FLA
1		11111002	Wall Mount In SS Box	SS Wall Mount Box	1 Light 1 Fan	Exhaust in Fire	Exhaust	1	0.333	115	4.1
							Supply	1	0.500	115	6.8

DETAIL OF REMOTE S/S BOX



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted   
 Approved with NO Exception Taken   
 Revise and Resubmit   
 SIGNATURE \_\_\_\_\_  
 Your Title \_\_\_\_\_ Date \_\_\_\_\_



Intertek

**CAPTIVE AIR**

JOB David's Restaurant	
LOCATION BIDDEFORD, ME	
DATE 9/20/2012	JOB # 1632489
DWG # 3	DRAWN BY BFC-21
REV.	SCALE 3/8" = 1'-0"

Exhaust Fan Wiring

JOB NAME David's Restaurant

DATE 9/20/2012

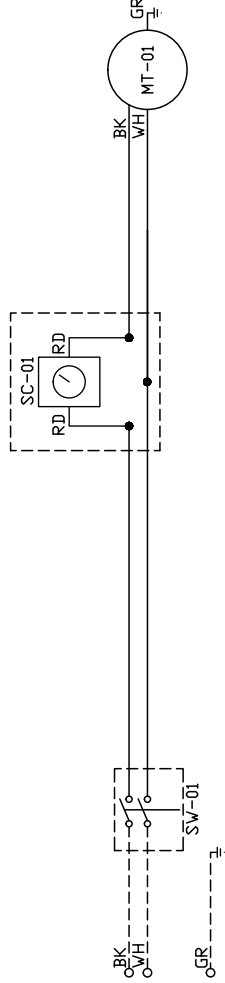
DRAWING NUMBER EXH1632489-1

JOB NUMBER 1632489

MODEL DU33HPA

Installed Options

Speed Control



Component Identification	
Label	Location
MT-01	Fan Motor [20]
GD-01	Quick Disconnect [20]
SC-01	Speed Control [10]
SW-01	Main disconnect switch [20]

MOTOR\_INFO  
 EXHAUST 0.333HP-115V-1P-4JFLA

ELECTRICAL INFORMATION  
 MOTOR/CONTROL MCA: 52A  
 MOTOR/CONTROL MDP: 15A

NOTES  
 - - - - - DENOTES FIELD WIRING  
 \_\_\_\_\_ DENOTES INTERNAL WIRING

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

# AirHandler Wiring

JOB NAME *David's Restaurant*

DATE 9/20/2012

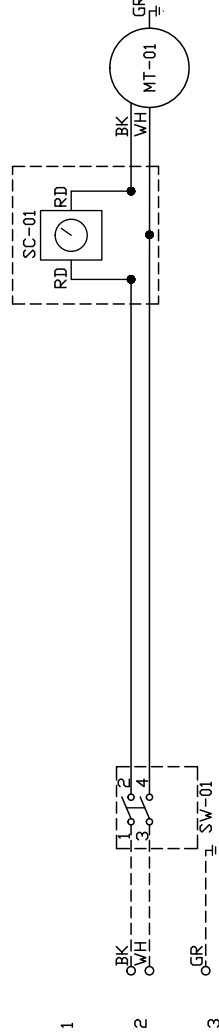
DRAWING NUMBER A1632489-2

JOB NUMBER 1632489

MODEL NSAU1-G10D

ATTENTION ELECTRICIAN!  
 DROP FOR DISCONNECT CONNECTION IS FACTORY SUPPLIED  
 CONNECT POWER TO THE DROP

Installed Options



Label	Component Identification Description	Location
MT-01	Supply motor	[20]
SC-01	Speed Control	[10]
SW-01	Main disconnect switch	[20]

SUPPLY MOTOR\_INFO  
 0.5HP-115V-1P-6.8FLA

ELECTRICAL INFORMATION  
 MOTOR/CONTROL CIRCUIT MCA: 8.5A  
 MOTOR/CONTROL CIRCUIT MDP: 15A

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

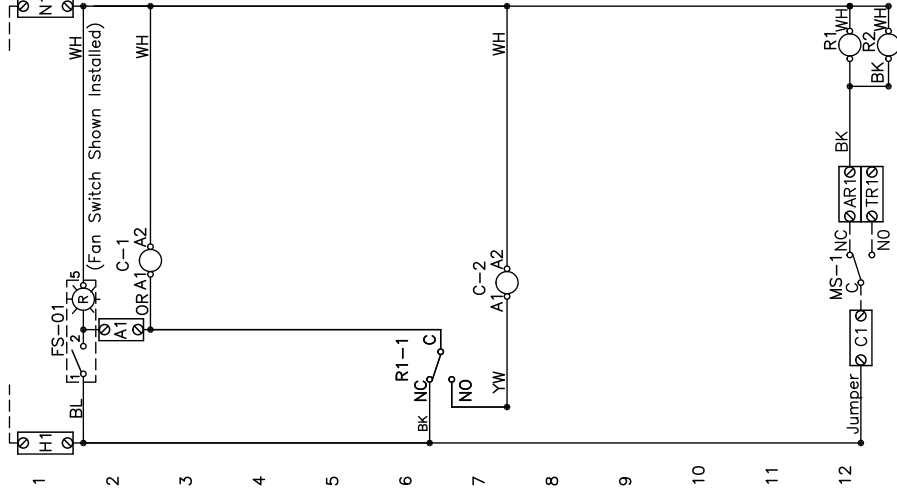
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DRAWING NUMBER 11111002

JOB NUMBER 1632489

DRAWN BY

CONTROL INPUT 120VAC H1=LINE, N1=NEUTRAL 15A BKR - DO NOT WIRE TO SHUNT TRIP BREAKER



13

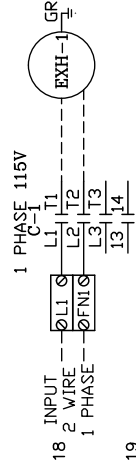
14

15 LIGHT INPUT 120VAC H2-H5=LINE, N2-N5=NEUTRAL 15A BKR (MAX 1400W PER CIRCUIT)

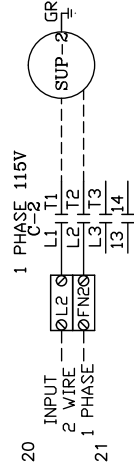


16

17



19



21

22

23

24

120V/1ph, w/ 1 Exhaust Fan, 1 Supply Fan, Exhaust in Fire

## COMPONENT PARTS LIST

LABEL	DESCRIPTION
C-x	Contact
SI-x	Starter
OL-x	Overload
FS-xx	Fan Switch (Lighted)
LS-xx	Light Switch
L	Hood Light(s)
MS-x	MicroSwitch (Ansu/PyroChem)
Rx	Relay DPDT - 34.110.0184.0 + Socket

SPARE FIRE DRY CONTACTS  
 SPARE RELAY CONTACTS USED WHEN FIRE SYSTEM DISCHARGES TO SHUT DOWN SHUNT TRIP EQUIPMENT OR PROVIDE SIGNALS. (NOT FOR BUILDING FIRE ALARM)



TR: Tripped, AR: Armed, C: Common

Rx RELAY SOCKET STYLE

	"CLON"	
C-RD	NO	4
NO-BL	NC	2
NC-PR	COIL	8
	COM	6
		5

MS-x	MicroSwitch
C-RD	
NO-BK	
NC-BR	

MOTOR	TAG	PH	VOLT	HP	FLA	BRK
EXH-1		1	115	0.333	4.1	15A
SUP-2		1	115	0.5	6.8	15A

## NOTES

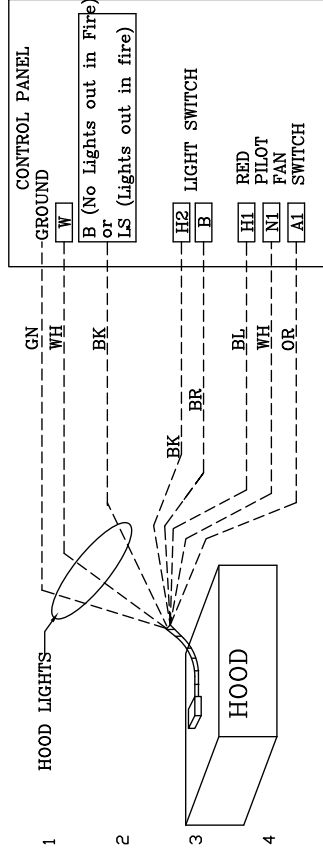
----- DENOTES FIELD WIRING  
 - - - - - DENOTES INTERNAL WIRING

## WIRE COLOR

BK - BLACK YW - YELLOW  
 BL - BLUE GR - GRAY  
 BR - BROWN PR - PURPLE  
 OR - ORANGE OR/BL - ORANGE/BLUE (STRIPE)  
 RD - RED BL/RD - BLUE/RED (STRIPE)  
 WH - WHITE RD/GN - RED/GREEN (STRIPE)

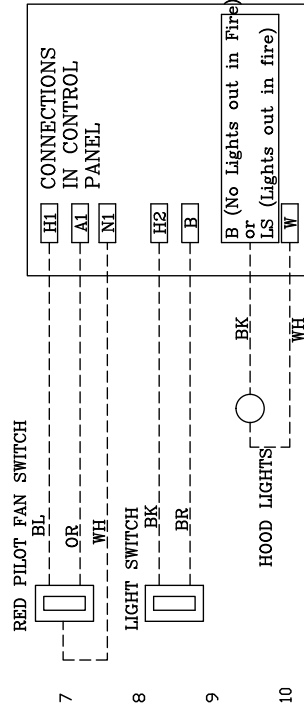
DRAWING SHOWN DE-ENERGIZED  
 NOTE: IF WALL MOUNT PREWIRE OR FIELD INSTALLED FIRE SYSTEM MICROSWITCH, THE TERMINALS SHOWING FACTORY WIRING MUST BE FIELD WIRED.

HOOD TO CONTROL PANEL

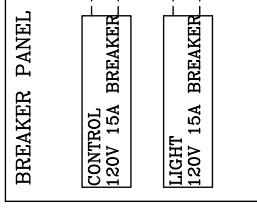


5 Light switch and fan switch mounted on the face of the hood and control panel mounted separately then field wire to the control panel as shown.

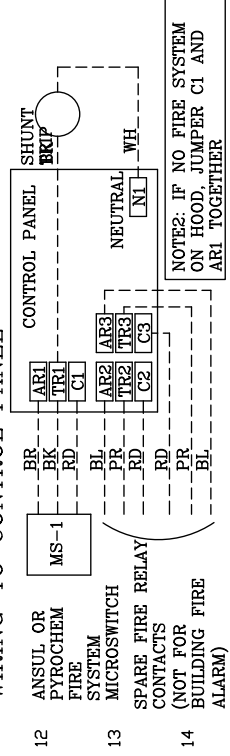
FIELD WIRED SWITCHES TO CONTROL PANEL



POWER FEED FOR CONTROLS AND LIGHTING

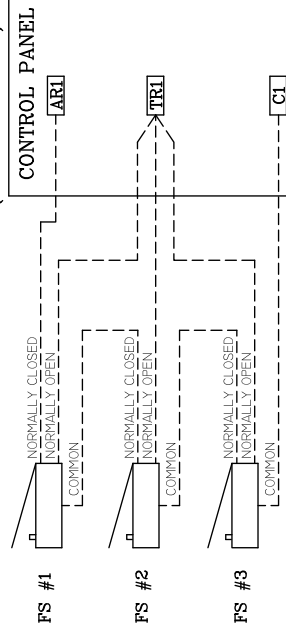


FIRE SYSTEM MICROSWITCH 120VAC SHUNT TRIP WIRING TO CONTROL PANEL

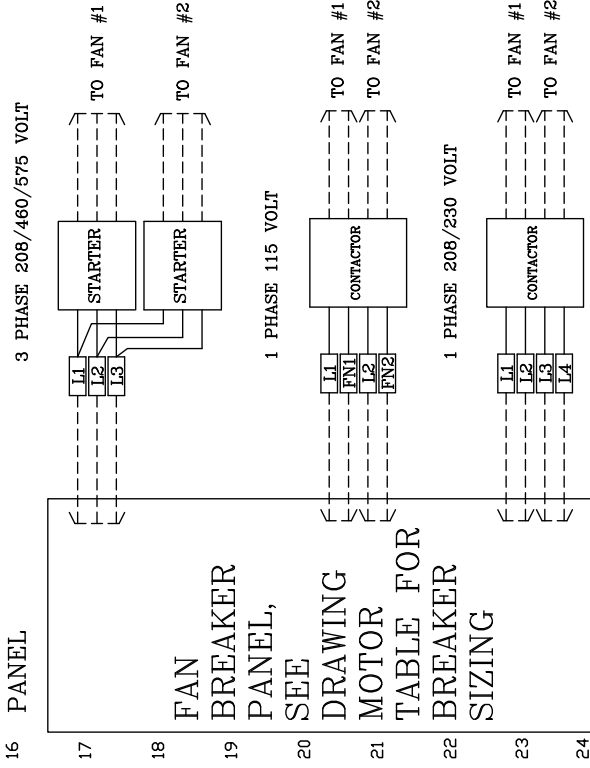


15 NOTE: BUILDING FIRE ALARM IS TO BE WIRED TO THE "ALARM INITIATING SWITCH" INSIDE THE FIRE SYSTEM AUTOMAN

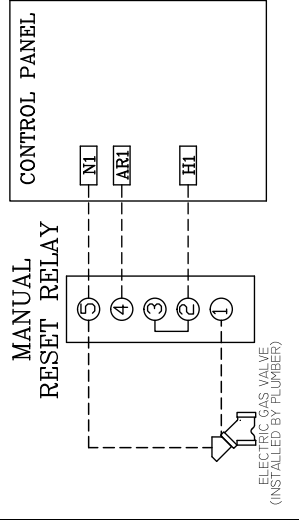
MICRO-SWITCHES WIRING WHEN MULTIPLE FIRE SYSTEMS CONNECTED TO ONE ELECTRICAL PANEL (3 SHOWN HERE)



FAN WIRING TO CONTROL PANEL



ELECTRIC GAS VALVE WITH RESET RELAY



NOTES

- DENOTES FIELD WIRING
- - - DENOTES INTERNAL WIRING
- WIRE COLOR
- BK - BLACK
- BL - BLUE
- BR - BROWN
- DR - ORANGE
- RD - RED
- WH - WHITE
- GN - GREEN
- YW - YELLOW
- GY - GRAY
- PR - PURPLE
- OR/BL - ORANGE/BLUE (STRIPE)
- BL/RD - BLUE/RED (STRIPE)
- RD/GN - RED/GREEN (STRIPE)