

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Permit Number: 100097

Please Read Application And Notes, If Any, Attached

This is to certify that OLD PORT RETAIL HOLDINGS LLC / Downeast Sheet Metal

has permission to install commercial hood system in kitchen

AT 50 WHARF ST CBL 032 V014001

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or otherwise closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

PERMIT ISSUED

APR 15 2010
OTHER REQUIRED APPROVALS

Fire Dept. Chris X. Souto

Health Dept. City of Portland

Appeal Board _____

Other _____
Department Name

Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 10-0097	Issue Date:	CBL: 032 V014001
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Location of Construction: 50 WHARF ST	Owner Name: OLD PORT RETAIL HOLDINGS	Owner Address: 101 RICHARDSON ST	Phone:
Business Name:	Contractor Name: Downeast Sheet Metal	Contractor Address: 2 Industrial Park Brewer	Phone 2079893443
Lessee/Buyer's Name	Phone:	Permit Type: Hood Systems, Commerical	Zone: B-3

Past Use: Restaurant - connected w/ permit#09-1346	Proposed Use: Restaurant - connected w/ permit#09-1346 - install commercial hood system in kitchen	Permit Fee: \$220.00	Cost of Work: \$20,000.00	CEO District: 1
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FIRE DEPT: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied *See Conditions Signature: 	INSPECTION: Use Group: <i>Hood</i> Type:  Signature:
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Proposed Project Description:
install commercial hood system in kitchen

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)			
Action. <input type="checkbox"/> Approved	<input type="checkbox"/> Approved w/Conditions	<input type="checkbox"/> Denied	
Signature:	Date:		

Permit Taken By: Ldobson	Date Applied For: 02/04/2010	Zoning Approval	
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- This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
- Building permits do not include plumbing, septic or electrical work.
- Building permits are void if work is not started within six (6) months of the date of issuance. False information may invalidate a building permit and stop all work..

Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetland <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Maj <input type="checkbox"/> Minor <input type="checkbox"/> MM <input type="checkbox"/> Date: <i>2/4/10</i> <i>Agm</i>

Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:
--

Historic Preservation YG <input type="checkbox"/> Not in District or Landmark <input type="checkbox"/> Does Not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <i>4/7/10</i> <i>D. Andrews</i>
--

PERMIT ISSUED

APR 15 2010

City of Portland

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT _____ ADDRESS _____ DATE _____ PHONE _____

RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE _____ DATE _____ PHONE _____

City of Portland, Maine - Building or Use Permit

389 Congress Street, 04101 Tel: (207) 874-8703, Fax: (207) 874-8716

Permit No: 10-0097	Date Applied For: 02/04/2010	CBL: 032 V014001
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Location of Construction: 50 WHARF ST	Owner Name: OLD PORT RETAIL HOLDINGS	Owner Address: 101 RICHARDSON ST	Phone:
Business Name:	Contractor Name: Downeast Sheet Metal	Contractor Address: 2 Industrial Park Brewer	Phone: (207) 989-3443
Lessee/Buyer's Name	Phone:	Permit Type: Hood Systems, Commerical	

Proposed Use: Restaurant - connected w/ permit#09-1346 - install commercial hood system in kitchen	Proposed Project Description: install commercial hood system in kitchen
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Dept: Historic **Status:** Approved with Conditions **Reviewer:** Deborah Andrews **Approval Date:** 04/07/2010
Note: **Ok to Issue:** ✓

- 1) * This approval is subject to the condition that the mechanicals be located near the rear of the building, as far back from the Wharf Street frontage as possible. (Staff requested roof plan to confirm location of mechanicals on roof plane; roof plan never submitted.)

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Ann Machado **Approval Date:** 02/04/2010
Note: **Ok to Issue:** ✓

- 1) ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
- 2) Separate permits shall be required for any new signage.
- 3) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Tammy Munson **Approval Date:** 04/15/2010
Note: **Ok to Issue:** ✓

- 1) The hood, duct and exhaust shall be installed per IMC 2003 and NFPA 96
This permit is approved based on the plans submitted and updated for reductions in the clearances based on the application of a UL approved fire wrap or equivalent assembly per code.
- 2) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, commercial hood exhaust systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process
- 3) Installation shall comply with 2003 International Mechanical Code.

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Capt Keith Gautreau **Approval Date:** 04/09/2010
Note: **Ok to Issue:** ✓

- 1) Install shall comply with all manufacture's specifications.
- 2) Install shall comply with NFPA 96
A compliance letter is required

PERMIT ISSUED

APR 15 2010

Comments:

4/7/2010-gg: received from historic on 4/07/10. /gg

City of Portland

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the City of Portland Inspection Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.
- Permits expire in 6 months, if the project is not started or ceases for 6 months.
- If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue with construction.

Close in inspection: Prior to covering any duct work.

Final inspection required at completion of work.

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OR CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.

PERMIT ISSUED

APR 15 2010

City of Portland



General Building Permit Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: <u>HAVANA SO WHARF ST PORTLAND ME</u>		
Total Square Footage of Proposed Structure/Area <u>7438</u>	Square Footage of Lot <u>.185 ACRES</u>	Number of Stories
Tax Assessor's Chart, Block & Lot Chart# <u>32</u> Block# <u>0</u> Lot# <u>14</u>	Applicant *must be owner, Lessee or Buyer* Name <u>MCDC LLC</u> Address <u>PO BOX 10</u> City, State & Zip <u>BAL HARBOR ME 04609</u>	Telephone: <u>(207) 664 8839</u>
Lessee/DBA (If Applicable) <u>HAVANA SOUTH</u>	Owner (if different from Applicant) Name <u>OLD PORT RETAIL HOLDINGS</u> Address <u>101 RICHARDSONS ST</u> City, State & Zip <u>BROOKLYN NY 11211</u>	Cost Of Work: \$ <u>20,000</u> C of O Fee: \$ _____ Total Fee: \$ <u>220</u>
Current legal use (i.e. single family) <u>RESTAURANT</u> Number of Residential Units _____ If vacant, what was the previous use? <u>VACANT</u> Proposed Specific use: _____ Is property part of a subdivision? _____ If yes, please name _____ Project description: <u>Install Hood Styte in kitchen</u>		
Contractor's name: <u>DOWNCAST STRUCTURAL</u> Address: <u>2 INDUSTRIAL PARK</u> City, State & Zip <u>BROOKLYN ME</u> Telephone: <u>989 3443</u> Who should we contact when the permit is ready: <u>CHRIS PAPPAS</u> Telephone: <u>664 8839</u> Mailing address: <u>53 DENFORTH ST APT 51 PORTLAND ME</u>		

RECEIVED

FEB - 4 2010

Dept. of Building Inspections
City of Portland Maine

Please submit all of the information outlined on the applicable Checklist. Failure to do so will result in the automatic denial of your permit.

In order to be sure the City fully understands the full scope of the project, the Planning and Development Department may request additional information prior to the issuance of a permit. For further information or to download copies of this form and other applications visit the Inspections Division on-line at www.portlandmaine.gov, or stop by the Inspections Division office, room 315 City Hall or call 874-8703.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature:

Date: 02-04-10

This is not a permit; you may not commence ANY work until the permit is issued



Portland, Maine, Department of Planning and Development

Lee Urban - Director of Planning and Development
Jeanie Bourke - Inspection Division Services Director

Kitchen Exhaust System Checklist and code Provisions

Dear Applicant,

The following is a checklist to assist you in filing for a permit for a Kitchen Exhaust system. The applicable Mechanical Code provisions have also been attached. Please complete this and submit job specific construction documents that demonstrate compliance with the attached information.

Type of System:

Type I Type II

Type I systems are systems that vent fryers, grills, broilers, ovens or woks.

Type II systems are systems that vent steamers and other non grease producing appliances.

Type of Materials:

Is the hood Stainless steel or other type of steel? S/S If Other, what Type? _____

Is the duct work Stainless steel or other type of steel? NO If Other, what type? CARBON STEEL

Thickness of the steel for the hood 18 AND 20 GA.

Thickness of the duct for the hood 16 GA.

Type of Hood and Duct Supports

1 5/8" X 12 GA. UNI-STRUT

1/2" THREADED ROD

Type of seams and Joints WELDED

Grease Gutters provided? YES

Hood Clearance reduction to Combustibles design /specs:

FACTORY INSTALLED INSULATION (ZERO CLEARANCE)

Duct Clearance reduction to Combustibles design /specs:

TWO LAYERS 3M FIRE BARRIER WRAP 15A

Vibration Isolation System:

NO

Air Velocity within the duct system 1497 F.P.M.

Grease accumulation prevention system:

BAFFLE FILTERS, SLOPED DUCT, FAN GREASE BOX

Cleanouts YES

Grease Duct enclosure NO

Exhaust Termination Roof Wall

Fire Suppression System YES

Exhaust fan mounting and clearance from the roof / wall or Combustibles:

40" ABOVE ROOF LINE

Exhaust fan distance from property lines _____

Exhaust fan distance from other vents or openings 10 FT.

Exhaust fan distance from adjacent buildings 22 FT.

Exhaust fan height above adjoining grade 20 FT.

Hood Specs

Style of Hood CAPTIVE AIRE WALL CANOPY

Type of Filter S/S BAFFLE

Height of filter above nearest cooking surface 41"

Capacity of hood CFM 5500

Make up Air system description and capacity

GAS FIRED HEATED M.U.A. UNIT

4400 CFM.

HOOD INFORMATION

HOOD NO.	TAG	MODEL	LENGTH	MAX. COOKING TEMP.	TOTAL EXH. CFM	EXHAUST PLENUM RISER(S)					TOTAL SUP. CFM	SUPPLY PLENUM RISER(S)					HOOD CONSTRUCTION	GRID CONFIG.	
						WIDTH	LENG.	DIA.	CFM	S.P.		WIDTH	LENG.	DIA.	CFM	S.P.		END TO END	ROW
1	Left	4024 HD-2-PSP-F	10' 0.00'	600 Deg	2750	10'	26'		2750	-0.571'	2200					304 SS 100%	LEFT	ALONE	
2	Right	4024 HD-2-PSP-F	10' 0.00'	600 Deg	2750	10'	26'		2750	-0.571'	2200				304 SS 100%	RIGHT	ALONE		

HOOD INFORMATION

HOOD NO.	FILTER(S)				LIGHT(S)			UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WT		
	TYPE	QTY.	HEIGHT	LENGTH	QTY.	TYPE	WIRE GUARD	LOCATION	FIRE SYSTEM		ELECTRICAL			SWITCHES	
									TYPE	SIZE	MODEL #	QUANTITY	LOCATION		
1	Alum Baffle w/ Handles	6	16"	20"	3	Screw In Compact Fluore	NO							NO	464 LBS
2	Alum Baffle w/ Handles	6	16"	20"	3	Screw In Compact Fluore	NO							NO	464 LBS

HOOD OPTIONS

HOOD NO.	OPTION
1	LEFT QUARTER END PANEL 23' Top Width, 0' Bottom Width, 23' High 304 SS
	INSULATION FOR BACK STANDOFF
	WRAPPER CHANNEL - Front, Left
2	RIGHT QUARTER END PANEL 23' Top Width, 0' Bottom Width, 23' High 304 SS
	INSULATION FOR BACK STANDOFF
	WRAPPER CHANNEL - Front, Right

PERFORATED SUPPLY PLENUM(S)

HOOD NO.	POS	LENGTH	WIDTH	HEIGHT	RISER(S)				
					WIDTH	LENG.	DIA.	CFM	S.P.
1	Front	120"	16"	6'	10"	28"		1100	0.158'
2	Front	120"	16"	6'	10"	28"		1100	0.158'
					10"	28"		1100	0.158'

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH



NFPA #96, NSF
UL 710 & ULC710 STANDARDS
E.T.L. LISTED 3054804-001

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

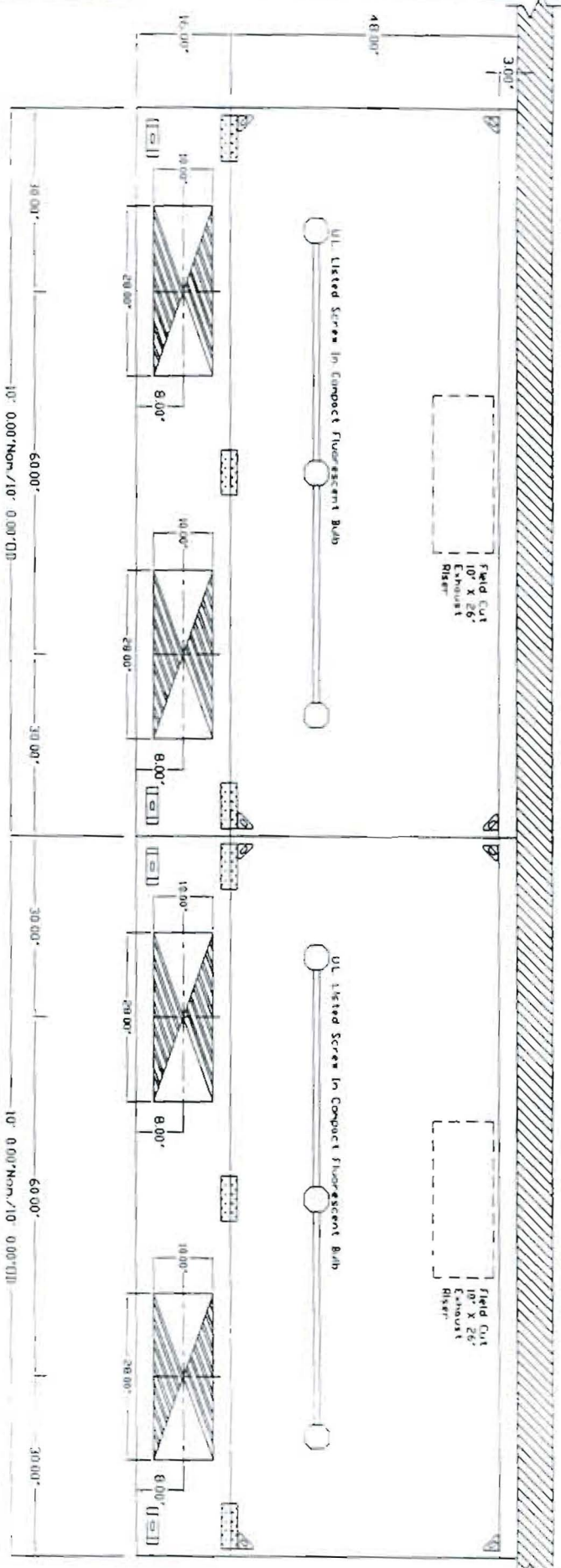
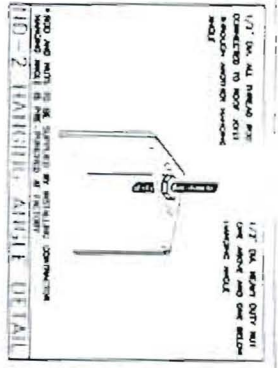
Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____



JOB	Havana South with MUA Option II
LOCATION	Portland, ME
DATE	12/30/2009
DWG #	HavanaSouth
REV.	1.00
JOB #	1077447
DRAWN BY	BI C
SCALE	8.5' x 11'



PLAN VIEW - Hood #1 (Left)
 10' 0.00" LONG 4824ND-2-PSP-F

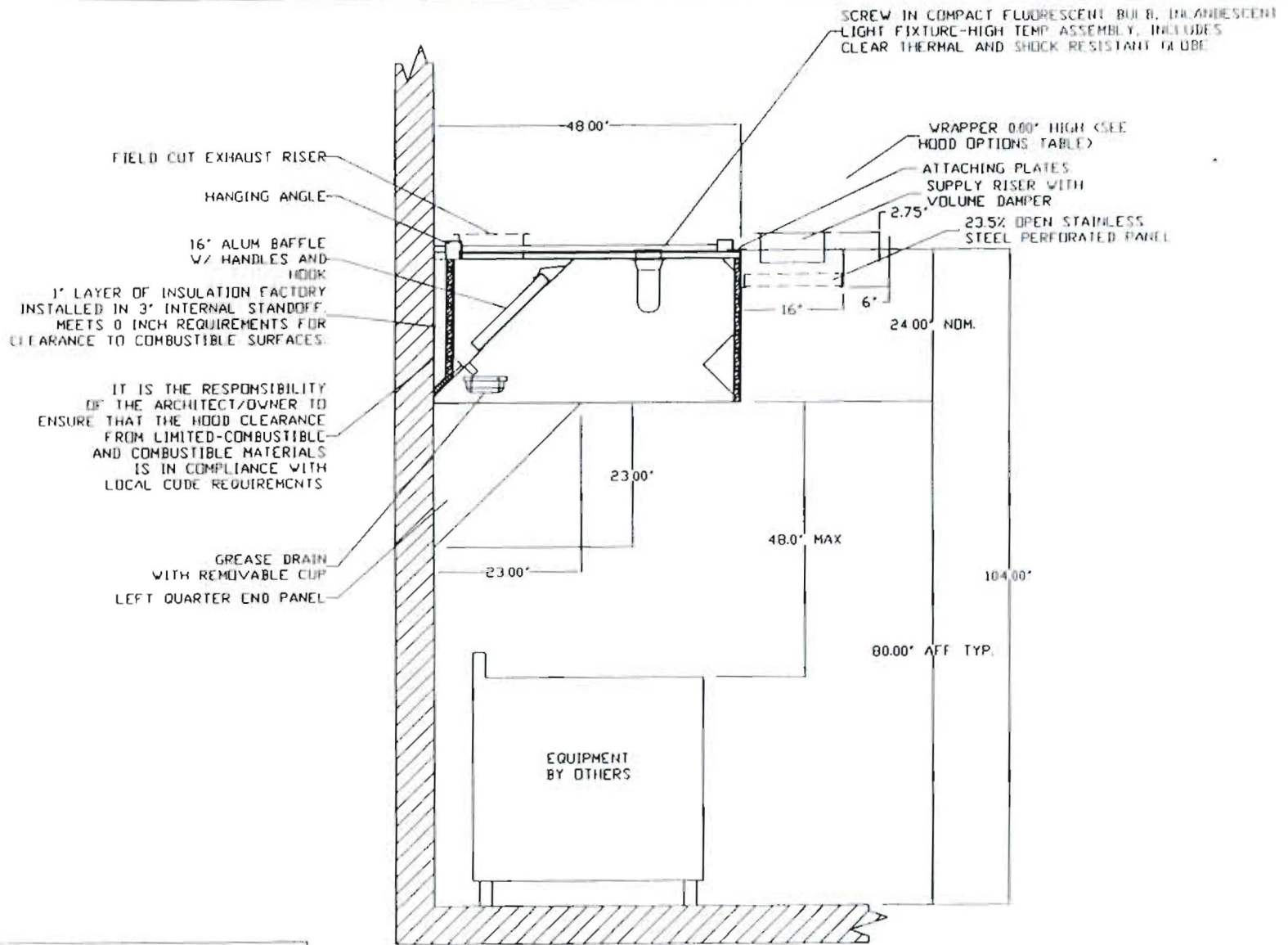
PLAN VIEW - Hood #2 (Right)
 10' 0.00" LONG 4824ND-2-PSP-F

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted
 Approved with IM Exception Taken
 Revise and Resubmit
 SIGNATURE _____
 Your Title _____ Date _____



JOB	Havana South with MIA Option #1
LOCATION	Portland, ME
DATE	12/30/2009
DWG #	Havana South
REV	100
JOB #	1077447
DRAWN BY	BC
SCALE	8.5" x 11"



IT IS THE RESPONSIBILITY OF THE ARCHITECT/OWNER TO ENSURE THAT THE HOOD CLEARANCE FROM LIMITED-COMBUSTIBLE AND COMBUSTIBLE MATERIALS IS IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS

SECTION VIEW - MODEL 4824ND-2-PSP-F
HOOD - #1

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

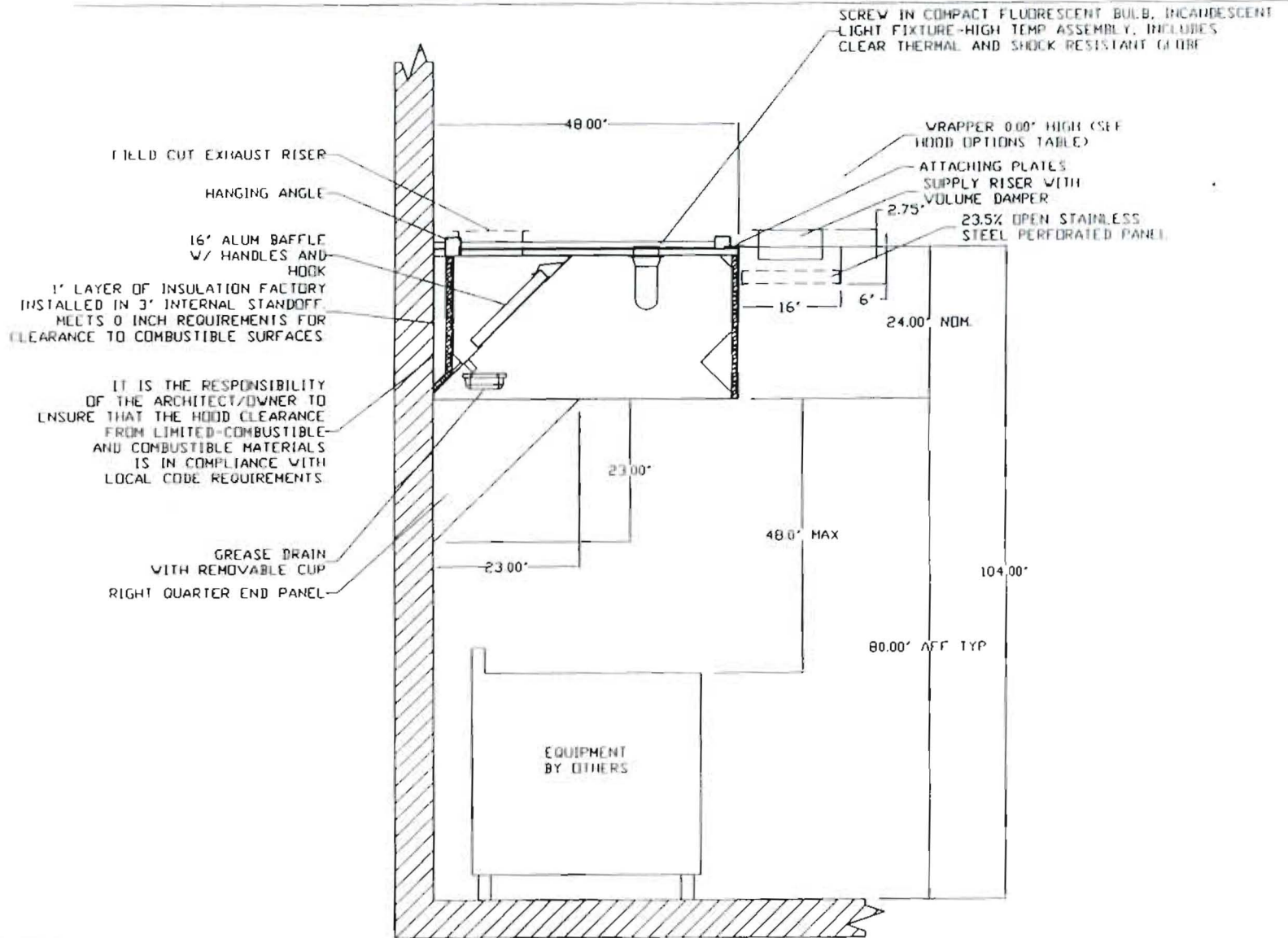
Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

	JOB Havana South with MUA (option #2)	
	LOCATION Portland, ME	
	DATE 12/30/2009	JOB # 1077447
	DWG # HavanaSouth	DRAWN BY BFC
	REV 1.00	SCALE 8.5' x 11'



FIELD CUT EXHAUST RISER
 HANGING ANGLE
 16' ALUM BAFFLE
 W/ HANDLES AND
 HOOK
 1' LAYER OF INSULATION FACTORY
 INSTALLED IN 3' INTERNAL STANDOFF.
 MEETS 0 INCH REQUIREMENTS FOR
 CLEARANCE TO COMBUSTIBLE SURFACES

IT IS THE RESPONSIBILITY
 OF THE ARCHITECT/OWNER TO
 ENSURE THAT THE HOOD CLEARANCE
 FROM LIMITED-COMBUSTIBLE
 AND COMBUSTIBLE MATERIALS
 IS IN COMPLIANCE WITH
 LOCAL CODE REQUIREMENTS

GREASE DRAIN
 WITH REMOVABLE CUP
 RIGHT QUARTER END PANEL

SCREW IN COMPACT FLUORESCENT BULB, INCANDESCENT
 LIGHT FIXTURE-HIGH TEMP ASSEMBLY, INCLUDES
 CLEAR THERMAL AND SHOCK RESISTANT GLASS

WRAPPER 0.00' HIGH (SEE
 HOOD OPTIONS TABLE)

ATTACHING PLATES
 SUPPLY RISER WITH
 VOLUME DAMPER

23.5% OPEN STAINLESS
 STEEL PERFORATED PANEL

SECTION VIEW - MODEL 4824ND-2-PSP-F
 HOOD - #2

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____



JOB	Havana South with MJA (option #2)		
LOCATION	Portland, ME		
DATE	12/30/2009	JOB #	1077447
DWG #	HavanaSouth	DRAWN BY	BFC
REV.	1.00	SCALE	8.5' x 11'

EXHAUST FAN INFORMATION

FAN UNIT NO.	FAN UNIT MODEL #	MODEL	TAG	CFM	S.P.	RPM	HP.	Ø	VOLT	FLA	WEIGHT (LBS.)
1	NCA30FA	NCA30FA		5500	1.100	647	3.000	3	208	9.5	37052

HEATER/MUA FAN INFORMATION

FAN UNIT NO.	FAN UNIT MODEL #	BLOWER	HOUSING	TAG	CFM	S.P.	RPM	HP.	Ø	VOLT	FLA	WEIGHT (LBS.)
2	A2-D500-G15	G15	A2-D500		4400	0.500	949	3.000	3	208	9.5	82728

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO.	INPUT BTUS	OUTPUT BTUS	TEMP. RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE
2	42440?	390456	85 deg F	7 in. w.c. - 14 in. w.c.	Natural

FAN OPTIONS

FAN UNIT NO.	OPTION (Qty) - Descr
1	1 - Grease Box
	1 - Fan Base Ceramic Seal - For Grease Ducts
	1 - Hinge Kit (HID)- Ships Loose For Curb Supplied by Others
2	1 - Inlet Pressure Gauge, 0-35"
	1 - AC Interlock Relay - 24VAC Coil
	1 - Low Fire Start
	1 - Manifold Pressure Gauge, -5 to 15" w.c.
	1 - Motorized Backdraft Damper For A2-D Housing
	1 - Separate 120V Wiring Package (Required for EMS or Prewire with VFD or BMS/Thermostat Control)

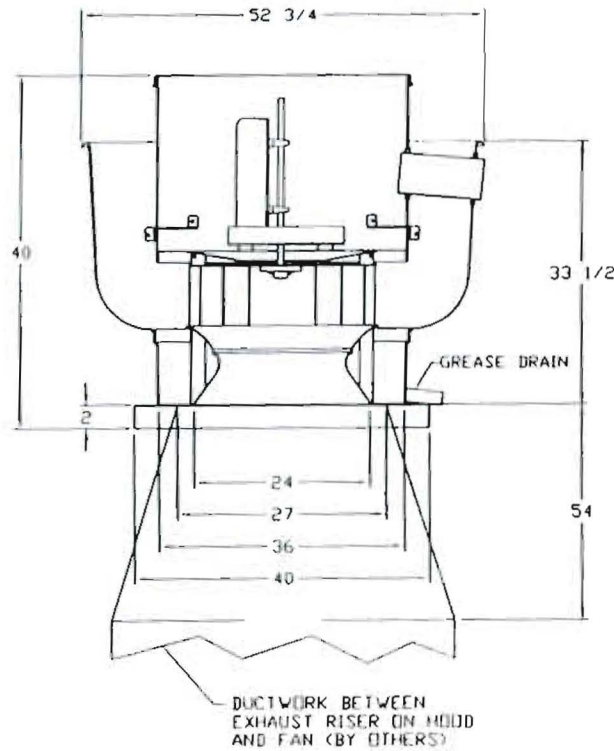
CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted
 Approved with No Exception Taken
 Revise and Resubmit
 SIGNATURE _____
 Your Title _____ Date _____



JOB	Havana South with MUA Option II
LOCATION	Portland, MI
DATE	12/30/2009
DWG #	HavanaSouth
REV.	1.00
JOB #	1077447
DRAWN BY	BFC
SCALE	8.5' x 11'

FAN #1 NCA30FA - EXHAUST FAN



FEATURES:

- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL762
- AMCA SOUND AND AIR CERTIFIED
- WIRING FROM MOTOR TO DISCONNECT SWITCH
- WEATHERPROOF DISCONNECT
- 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
- FAN BASE CERAMIC SEAL - FOR GREASE DUCTS
- HINGE KIT (HD)- SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

CAPTIVE AIR

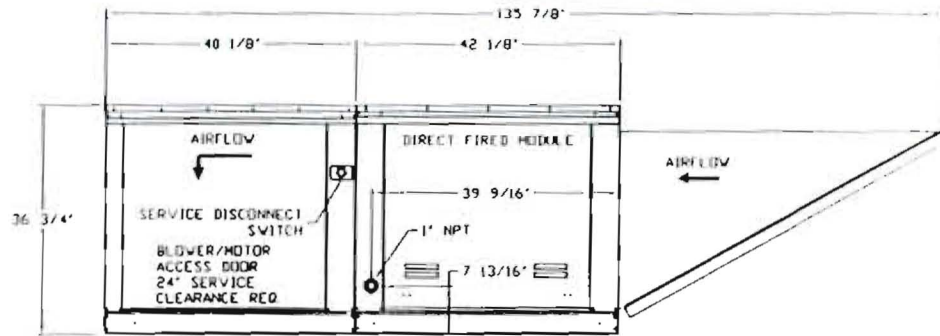
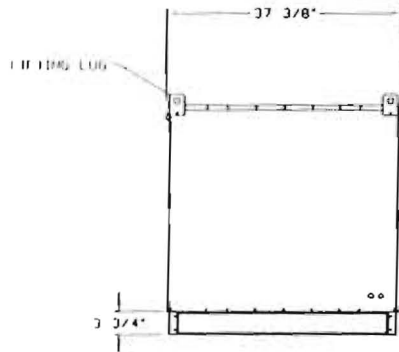
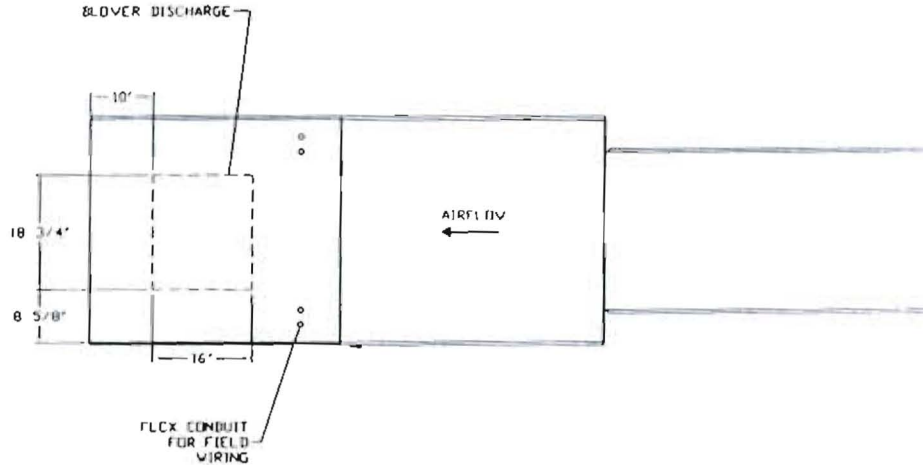
JOB	Havana South with MJA Caption #2
LOCATION	Portland, ME
DATE	12/30/2009
DWG #	HavanaSouth
REV.	1.00
JOB #	1077447
DRAWN BY	BTG
SCALE	8.5' x 11'

FAN #2 A2-D500 G15 18 A11P

1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15" BLOWER
2. INTAKE HOOD WITH E2 FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT → LEFT
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
5. COOLING INTERLOCK RELAY, 24VAC COIL, 120V CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
6. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
7. GAS PRESSURE GAUGE, 5 TO 45 INCHES WC, 2.5" DIAMETER, 1/4" THREAD SIZE
8. MOTORIZED BACK DRAFT DAMPER 22 7/8" X 24" FOR SIZE 2 STANDARD & MODULAR DIRECT FIRED HEATERS. 1/2" EXTENDED SHIRT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED.
9. SEPERATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH EMS PACKAGE. PROVIDES SEPERATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM EMS TO HUA SWITCH.

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 0°F TEMP. RISE = 85°F.
 OUTPUT BTU_s AT ALTITUDE OF 00 ft = 390456
 INPUT BTU_s AT ALTITUDE OF 00 ft = 424409



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with MI Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

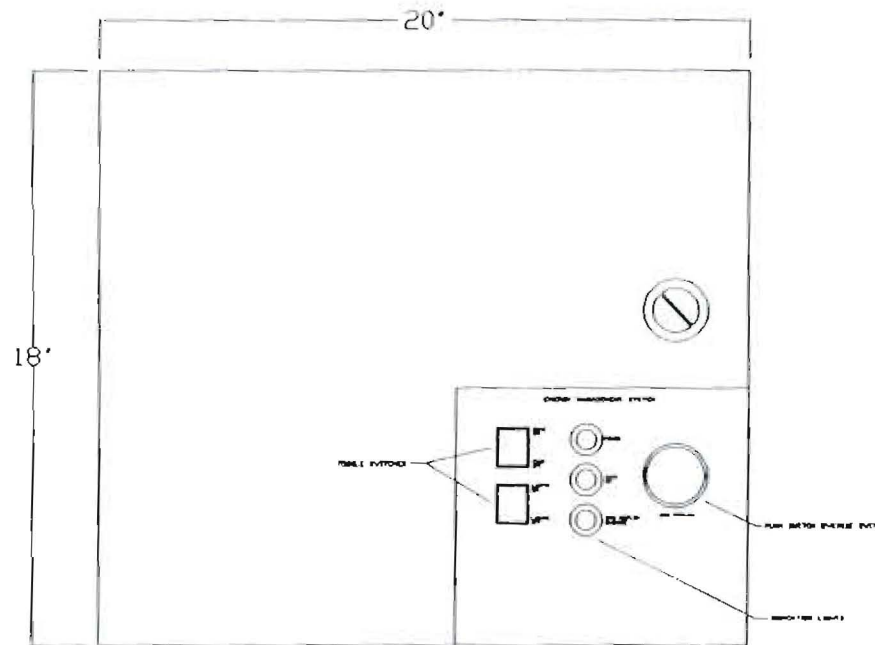
CAPTIVE AIR

JOB	Havana South with MUA Option II
LOCATION	Portland, ME
DATE	12/30/2009
JOB #	10/7447
DWG #	HavanaSouth
DRAWN BY	BFC
REV.	1.00
SCALE	8.5" x 11"

ELECTRICAL PACKAGES

NO	TAG	PACKAGE #	LOCATION	SWITCHES		ROOFTOP STARTERS	OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY			TYPE	Ø	HP	VOLT	FLA
1		EMS11102	Wall Mount In SS Box	SS Wall Mount Box	1 Light 1 Fan 1 Other		Exhaust In Fire	Supply	3	1000	208	9.5
								Exhaust	3	1000	208	9.5

WALL MOUNTED EMS SYSTEM



CUSTOMER APPROVAL TO MANUFACTURE:

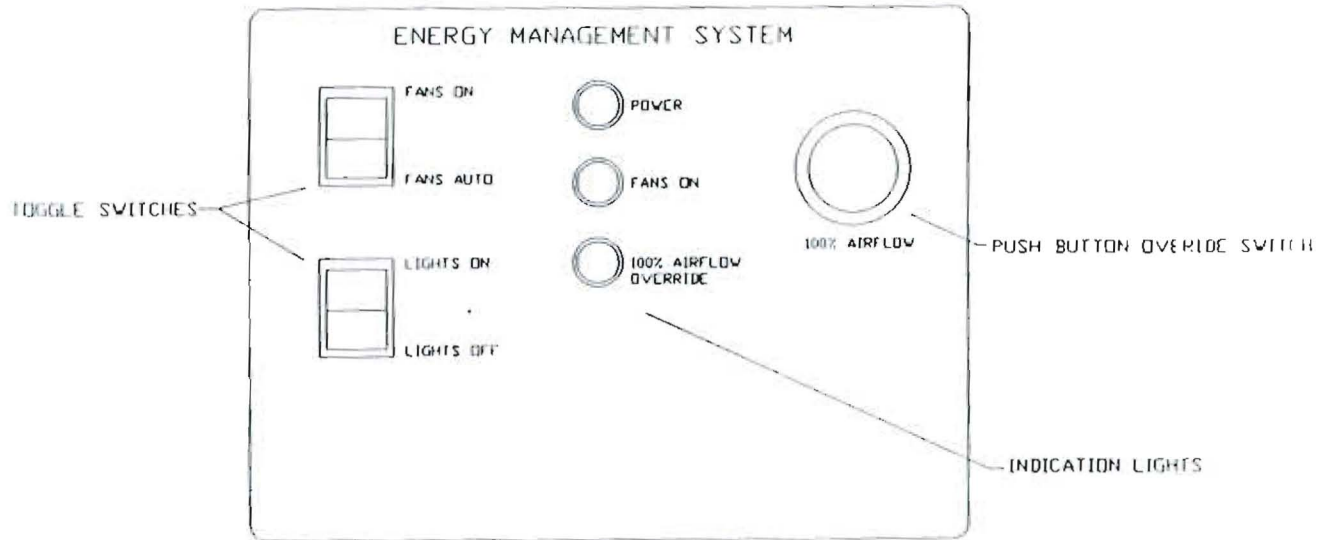
- Approved as Noted
- Approved with NO Exception Taken
- Revise and Resubmit

SIGNATURE _____
Your Title _____ Date _____



JOB	Havana South with MUA (option #)
LOCATION	Portland, ME
DATE	12/30/2009
DWG #	HavanaSouth
REV	1.00
JOB #	1077447
DRAWN BY	BFC
SCALE	8.5' x 11'

DETAIL OF ENERGY MANAGEMENT SYSTEM CONTROL PANEL



CUSTOMER APPROVAL TO MANUFACTURE

Approved as Noted

Approved with No Exception Taken

Revise and Resubmit

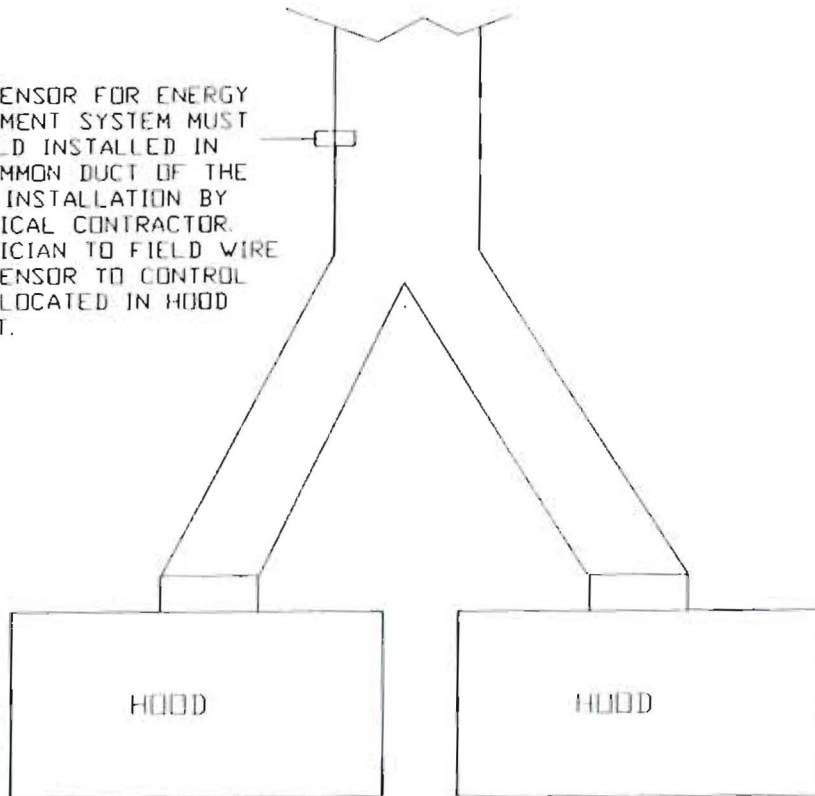
SIGNATURE _____

Your Title _____ Date _____

CAPTIVE AIR

JOB Havana South with MUA Option #	
LOCATION Portland, ME	
DATE 12/30/2009	JOB # 1077447
DWG # HavanaSouth	DRAWN BY BFL
REV. 100	SCALE' 8.5' x 11'

TEMP SENSOR FOR ENERGY MANAGEMENT SYSTEM MUST BE FIELD INSTALLED IN THE COMMON DUCT OF THE HOODS. INSTALLATION BY MECHANICAL CONTRACTOR. ELECTRICIAN TO FIELD WIRE FROM SENSOR TO CONTROL PANEL LOCATED IN HOOD CABINET.



CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____



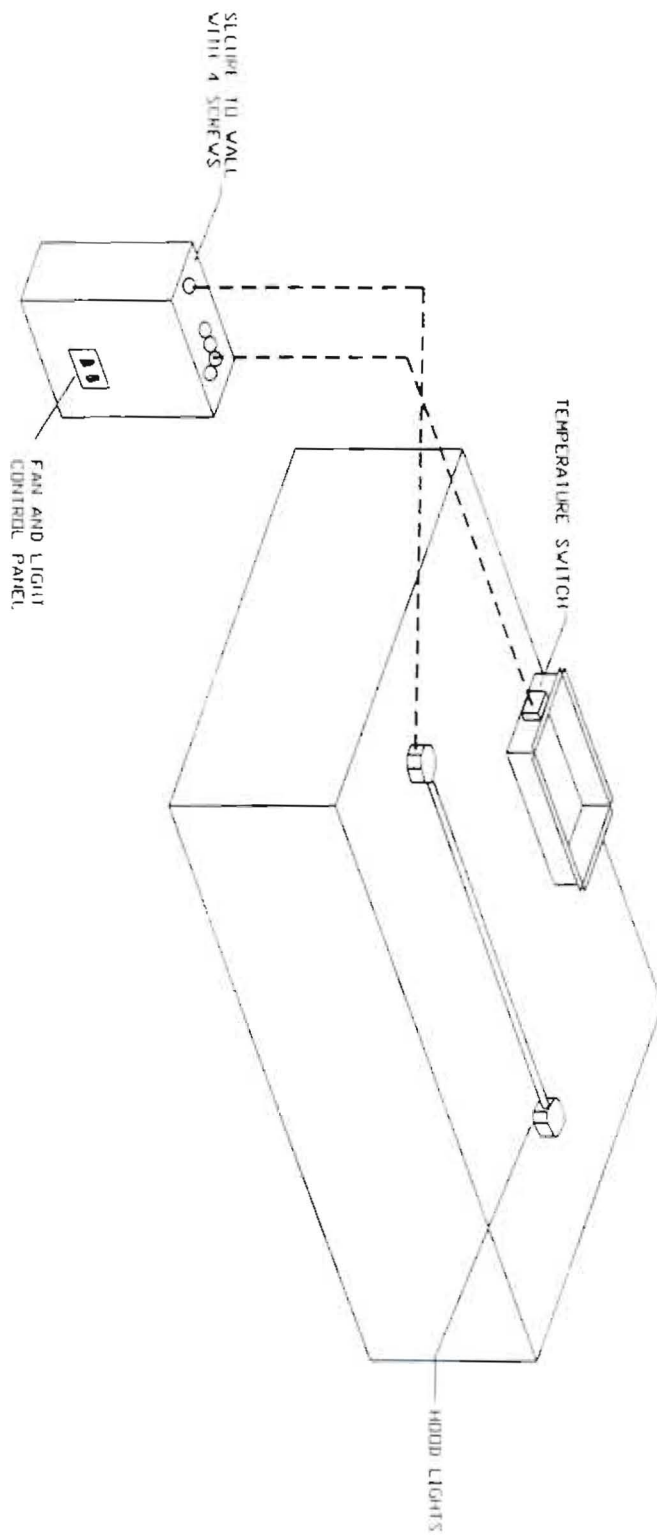
JOB Havana South with MUA Caption II

LOCATION Portland, ME

DATE 12/30/2009 JOB # 1077447

DWG # HavanaSouth DRAWN BY BFC

REV. 1.00 SCALE 8.5' x 11'



WALL MOUNTED ENERGY MANAGEMENT SYSTEM

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted:

Approved with NO Exception Taken:

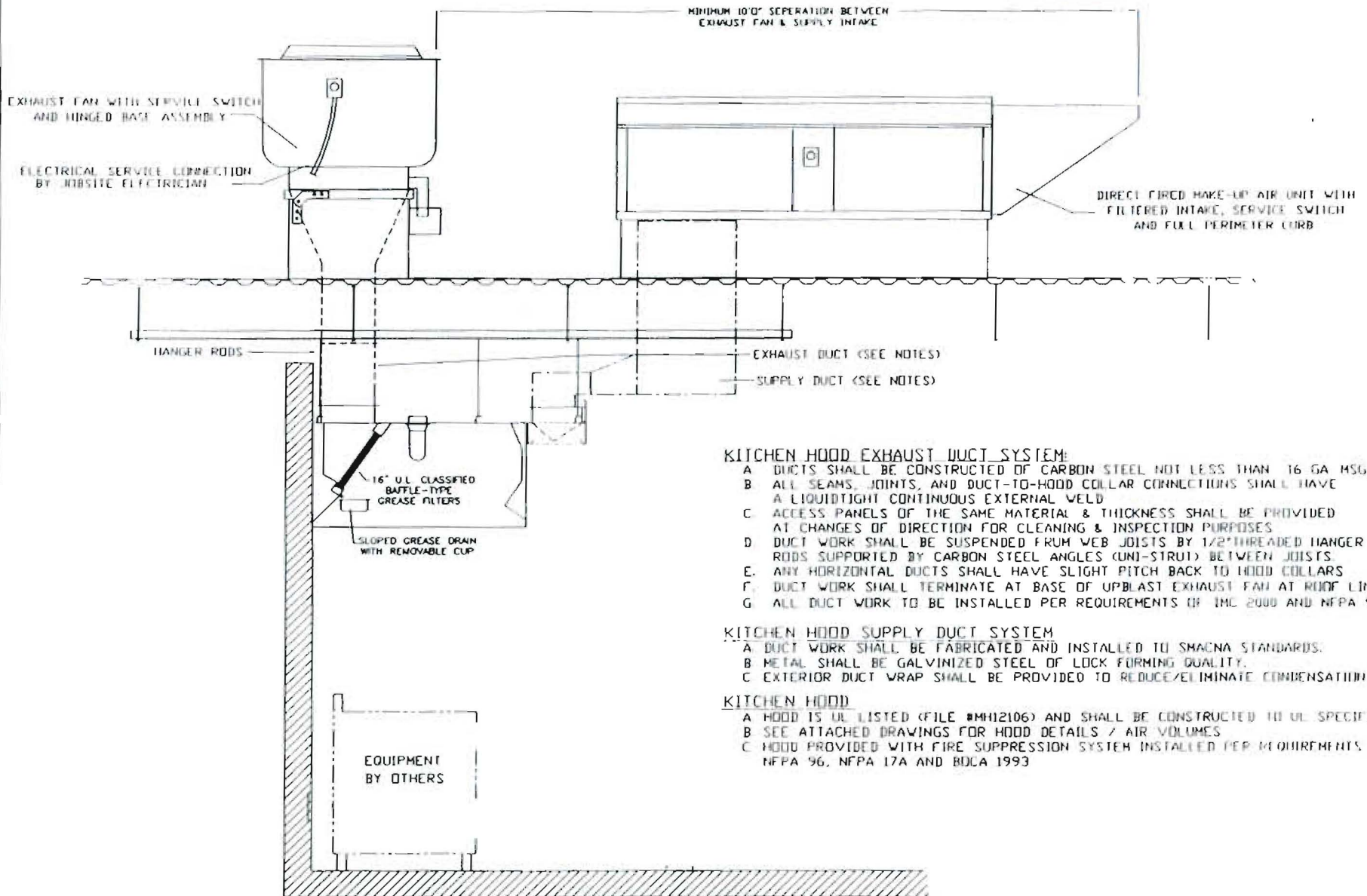
Revise and Resubmit:

SIGNATURE: _____ Date: _____

Your Title: _____



JOB	Havana South with MIA Caption #?
LOCATION	Portland, ME
DATE	12/30/2009
DWG #	HavanaSouth
REV.	100
JOB #	1077447
DCIMV BY	BFC
SCALE	8.5" x 11"



KITCHEN HOOD EXHAUST DUCT SYSTEM:

- A DUCTS SHALL BE CONSTRUCTED OF CARBON STEEL NOT LESS THAN 16 GA MSG
- B ALL SEAMS, JOINTS, AND DUCT-TO-HOOD COLLAR CONNECTIONS SHALL HAVE A LIQUIDTIGHT CONTINUOUS EXTERNAL WELD
- C ACCESS PANELS OF THE SAME MATERIAL & THICKNESS SHALL BE PROVIDED AT CHANGES OF DIRECTION FOR CLEANING & INSPECTION PURPOSES
- D DUCT WORK SHALL BE SUSPENDED FROM WEB JOISTS BY 1/2" THREADED HANGER RODS SUPPORTED BY CARBON STEEL ANGLES (UNI-STRUT) BETWEEN JOISTS
- E ANY HORIZONTAL DUCTS SHALL HAVE SLIGHT PITCH BACK TO HOOD COLLARS
- F DUCT WORK SHALL TERMINATE AT BASE OF UPBLAST EXHAUST FAN AT ROOF LINE
- G ALL DUCT WORK TO BE INSTALLED PER REQUIREMENTS OF IMC 2000 AND NFPA 96, 2001

KITCHEN HOOD SUPPLY DUCT SYSTEM

- A DUCT WORK SHALL BE FABRICATED AND INSTALLED TO SMACNA STANDARDS
- B METAL SHALL BE GALVANIZED STEEL OF LOCK FORMING QUALITY
- C EXTERIOR DUCT WRAP SHALL BE PROVIDED TO REDUCE/ELIMINATE CONDENSATION

KITCHEN HOOD

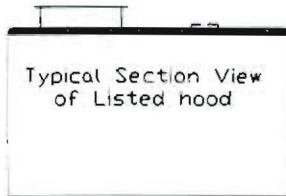
- A HOOD IS UL LISTED (FILE #MH12106) AND SHALL BE CONSTRUCTED TO UL SPECIFICATIONS
- B SEE ATTACHED DRAWINGS FOR HOOD DETAILS / AIR VOLUMES
- C HOOD PROVIDED WITH FIRE SUPPRESSION SYSTEM INSTALLED PER REQUIREMENTS OF NFPA 96, NFPA 17A AND BOCA 1993

NOTE: THIS DRAWING IS PROVIDED FOR REFERENCE ONLY, DEPICTING A TYPICAL INSTALLATION. ACTUAL JOBSITE CONDITIONS MAY VARY. INSTALLING CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZING.

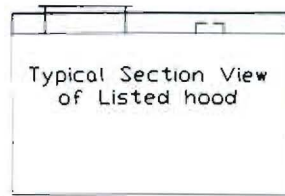
CAPTIVE AIR

JOB Havana South with MJA Option #6	
LOCATION Portland, ME	
DATE 12/30/2009	JOB # 1077447
DWG # HavanaSouth	DRAWN BY BFC
REV. 1.00	SCALE 8.5' x 11'

Top Clearance Reduction Options



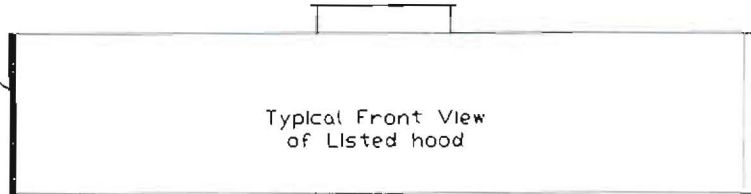
1' layer of insulation factory installed on top of hood (optional)
Meets 0 inch requirements for clearance to combustible surfaces as outlined below



3' un-insulated airspace factory installed on top of hood (optional)
Meets NFPA96 requirements for clearance to limited combustible surfaces

End Clearance Reduction Options

1' layer of insulation factory installed on end of hood (optional)
Meets 0 inch requirements for clearance to combustible surfaces as outlined below



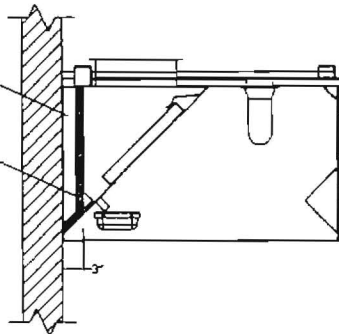
Typical Front View of Listed hood

3' un-insulated airspace factory installed on end of hood (optional)
Meets NFPA96 requirements for clearance to limited combustible surfaces

Back & Front Clearance Reduction Options

3' un-insulated back standoff factory installed Meets NFPA96 requirements for clearance to limited combustible surfaces
OR

1' layer of insulation factory installed in 3' standoff. Meets 0 inch requirements for clearance to combustible surfaces as outlined below



1' layer of insulation factory installed in front of hood Meets 0 inch requirements for clearance to combustible surfaces as outlined below

Clearance Reduction Methods:

Clearance reduction methods have been evaluated and tested and are certified by ETL. The method of test was derived from UL 710 with temperature criteria taken from appropriate standards

The hood may be installed with a 0 inch clearance to combustible materials per ETL if constructed in one of the following methods

- 1 inch thick min. layer of insulation of type Owens Corning Type 475 or Johns Manville Type 475 or listed kitchen exhaust duct insulation.
- 1 inch thick min. insulated backsplash. Insulation of type listed above.
- Back Return (BR) supply plenum with 1 inch thick min. insulation of type listed above.

To comply with the ETL certification, the cooking appliance must be located:

- At least 6 inches from the rear wall
- At least 24 inches below the bottom edge of the hood
- Cooking surface must not exceed temperatures above 700°F

The hood may be installed with a 3 inch clearance to limited combustible materials per NFPA96 if constructed in one of the following methods

- 3 inch factory installed rear un-insulated standoff
- 3 inch factory installed top wrapper or enclosure panel system
- 3 inch factory installed end standoff

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

CAPTIVE AIR

JOB	Havana South with MUA (option #)	
LOCATION	Portland, ME	
DATE	12/30/2009	JOB # 1077447
DWG #	HavanaSouth	DRAWN BY BFC
REV	1.00	SCALE 8.5' x 11'

ENERGY MANAGEMENT SYSTEM

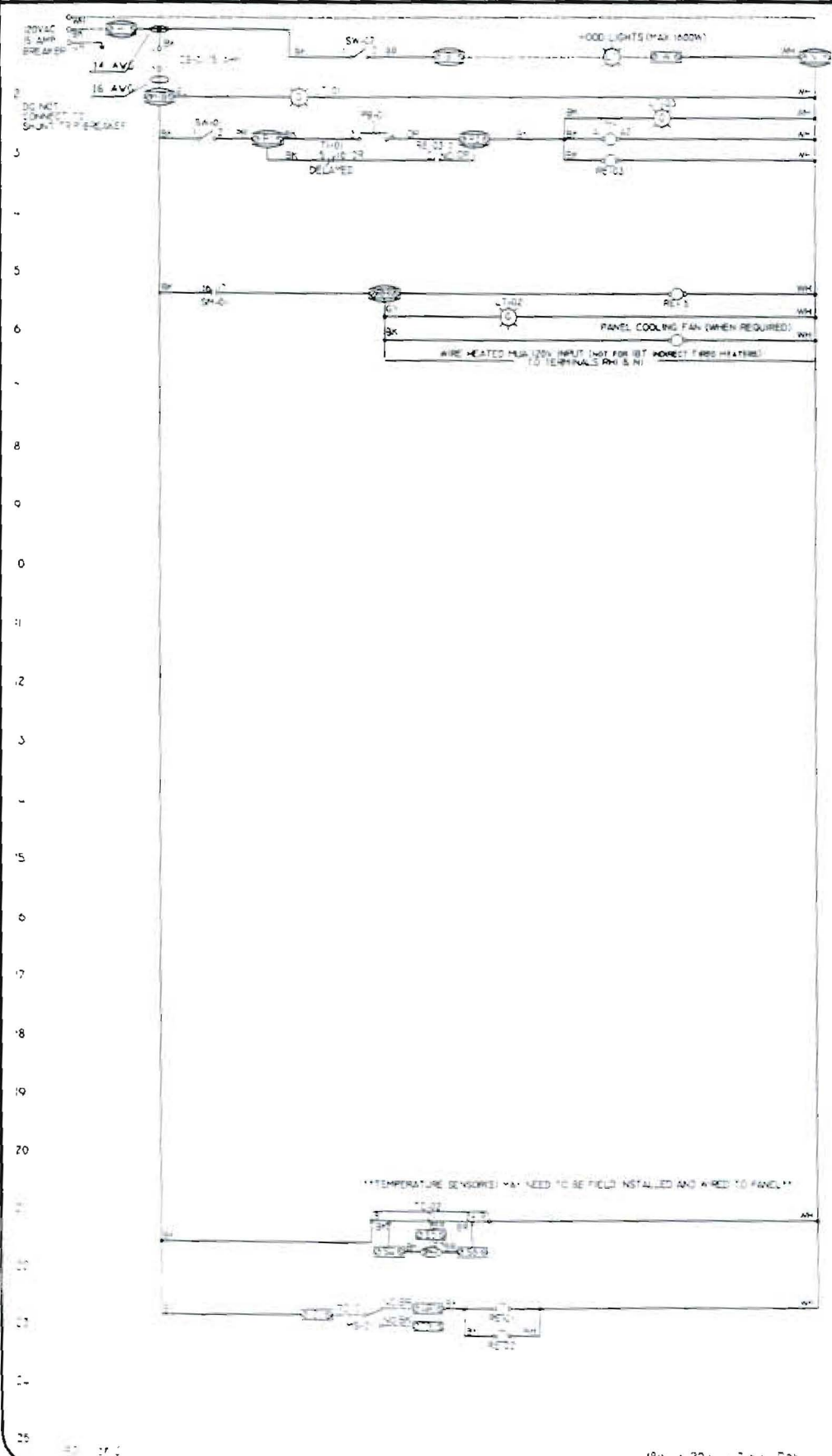
JOB NAME Havana South with MUA (option #2)

DATE 12/30/2009

DRAWING NUMBER EMS11102-1077447-#1-2

JOB NUMBER 1077447

MODEL EMS11102



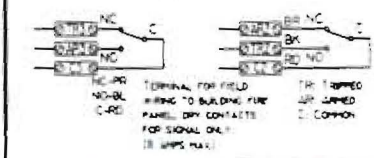
INSTALLER OPTIONS

HOOD LIGHT SWITCH (MAX 1000 W)	
EXHAUST FAN FIRE	

COMPONENT IDENTIFICATION

ITEM	DESCRIPTION	LOCATION
CB-0	CIRCUIT BREAKER 15 AMP 120V	(1)
L-0	POWER ON LIGHT-1000W	(1)
L-01	FAN ON LIGHT-1000W	(1)
L-02	100% OVERRIDE LIGHT-1000W	(1)
MS-XX	FIRE SYSTEM MONO-SWITCH	(21)
PR-0	PUSH BUTTON OVERLOAD #2(1)	(2)
RE-0	DPDT RELAY-3A 120V DUAL 0	(21)(20)
RE-02	ALARM DPDT RELAY-3A 120V DUAL 0	(21)
RE-03	TRIP/PUSH BUTTON RELAY-3A 120V DUAL 0	(21)
RE-04	FAN RELAY DPDT RELAY-3A 120V DUAL 0	(18)(8)
SM-01	15A-1 SPEED CONTROL-15A-1 SERIES	(1)(18-23)
SM-02	15A-2 SPEED CONTROL-15A-2 SERIES	(1)(23-27)
SW-01	TEMPERATURE SENSING-AC/100-3WALL 1AW HTT	(1)(21)
SW-02	FAN OVERRIDE SWITCH-120V 15A 99-99	(1)(19)
SW-03	HOOD LIGHT SWITCH-120V 15A 99-99	(1)(1)
TC-01	TEMPERATURE CONTROLLER-100W 120V 100% 100% HTT	(1)(21)
T-01	100% OVERRIDE TIMER 120V 100% HTT-100% 100% HTT	(1)(21)

SPARE RELAY CONTACTS
SPARE RELAY CONTACTS CAN BE USED TO CONTROL OTHER EQUIPMENT SUCH AS SHUNT TRIP, SIGNALS, ETC.



NO	1	2
NC	3	4
COM	5	6
CP	7	8

SOCKET STYLE CLONING



TEMPERATURE SENSORS MAY NEED TO BE FIELD INSTALLED AND WIRED TO PANEL

WIRE COLORS

BY - BLACK	YW - YELLOW
BL - BLUE	GR - GREEN
BR - BROWN	GY - GRAY
OR - ORANGE	OR BL - ORANGE BLUE
RD - RED	STR RD - STRIPED RED
WH - WHITE	BL RD - BLUE RED
PK - PINK	STR PK - STRIPED PINK
	RD GN - RED GREEN
	STR RD GN - STRIPED RED GREEN

KEYS:
 - FIELD WIRING
 - INTERNAL WIRING
 - TERMINAL IN PANEL
 - TERMINAL IN PANEL AND WIRING
 DRAWING SHOWS 24-ENERGY-100

ENERGY MANAGEMENT SYSTEM

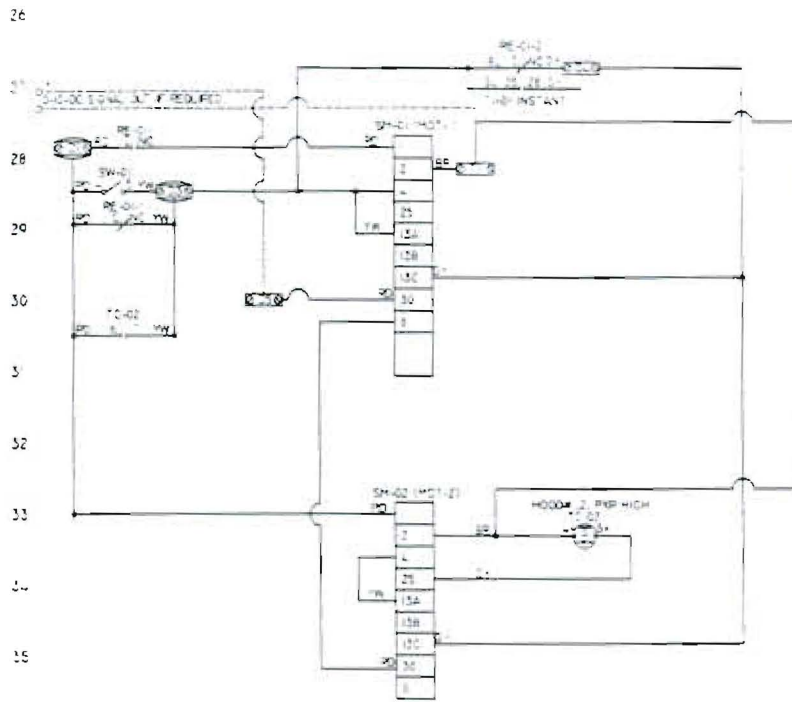
JOB NAME *Havens South with MUA (option #2)*

DATE *12/30/2009*

DRAWING NUMBER *EMS11102-1077447-#1-B*

JOB NUMBER *1077447*

MODEL *EMS11102*



TO PARAMETERS:
(400-500 HOODS)
SV = 85
LEVEL 1:
AL1 = 85
AL2 = 90
LEVEL 2:
P = 22.5 (PHSV-HV-HV-1-012)
LEVEL 3:
SVL = 85
SVH = 90

TO PARAMETERS:
(600-700 HOODS)
SV = 85
LEVEL 1:
AL1 = 85
AL2 = 90
LEVEL 2:
P = 22.5 (PHSV-HV-HV-1-012)
LEVEL 3:
SVL = 85
SVH = 90

INSTALLATION OPTIONS

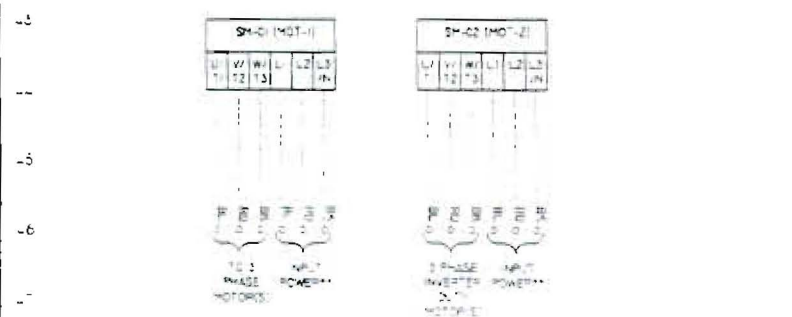
MOD LIGHT SWITCH (MUA) (MUA)	
EMERGENCY STOP	

COMPONENT IDENTIFICATION

ITEM	DESCRIPTION	QUANTITY	LOCATION
LD-01	CIRCUIT BREAKER (L-1) (L-1)	1	
LT-01	POWER ON LIGHT (L-1)	1	
LT-02	TRIP ON LIGHT (L-1)	1	
LT-03	100% OVERHEAD LIGHT (L-1)	1	
MS-01	3-Phase Motor Switch	1	23
PS-01	PUSH BUTTON OVERLOAD (O-1) (O-1)	1	21
RE-01	DRIFT RELAY (R-1) (R-1)	1	21, 22
RE-02	AUXILIARY DRIFT RELAY (R-1) (R-1)	1	21
RE-03	TRIP/PUSH BUTTON RELAY (R-1) (R-1)	1	21
RM-01	RUN RELAY (R-1) (R-1)	1	21, 22
SM-01	SPM SPEED CONTROL (S-1) (S-1)	1	22, 23
SM-02	SM SPEED CONTROL (S-1) (S-1)	1	22, 23
SV-01	TEMPERATURE SENSOR (S-1) (S-1)	1	21, 22
SV-02	FAN UNPLUG (S-1) (S-1)	1	21, 22
TV-01	TEMPERATURE CONTROLLER (S-1) (S-1)	1	21, 22
T-01	100% OVERHEAD LIGHT (S-1) (S-1)	1	21, 22

GENERAL DRIVE PARAMETER SETTINGS (Pw = 025)

SUPPLY FAN DRIVE	EXHAUST FAN DRIVE(S)
P00 - 0 (TRIP SPEED)	P00 - 0 (TRIP SPEED)
P01 - 03 (PUSH 1)	P01 - 03 (PUSH 1)
P02 - 0 (0 Hz (MAX FREQ))	P02 - 0 (0 Hz (MAX FREQ))
P03 - 60 Hz (MAX FREQ)	P03 - 60 Hz (MAX FREQ)
P04 - 0 SEC (ACCEL TIME)	P04 - 10 SEC (ACCEL TIME)
P05 - 10 SEC (DECEL TIME)	P05 - 10 SEC (DECEL TIME)
P06 - 03 (AUTO RESTART)	P06 - 03 (AUTO RESTART)
P07 - 01 (0 - 0 VDC)	P07 - 02 (1-20 MA)
P08 - 03 (PUSH SPEED #1)	P08 - 03 (PUSH SPEED #1)
P09 - 03 (PUSH SPEED #2)	P09 - 03 (PUSH SPEED #2)
P10 - 0 Hz (TRIP CYCLE FREQ)	P10 - 0 Hz (TRIP CYCLE FREQ)
P11 - 60 Hz (TRIP MATCH P02)	P11 - 60 Hz (TRIP MATCH P02)
P12 - 60 Hz (TRIP MATCH P03)	P12 - 60 Hz (TRIP MATCH P03)
P13 - 0 (DRUM)	P13 - 0 (LOSS OF LOAD)
P14 - 00 (NO INVERSE FREQ)	P14 - 0 (INVERSE FREQ)
P15 - 5 SEC (CABINET 0 STARTUP)	P15 - 5 SEC (CABINET 0 STARTUP)
P16 - 5 SEC (LOSS LOAD DELAY)	P16 - 5 SEC (LOSS LOAD DELAY)
P17 - 01 (0-0 VDC OUTPUT)	P17 - 01 (0-0 VDC OUTPUT)
P18 - 00 (NO OUTPUT ADDITION)	P18 - 0 (LADD 1-5 TO T0-00)
P19 - 00 (0 Hz (SIGNAL SPEED))	P19 - 60 Hz (0 Hz (SIGNAL SPEED))
P20 - 01 (0 Hz (MAX SIGNAL SPEED))	P20 - 60 Hz (MAX SIGNAL SPEED)
P21 - 00 (0 Hz (MAX SIGNAL SPEED))	P21 - 60 Hz (MAX SIGNAL SPEED)



ALL EXTERNAL CONTROL WIRES TO MOTOR SPEED CONTROL SHOULD BE 16-20 GAUGE 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 01 OF THE AC TECH-SVM DRIVE MANUAL DESCRIBES THE ELECTRICAL INSTALLATION.

PG 02 OF THE AC TECH-SVM DRIVE MANUAL DESCRIBES THE PARAMETER SETTINGS OF THE DRIVE.

ADJUST MANUALLY ON ALL DRIVES

P07 - 00 (120 OR 208 VAC) OR 01 (230, 480 OR 575 VAC)

P08 - MOTOR FLA x 100 / DRIVE OUTPUT RATING

SPEED #	T0-01	T0-02	T0-03
1 (PHASE)	OPEN	CLOSED	OPEN
2 (PHASE)	OPEN	OPEN	CLOSED
3 (PHASE)	OPEN	CLOSED	CLOSED

MOTOR INFORMATION

MOTOR	TYPE	HP (N.O.T)	HP (F.L.A)	W/INS
EXHAUST	3	0.37	0.55	0.37

WIRING

FIELD WIRING

INTERNAL WIRING

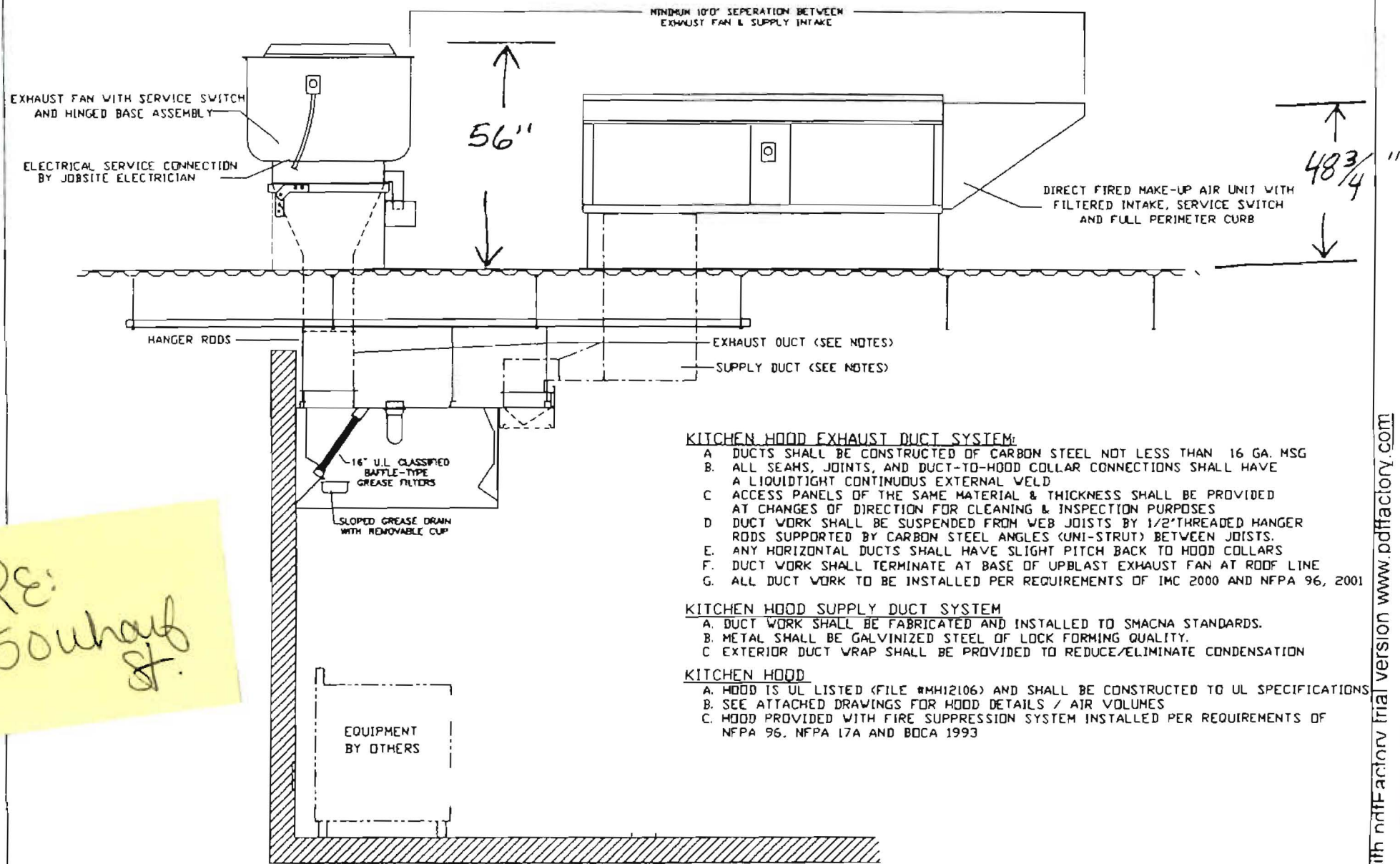
TERMINAL WIRING

TERMINAL WIRING (ALL REMOTE)

DRAWING SHOWS X-REVERSE

PHASE COLOR

SH - BLACK	TA - YELLOW
SL - BLUE	TR - GREEN
SR - BROWN	TY - GRAY
SO - ORANGE	TO - ORANGE BLUE
SD - RED	TD - STRIPE
SW - WHITE	SL RD - BLUE RED
SO - BLACK	TO - STRIPE
SR - PINK	SO GR - RED GREEN
	TD - STRIPE



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KITCHEN HOOD EXHAUST DUCT SYSTEM:

- A. DUCTS SHALL BE CONSTRUCTED OF CARBON STEEL NOT LESS THAN 16 GA. MSG
- B. ALL SEAMS, JOINTS, AND DUCT-TO-HOOD COLLAR CONNECTIONS SHALL HAVE A LIQUIDTIGHT CONTINUOUS EXTERNAL WELD
- C. ACCESS PANELS OF THE SAME MATERIAL & THICKNESS SHALL BE PROVIDED AT CHANGES OF DIRECTION FOR CLEANING & INSPECTION PURPOSES
- D. DUCT WORK SHALL BE SUSPENDED FROM WEB JOISTS BY 1/2" THREADED HANGER RODS SUPPORTED BY CARBON STEEL ANGLES (UNI-STRUT) BETWEEN JOISTS.
- E. ANY HORIZONTAL DUCTS SHALL HAVE SLIGHT PITCH BACK TO HOOD COLLARS
- F. DUCT WORK SHALL TERMINATE AT BASE OF UPBLAST EXHAUST FAN AT ROOF LINE
- G. ALL DUCT WORK TO BE INSTALLED PER REQUIREMENTS OF IMC 2000 AND NFPA 96, 2001

KITCHEN HOOD SUPPLY DUCT SYSTEM

- A. DUCT WORK SHALL BE FABRICATED AND INSTALLED TO SMACNA STANDARDS.
- B. METAL SHALL BE GALVINIZED STEEL OF LOCK FORMING QUALITY.
- C. EXTERIOR DUCT WRAP SHALL BE PROVIDED TO REDUCE/ELIMINATE CONDENSATION

KITCHEN HOOD

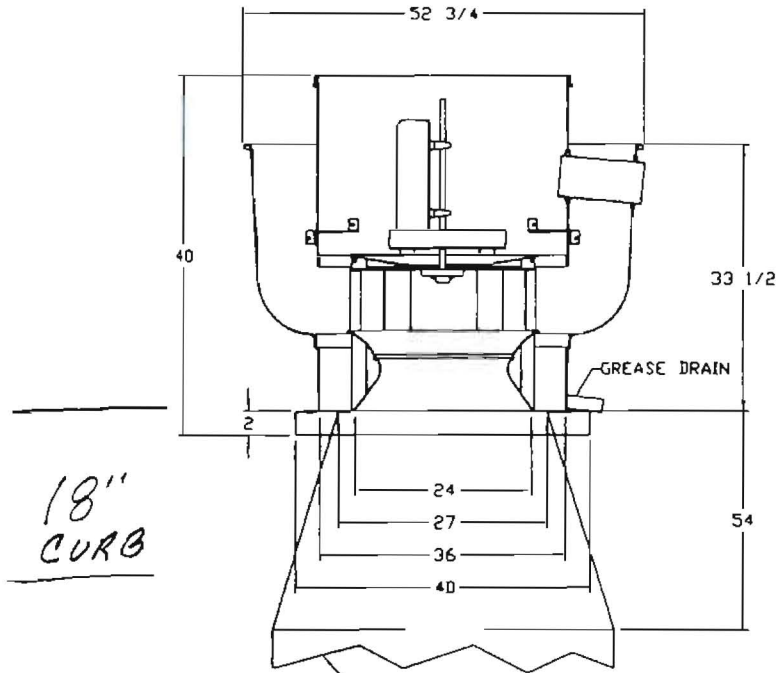
- A. HOOD IS UL LISTED (FILE #MH12106) AND SHALL BE CONSTRUCTED TO UL SPECIFICATIONS
- B. SEE ATTACHED DRAWINGS FOR HOOD DETAILS / AIR VOLUMES
- C. HOOD PROVIDED WITH FIRE SUPPRESSION SYSTEM INSTALLED PER REQUIREMENTS OF NFPA 96, NFPA 17A AND BOCA 1993

NOTE: THIS DRAWING IS PROVIDED FOR REFERENCE ONLY, DEPICTING A TYPICAL INSTALLATION. ACTUAL JOBSITE CONDITIONS MAY VARY. INSTALLING CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZING.

CAPTIVE AIR

JOB Havana South with MUA (option #2)	
LOCATION Portland, ME	
DATE 12/30/2009	JOB # 1077447
DWG # HavanaSouth	DRAWN BY BFC
REV. 1.00	SCALE 8.5' x 11'

FAN #1 NCA30FA - EXHAUST FAN



FEATURES:

- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL762
- AMCA SOUND AND AIR CERTIFIED
- WIRING FROM MOTOR TO DISCONNECT SWITCH
- WEATHERPROOF DISCONNECT
- 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
- FAN BASE CERAMIC SEAL - FOR GREASE DUCTS
- HINGE KIT (HD)- SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS

TOTAL HT.
 ABOVE ROOF
 56"

CUSTOMER APPROVAL TO MANUFACTURE:

- Approved as Noted
- Approved with NO Exception Taken
- Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

CAPTIVE AIR

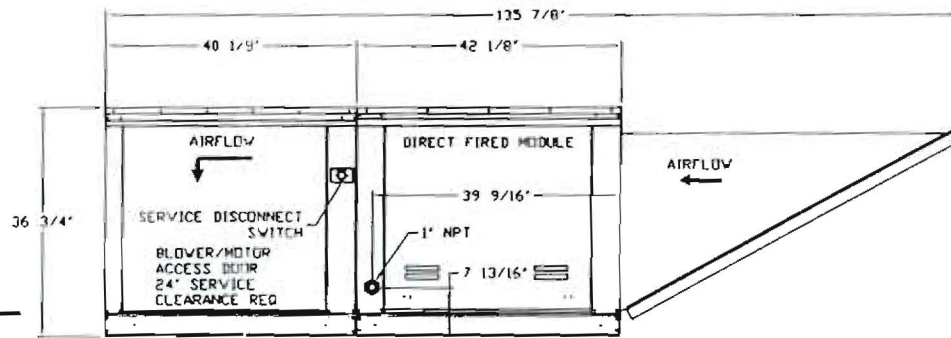
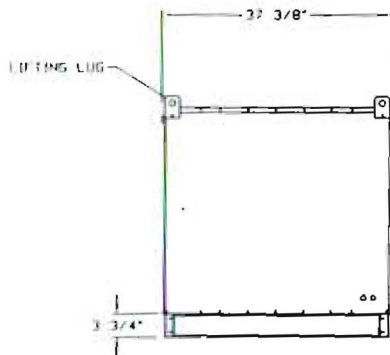
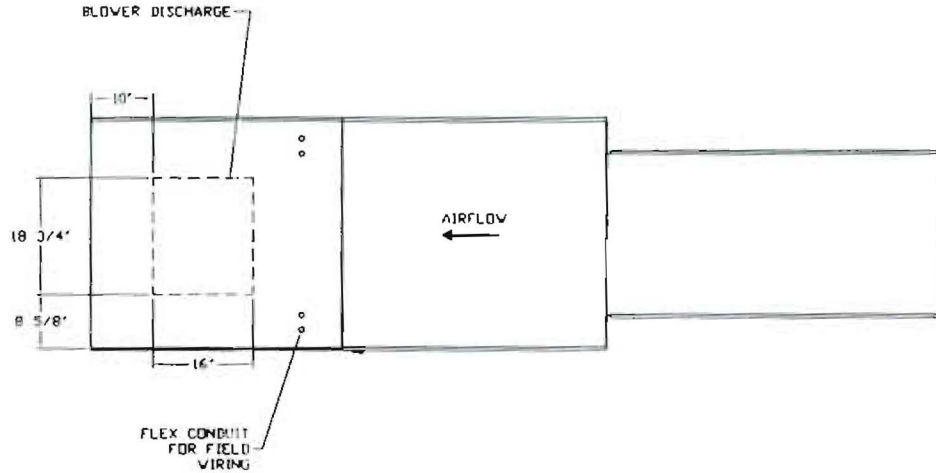
JOB Havana South with MUA (option #2)	
LOCATION Portland, ME	
DATE 12/30/2009	JOB # 1077447
DWG # HavanaSouth	DRAWN BY BFC
REV. 1.00	SCALE 8.5' x 11'

FAN #2 A2-B500-G15 - HEATER

1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15' BLOWER
2. INTAKE HOOD WITH EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
5. COOLING INTERLOCK RELAY, 24VAC COIL, 120V CONTACTS. LOCKS OUT BURNER CIRCUIT WHEN AC IS ENERGIZED.
6. LOW FIRE START. ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
7. GAS PRESSURE GAUGE, .5 TO *15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE
8. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR DIRECT FIRED HEATERS W/EXTENDED SHIRT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LF120S ACTUATOR INCLUDED
9. SEPERATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH EMS PACKAGE. PROVIDES SEPERATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM EMS TO MUA SWITCH

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 0°F. TEMP. RISE = 85°F.
 OUTPUT BTUs AT ALTITUDE OF 0.0 ft. = 390456
 INPUT BTUs AT ALTITUDE OF 0.0 ft. = 424409



14" CURB

TOTAL HT. ABOVE ROOF 48 3/4"

CUSTOMER APPROVAL TO MANUFACTURE:

Approved as Noted

Approved with NO Exception Taken

Revise and Resubmit

SIGNATURE _____

Your Title _____ Date _____

CAPTIVE

JOB Havana South with MUA Option #2	
LOCATION Portland, ME	
DATE 12/30/2009	JOB # 1077447
DWG # HavanaSouth	DRAWN BY BFC
REV. 1.00	SCALE 8.5' x 11'