



# CAMBRIDGE HISTORICAL COMMISSION

831 Massachusetts Avenue, 2<sup>nd</sup> Fl., Cambridge, Massachusetts 02139  
Telephone: 617 349 4683 TTY: 617 349 6112

E-mail: histcomm@cambridgema.gov URL: www.cambridgema.gov/Historic

## APPLICATION FOR CERTIFICATE

1. The undersigned hereby applies to the Cambridge Historical Commission for a Certificate of (check one box):  Appropriateness,  Nonapplicability, or  Hardship, in accordance with Chapter 40C of the Massachusetts General Laws and/or Chapter 2.78 of the Municipal Code.

2. Address of property:  , Cambridge, Massachusetts

3. Describe the proposed alteration(s), construction or demolition in the space provided below:  
(An additional page can be attached, if necessary).

The Dig Inn restaurant requires a grease exhaust fan and associated duct work in order to create a code compliant operation of the type one hood. Due to the constraints of the interior of the building as well as mechanical code requirements the duct work needs to run up the side of the building at the rear of the alley that separates 82 Mt Auburn from the adjacent building, 90 Mt Auburn. The existing conditions on the rear of the building do not allow the necessary duct work to be installed within the code constraints.

I certify that the information contained herein is true and accurate to the best of my knowledge and belief. The undersigned also attests that he/she has read the statements printed on the reverse.

Name of Property Owner of Record:	<input type="text" value="45 Dunster Street LLC"/>		
Mailing Address:	<input type="text" value="2 Holyoke Place, Cambridge, MA 02138"/>		
Telephone/Fax:	<input type="text" value="617-817-3810"/>	E-mail:	<input type="text" value="shawlg@gmail.com"/>
Signature of Property Owner of Record:			
(Required field; application will not be considered complete without property owner's signature)			
Name of proponent, if not record owner:	<input type="text" value="Samuel Gruber"/>		
Mailing Address:	<input type="text" value="1235 Broadway, 2nd Floor, New York, NY 10001"/>		
Telephone/Fax:	<input type="text" value="973-796-8130"/>	E-mail:	<input type="text" value="samuel.gruber@diginn.com"/>

<b>(for office use only):</b>			
Date Application Received:	_____	Case Number:	<u>4142</u>
		Hearing Date:	_____
Type of Certificate Issued:	_____	Date Issued:	_____



# DIG INN

- H-0 TITLE SHEET
- H-1 PLAN
- H-2 ELEVATIONS
- H-3 EXISTING PHOTOS

## MECHANICAL CUT SHEETS

Proposed work for the Dig Inn restaurant to include a grease exhaust fan and associated duct work to run up the side of the building at the rear of the alley that separates 82 Mt Auburn from the adjacent building, 90 Mt Auburn.

HARVARD SQUARE  
82 MOUNT AUBURN STREET

DIG INN

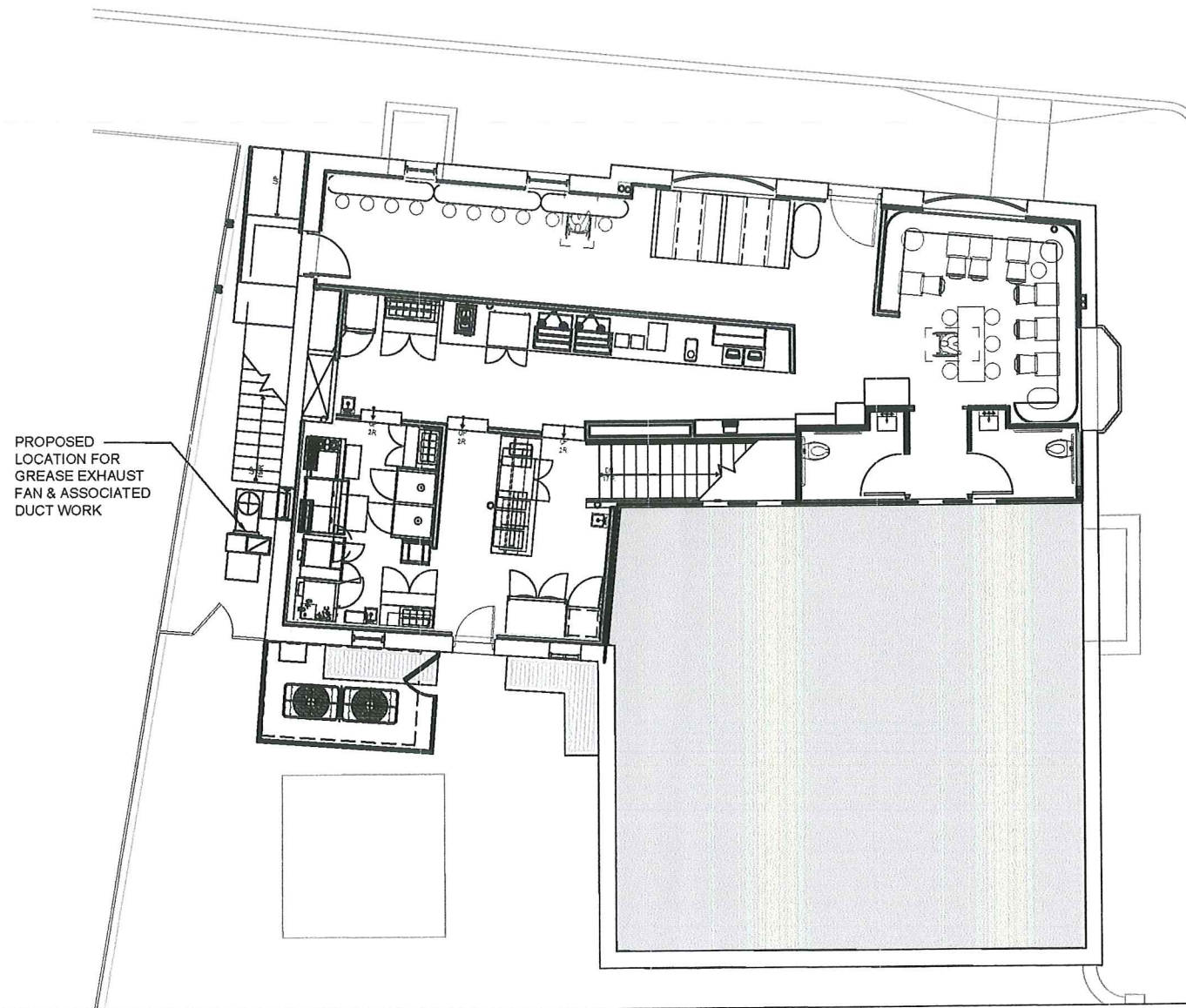
FLOOR PLAN  
Drawn by: AGB

BKA # 219039

Date: 06/18/2019

H-1 BKA ARCHITECTS

Boston + Brockton  
142 Crescent Street  
Brockton, MA 02302  
508.583.5803  
bkaarchitects.com



PROPOSED  
LOCATION FOR  
GREASE EXHAUST  
FAN & ASSOCIATED  
DUCT WORK

HARVARD SQUARE  
82 MOUNT AUBURN STREET

DIG INN

FLOOR PLAN

Drawn by: AGB

BKA # 219039

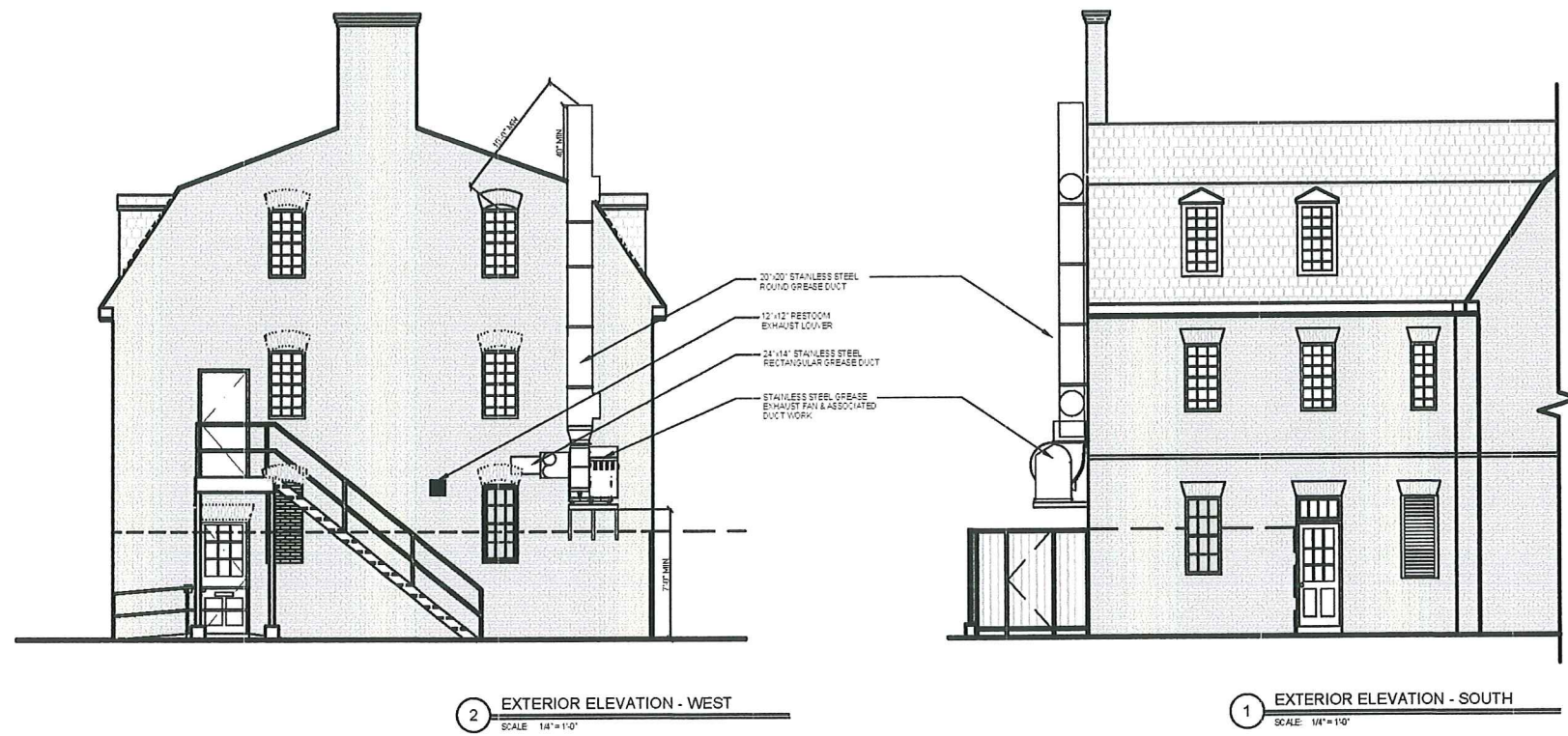
Date: 06/18/2019

H-1

BKA

ARCHITECTS

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142 Crescent Street  
Brockton, MA 02302  
508.583.5803  
bkaarchitects.com



HARVARD SQUARE  
82 MOUNT AUBURN STREET

**DIG INN**

EXTERIOR ELEVATIONS

Drawn by: AGB

BKA # 219039

Date: 06/18/2019

**H-2** **BKA** ARCHITECTS

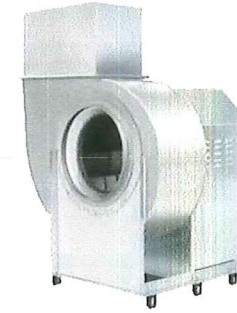
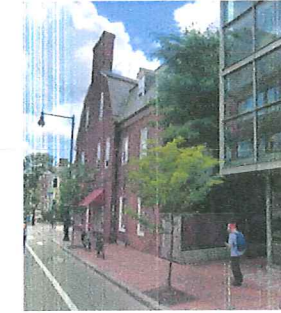
Boston + Brockton  
142 Crescent Street  
Brockton, MA 02302  
508.583.5603  
bkaarchitects.com



Proposed location of grease exhaust fan and associated duct work to run up the side of the building at the rear of the alley that separates 82 Mt Auburn from the adjacent building, 90 Mt Auburn.

Air conditioner & security cage to be removed

Proposed location of grease exhaust fan and associated duct work beyond



HARVARD SQUARE  
82 MOUNT AUBURN STREET

DIG INN

EXISTING PHOTOS

Drawn by: AGB

BKA # 219039

Date: 06/18/2019

H-3

BKA ARCHITECTS

Boston + Brockton  
142 Crescent Street  
Brockton, MA 02302  
508.583.5603  
bkaarchitects.com



Order # 3802300 - DIG INN - Cambridge MA

Fan #1 USB118DD-RM (391 lbs.)

Tag: KEF-1

Direct Drive Exhaust Only Unit With 18,750" Utility Set Exhaust Fan w/ 2" Grease Drain. Clockwise Rotation When Looking At Inlet.

**Exhaust Motor:**

Model DTP0034, 3,000 HP, 3 Phs, 208 V, 60Hz, 9.5 FLA, ODP, Premium (E-Plus3) Eff.

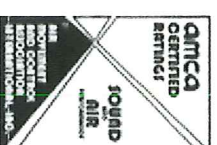
**Exhaust Performance:**

Volume: 3275 cfm  
RPM: 1420  
TS: 6970 ft/min  
SP: 2,000" w.g.  
BHP: 1,837  
Discharge Velocity: 1679 FPM  
Altitude: 18'  
Ambient Temp: 70°F

**Exhaust Installation Information:**

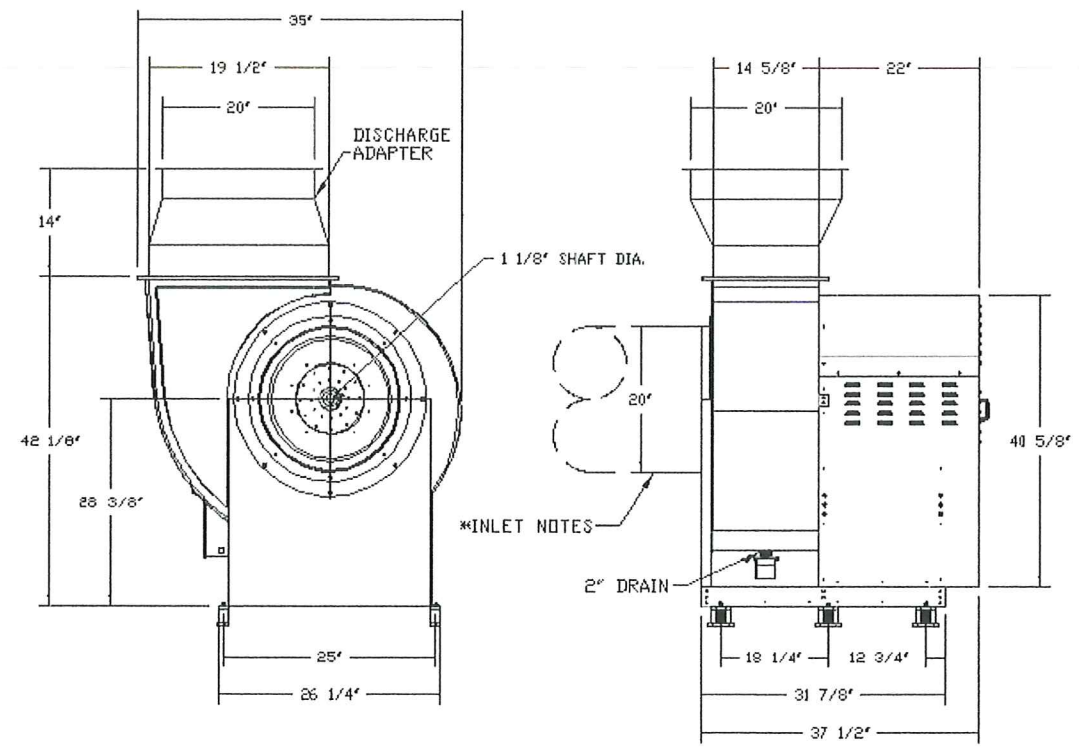
Unit Main Input: 11.9 Amps MCA, 20 Amps MOP, 208 V, 14 AWG Wire Min.

Exhaust Unit Voltage: 3 phs 208 V 60Hz



**Selected Options:**

- BI - Discharge Orientation - Vertical Upper Left - CW Looking At Inlet.
- B118 - 20" Flanged Grease Duct Connection.
- Grease Cup for Utility Sets. Option for Utility Sets.
- Single Wall Duct Adapter - Square To Round - 14,437" X 19,25" To 20" - 14" Tall - Stainless Steel. Standard Part. USB118 Outlet Adapter.
- Floor Mount Spring Vibration Isolators. Option for the B112 thru B118, USB118 (6 required) Utility Set units. Max Weight = 75 lbs. 1.3" Deflection. 3/8" bolt diameter. Set of 6. "Orange" (5C1126x6) Granger equivalent = 5C1126 - Mason C-A-75.



(6) ISOLATORS = USBI18 THRU 36

**FEATURES:**

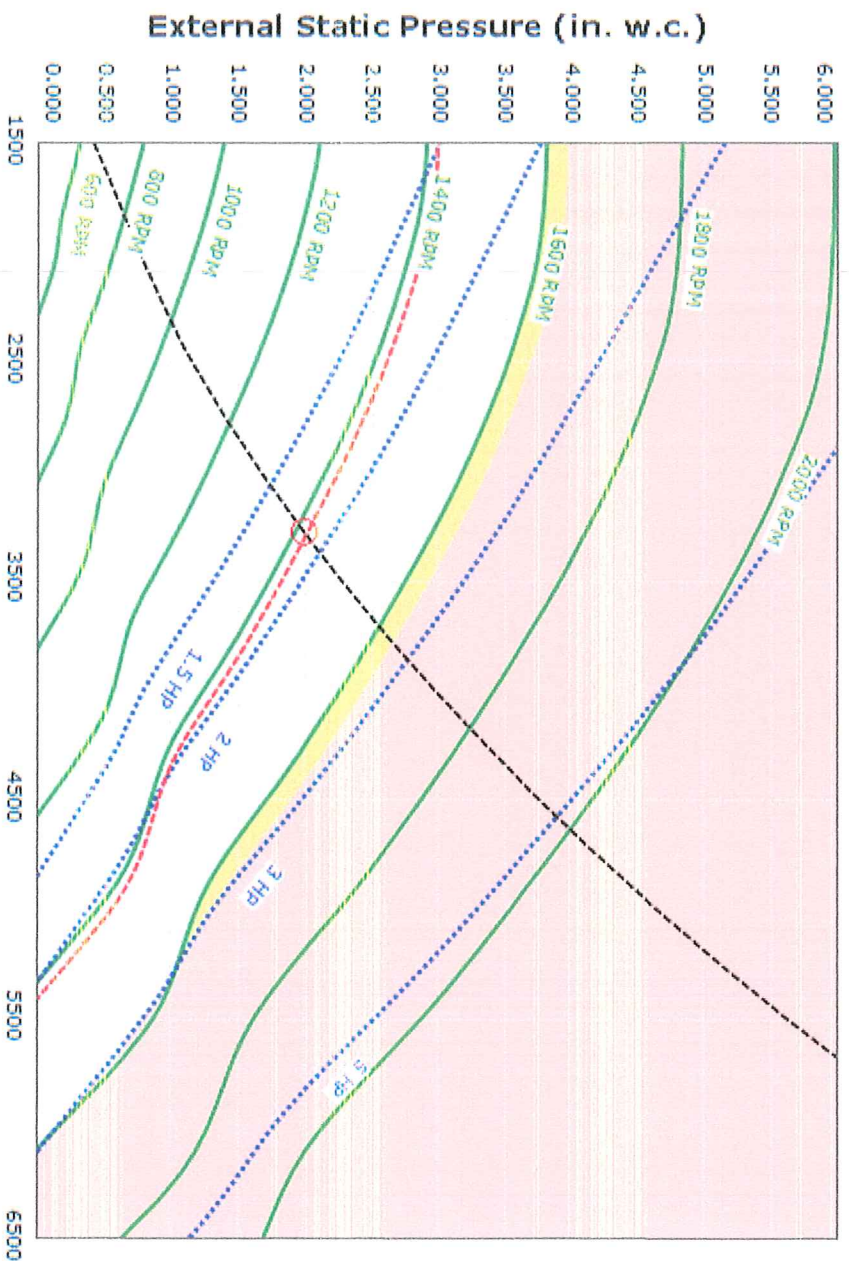
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705
- UL762 AND ULC-S645
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C)
- HIGH HEAT OPERATION BELT DRIVE 350°F (176°C)
- HEAT SLINGER
- WEATHERPROOF DISCONNECT
- GREASE CLASSIFICATION TESTING
- 2" DRAIN
- MOTOR WEATHER COVER
- FULLY SEALED SCROLL HOUSING
- SCROLL ACCESS DOOR
- FLANGE 1 1/4" - 11 THRU 20.
- FLANGE 2" - 24 THRU 36.

NORMAL TEMPERATURE TEST DIRECT DRIVE EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 350°F (176°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

\* INLET NOTES:  
LENGTH OF THE STRAIGHT DUCT ON THE INLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

**3275 CFM, 2 SP @ 1420 RPM and 1.837 BHP at 18 feet and 70° F**

\* Note: Curves are adjusted to job specific temperature and altitude.  
 Yellow shaded region is above the max. recommended RPM.  
 Red shaded region is outside the operating range of this fan.



USB18DD-RM exhaust sound data @ 1420 RPM:

LWA at 5 ft.: 85.2    Sones at 5 ft.: 22    DBA at 5 ft.: 73.7

Distance	Octave 1	Octave 2	Octave 3	Octave 4	Octave 5	Octave 6	Octave 7	Octave 8
5 ft.	83.2	84.9	84.2	83.8	80	76	68.4	63.1



**ELECTRICAL PACKAGE - Job#3802300**

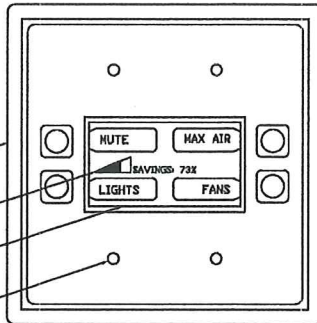
NO.	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	H.P.	VOLT	FLA	
1		DCV-1211	Wall Mount In SS Box	08 - Ship Loose w/ Presire	1 Light 1 Fan	Smart Controls DCV	KEF-1	Exhaust	3	3,000	208	9.5
							HUA-1	Supply	3	1,500	208	4.6
							HUA-2	Supply	3	1,500	208	4.6

**DETAIL OF LCD TOUCH PAD**

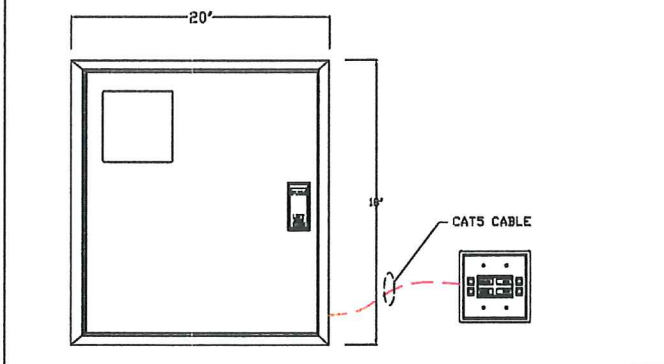
※ INCLUDES INTEGRAL ROOM TEMPERATURE SENSOR ※

Surface-mount on wall in kitchen area. Do not install directly under the hood or near appliances.

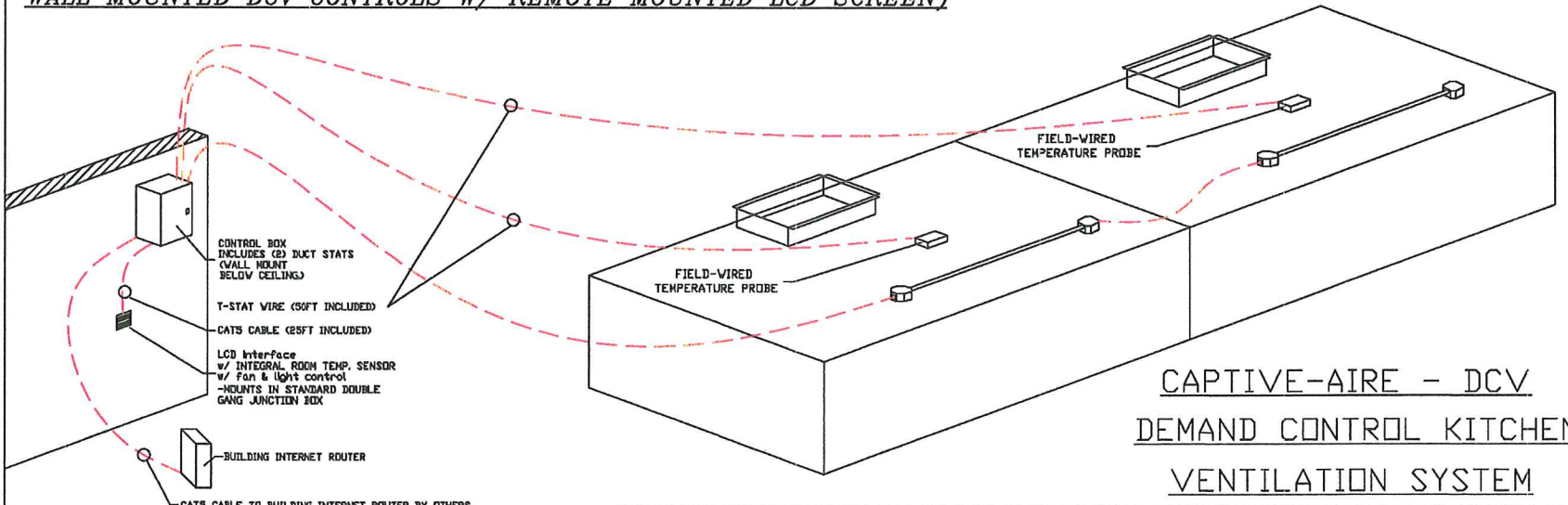
- CAT-5 CONNECTION ON REVERSE, CONNECTED TO HOOD CONTROL PANEL.
- DEMAND CONTROL VENTILATION SAVINGS INDICATOR
- ALARM INDICATING LCD SCREEN, BUTTON FUNCTIONS VARY BY MODEL TYPE
- OPTION FOR RECESSED WALL MOUNTING FITS IN STANDARD DOUBLE GANG JUNCTION BOX



**DETAIL OF REMOTE S/S BOX**



**WALL MOUNTED DCV CONTROLS W/ REMOTE MOUNTED LCD SCREEN**



-- FIELD WIRING

**CAPTIVE-AIRE - DCV DEMAND CONTROL KITCHEN VENTILATION SYSTEM**



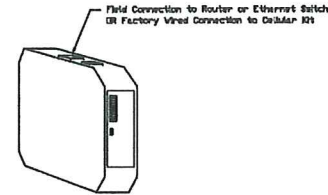
JOB# DIG INN - Cambridge MA	
LOCATION CAMBRIDGE, MA, 02138	
DATE 5/13/2019	JOB # 3802300
DWG # 15	DRAWN BY
REV.	SCALE 3/8" = 1'-0"

**Demand Control Ventilation Hood Control Panel Specifications:**

- Controls shall be listed by ETL (UL 508A) and shall comply with demand ventilation system shutdown 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

**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)



**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.

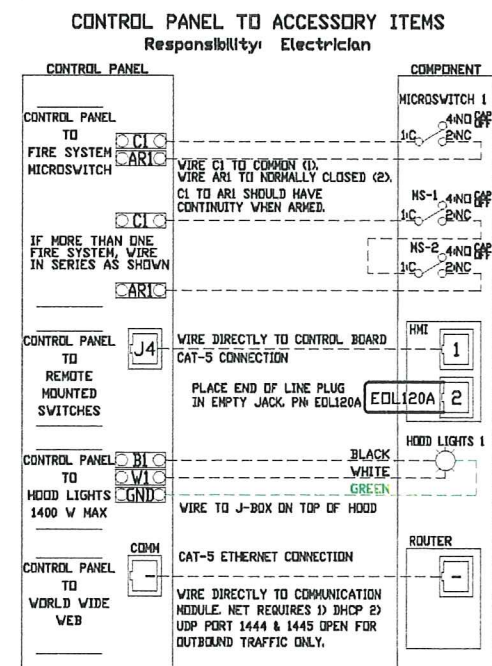
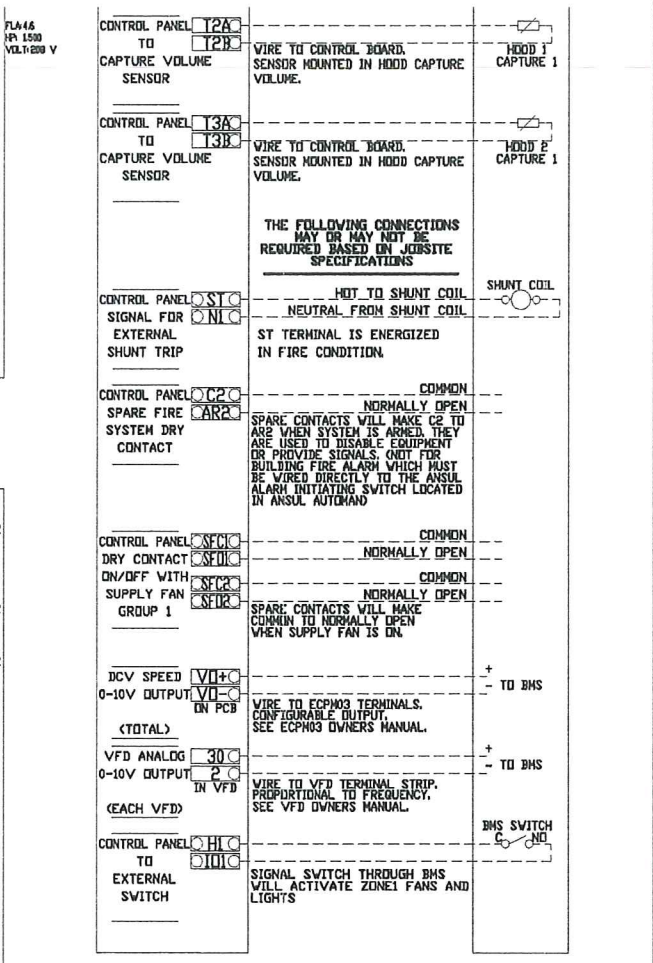
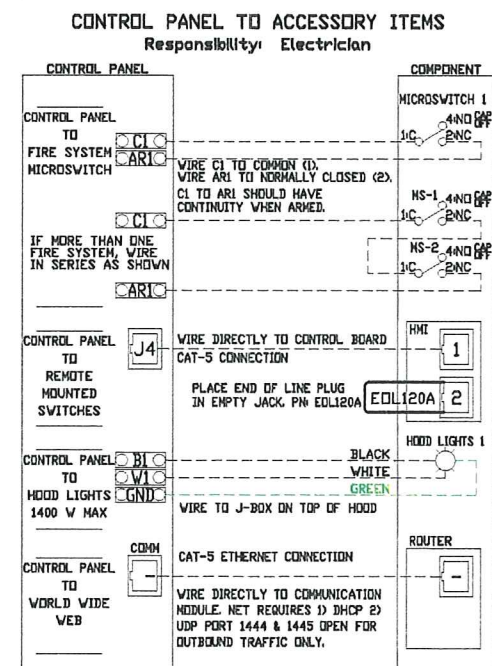
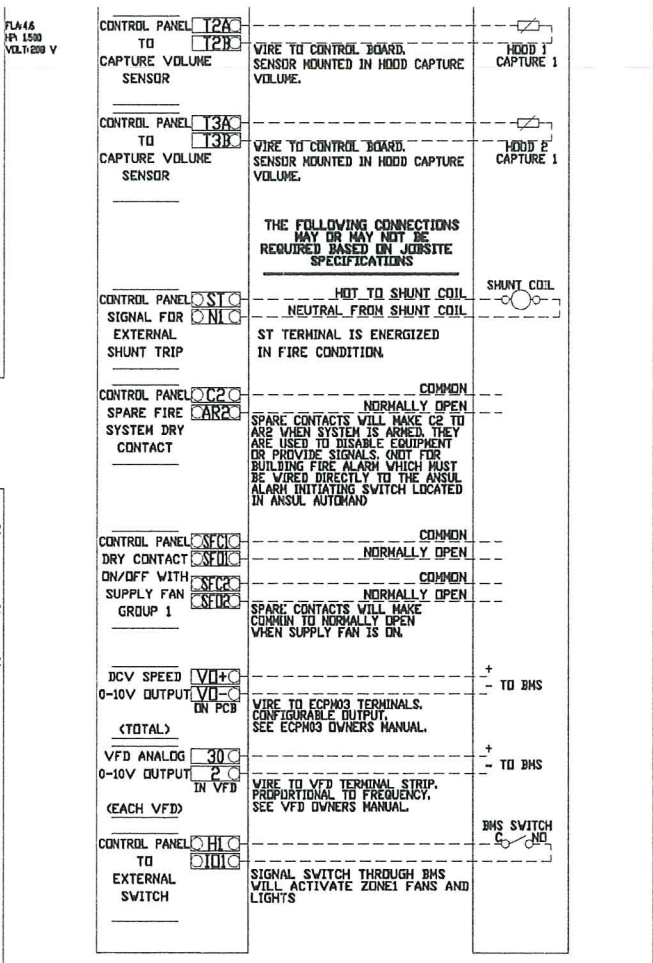
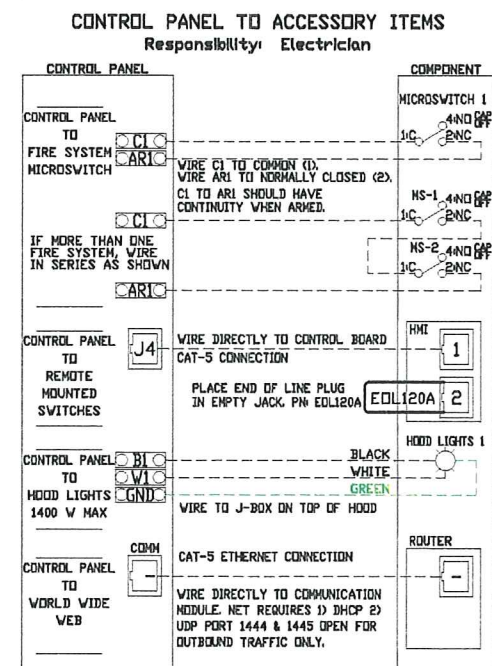
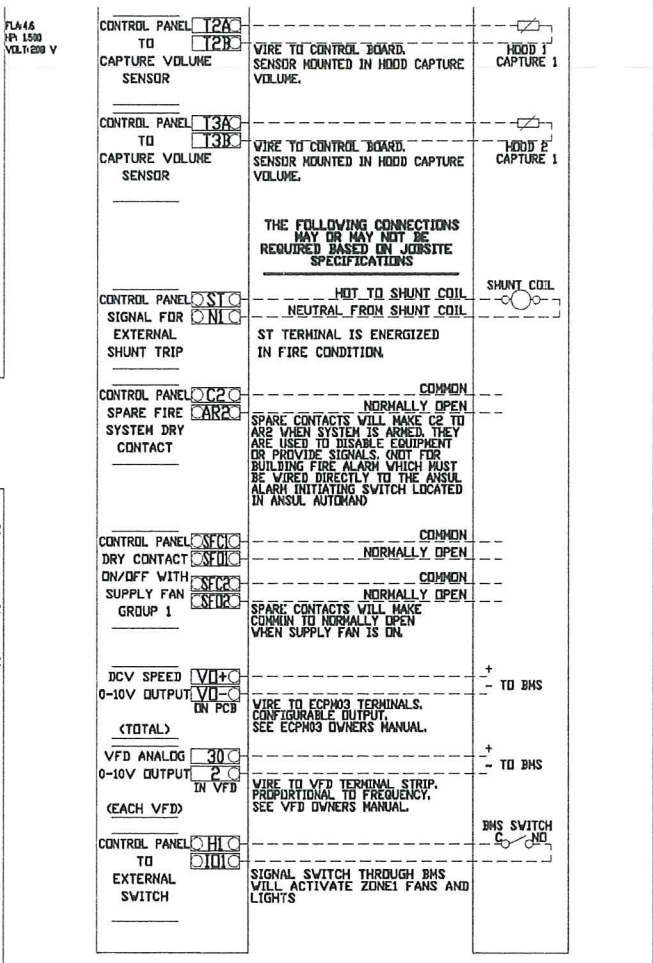
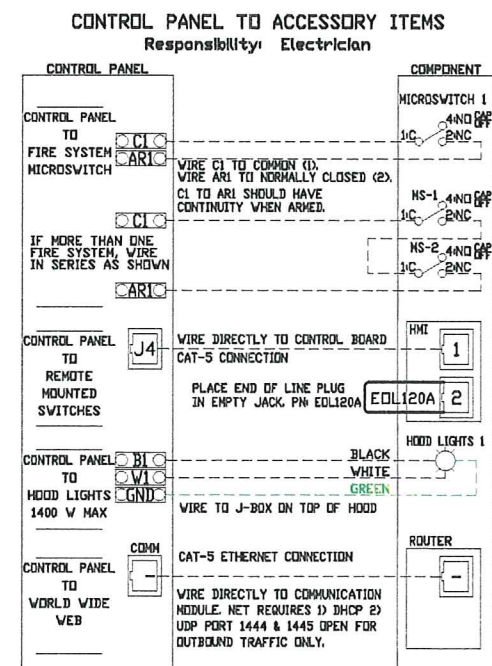
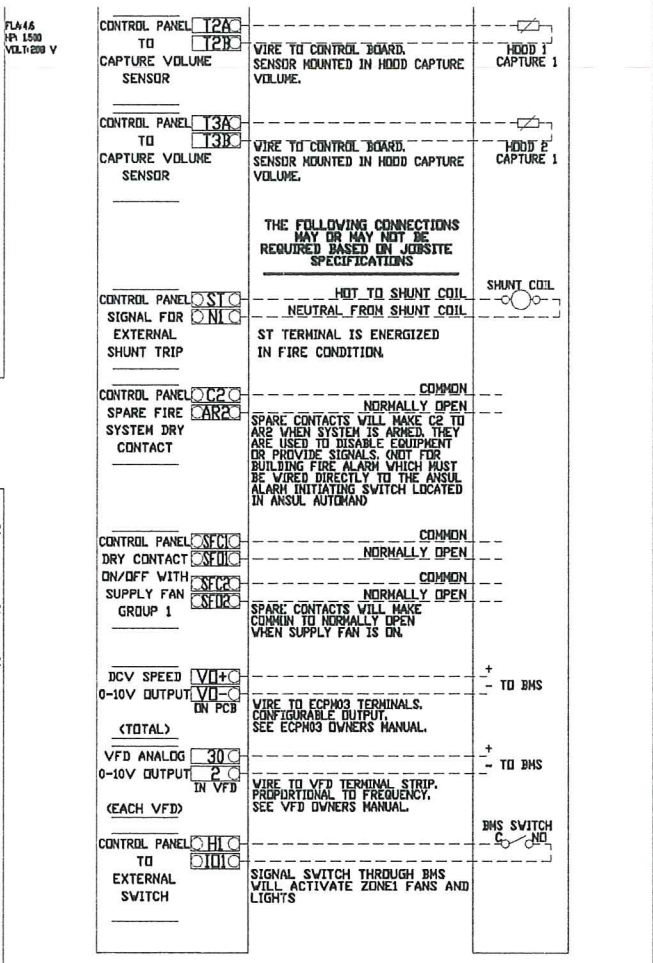
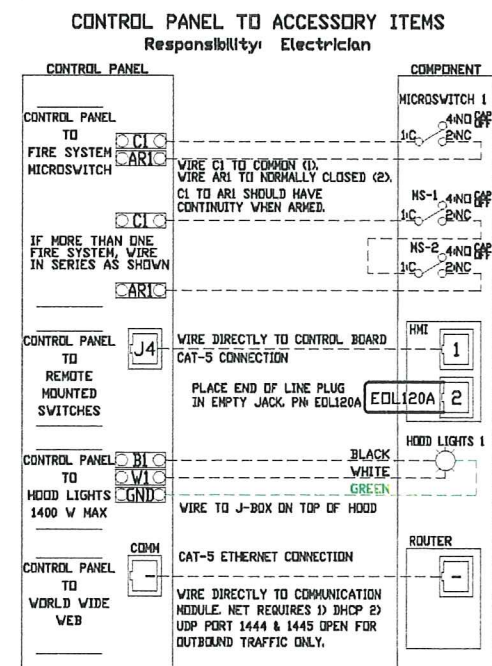
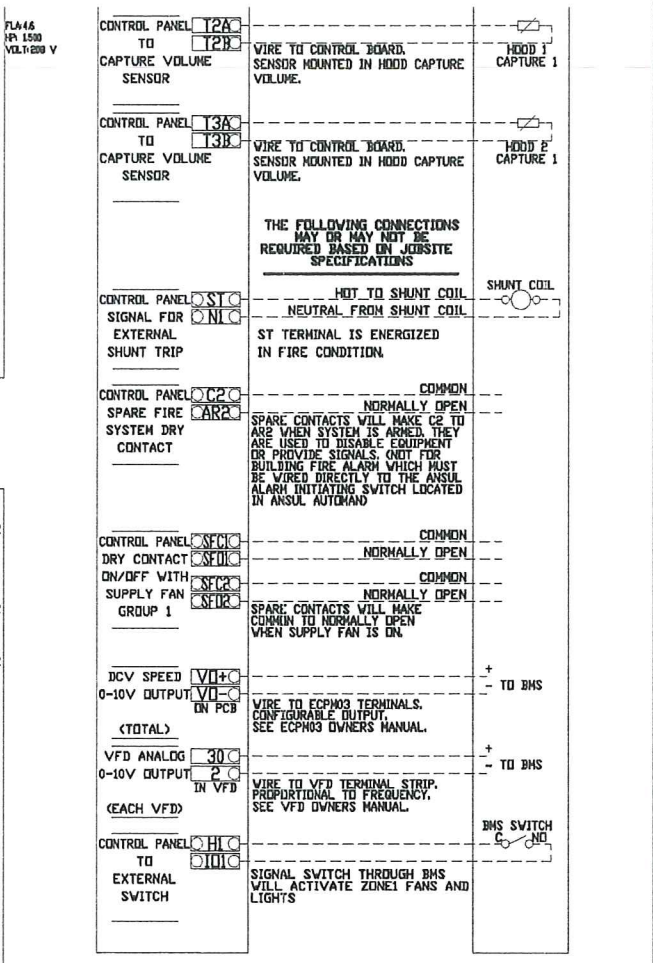
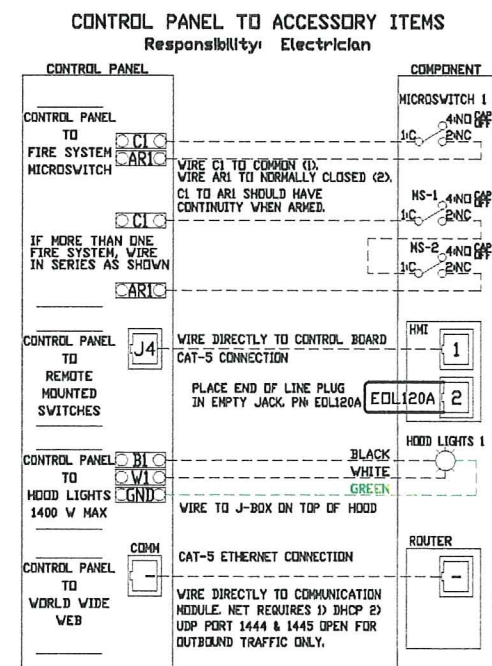
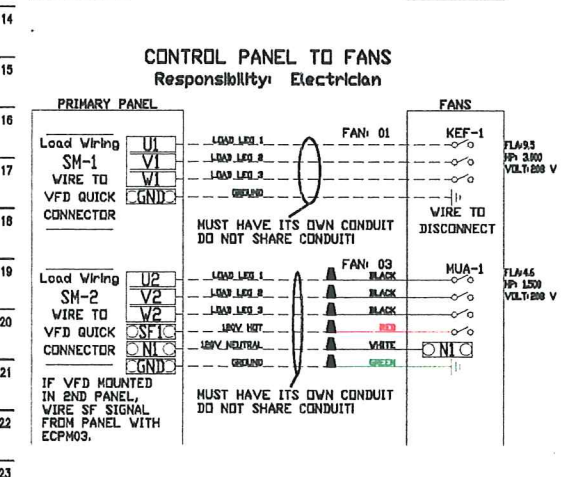
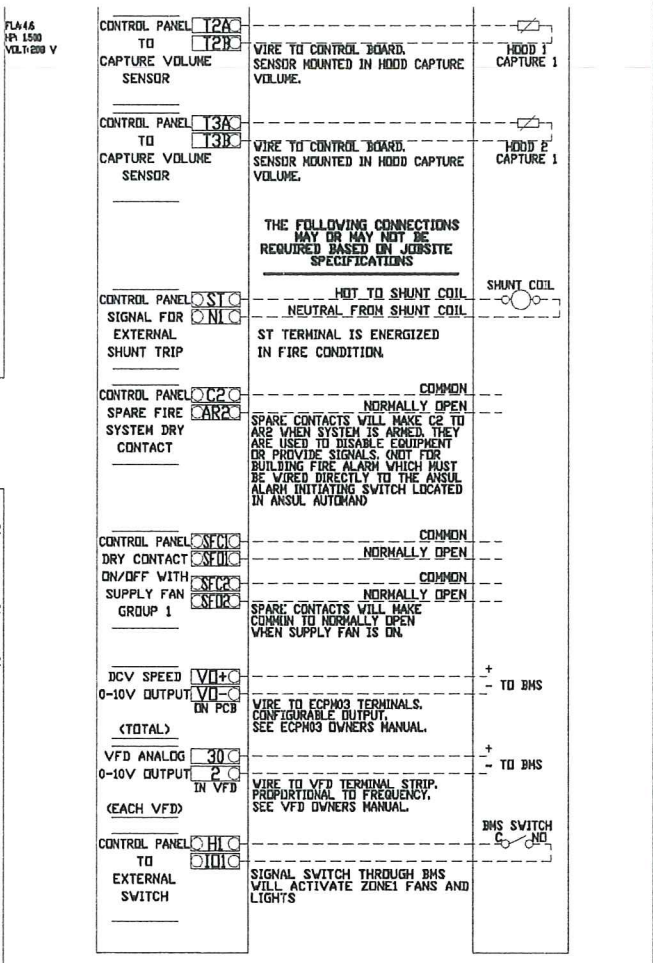
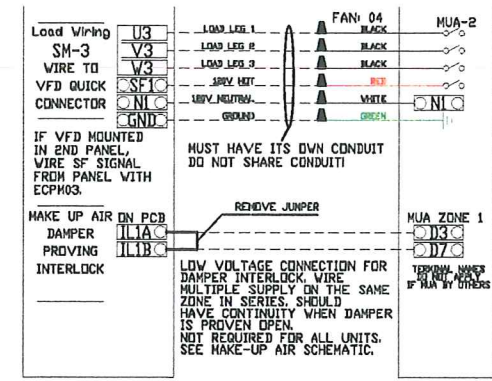
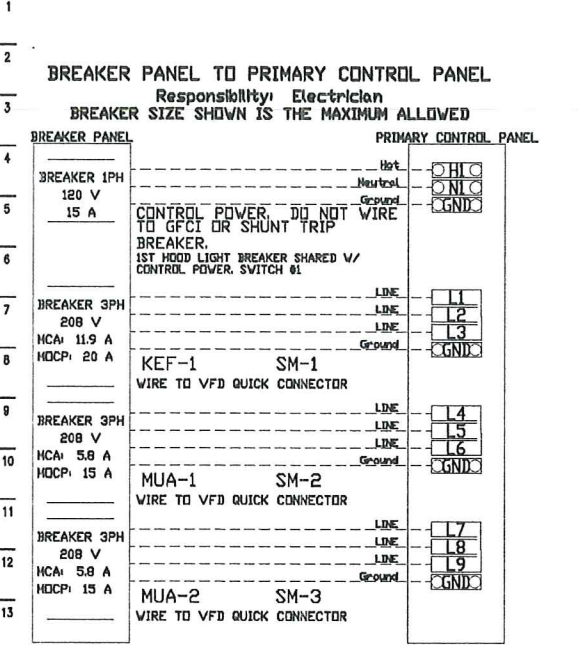
**MONITORING AND CONTROL POINTS LIST**

ECV Packages	Function	DC Packages	Function
Room Temperature	MONITOR	Room Temperature	MONITOR
Duct Temperature	MONITOR	Duct Temperature	MONITOR
HVA Discharge Temperature	MONITOR	HVA 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	CODE Fire System	MONITOR
PCU Faults	MONITOR	Building Pressure	MONITOR
PCU Filter Clog Percentages	MONITOR	Fans Buttons	MONITOR & CONTROL
Fire Condition	MONITOR	Lights Buttons	MONITOR & CONTROL
CODE Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Pressure	MONITOR		
Prep Line Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Lights Button	MONITOR & CONTROL		
Wash Button	MONITOR & CONTROL		



JOB DIG INN - Cambridge MA	
LOCATION CAMBRIDGE, MA, 02138	
DATE 5/13/2019	JOB # 3802300
DWG # 16	DRAWN BY
REV.	SCALE 3/8" = 1'-0"

JOB NO <b>3802300</b>	MODEL NUMBER <b>DCV-1211</b>	DRAWN BY <b>INSTALL</b>	SCHEMATIC TYPE <b>INSTALL</b>	DESCRIPTION OF OPERATION Demand Control Ventilation, w/ control for 1 Exhaust Fan, 2 Supply Fans, Exhaust on In Fire, Lights out In Fire, Fans modulate based on duct temperature, INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD. 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 <b>DIG INN - Cambridge MA</b>	DATE <b>5/13/2019</b>	DWG NO <b>ECP 01-1</b>		



**DuctWork #1 Parts - Job#3802300 POST-FAN DUCT**

Tag	Part #	CFM	S.P.	Weight	Velocity	QTY	Description
P1	DV2035LT	0		23.51	0	1	Single Wall Duct 20" diameter, 35' long, flange at both ends. Stainless Steel.
P2	DV2030AJDKIT	0		25.05	0	1	Single Wall Duct Adjustable, 20" diameter, 29.5' long, flange at one end With a 20" Adjustable Collar - Stainless Steel.
P3 Assembled w/P9	DV20TEASY			26.16		1	Single Wall Duct Tee, 20" Duct, Assembly.
P4	DV2047LT	0		31.08	0	1	Single Wall Duct 20" diameter, 47' long, flange at both ends. Stainless Steel.
P5	DV2047LT	0		31.08	0	1	Single Wall Duct 20" diameter, 47' long, flange at both ends. Stainless Steel.
P6	DV2047LT	0		31.08	0	1	Single Wall Duct 20" diameter, 47' long, flange at both ends. Stainless Steel.
P7 Assembled w/P8	DV20TEASY			26.16		1	Single Wall Duct Tee, 20" Duct, Assembly.
P8 Assembled w/P7	DV2021ADKIT			6.59		1	Duct Access Door with Handle & Grease Dan, for 20" duct use 21" door. Stainless Steel.
P9 Assembled w/P3	DV2021ADKIT			6.59		1	Duct Access Door with Handle & Grease Dan, for 20" duct use 21" door. Stainless Steel.
	3M-2000PLUS			0.80		4	Duct - 3M Fire Barrier 2000 Plus Silicone - Used as sealant to Seal Duct Joints.
	DV20CLASY			1.77		10	Duct "V" Clamp With new design 14 Ga Brackets, 20" Duct, Assenbly.
<b>Additional Parts</b>							
	DV20VESU			17.72		2	Duct Vertical Support Assembly, 20" Duct. Parts are Zinc Coated.
<b>Total Weight</b>				<b>263.64</b>			



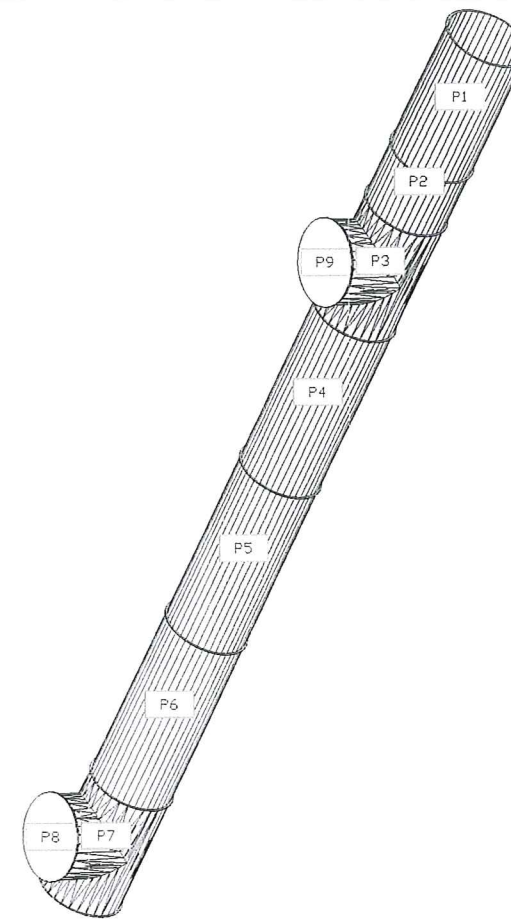
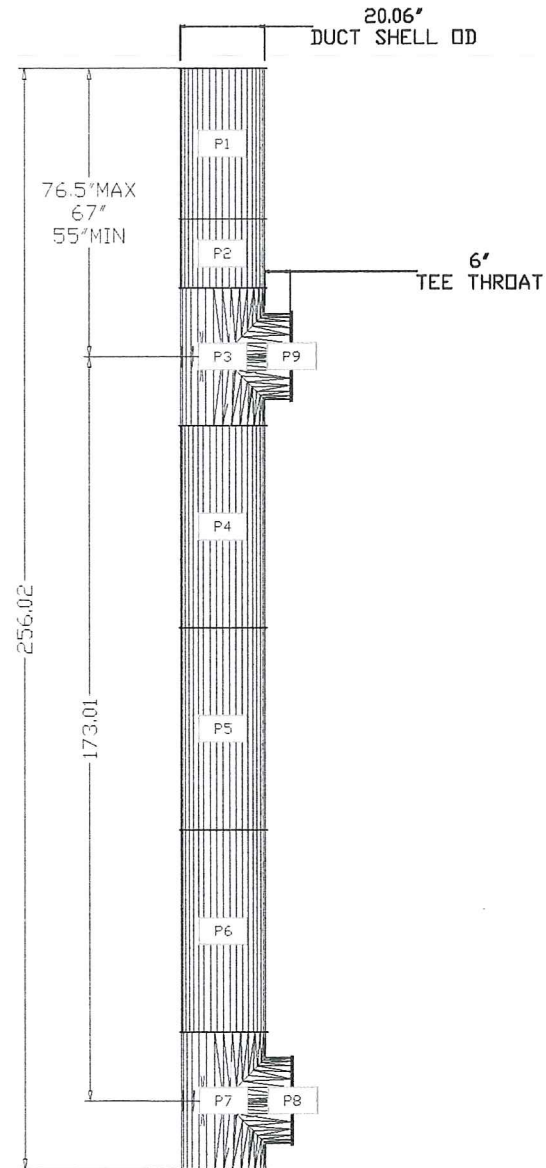
**CAPTIVEAIR**

JOB# 3802300	
JOB# 3802300	
DATE 5/13/2019	JOB # 3802300
DWG # 19	DRAWN BY
REV.	SCALE 3/8" = 1'-0"

DuctWork #1 Side View  
POST-FAN DUCT

**CAS: FLUE STACK ALTERNATIVE  
TO WELDED GREASE DUCT OUTDOORS  
AS RECOMMENDED BY CAPTIVE AIR**

DuctWork #1 SE View  
POST-FAN DUCT



**CAPTIVEAIR**

JOB DIG INN - Cambridge MA	
LOCATION CAMBRIDGE, MA, 02138	
DATE 5/13/2019	JOB # 3802300
DWG # 21	DRAWN BY
REV.	SCALE NOT TO SCALE

**GREASE DUCT SPECIFICATION**

Furnish single-wall, factory built, grease duct for use with Type I kitchen hoods, which conforms to the requirements of NFPA-96. Products shall be ETL listed to UL-1978 for venting air and grease vapors from commercial cooking operations as described in NFPA-96. The duct wall shall be constructed of .036 thick type 430 stainless steel and be available in diameters 8" through 24". All supports, fan adapters, hood connections, fittings and expansion joints required to install grease duct shall be included. Roof penetrations shall comply with listed clearance to combustibles, see "Clearance to Combustibles" guide for details. The grease duct will terminate at the fan adapter plate, will be fully welded to the fan adapter plate and the fan adapter plate will be fastened to the curb using a suitably sized fastener provided by others; see page 12 of the "Installation, Operation and Maintenance Manual" for details. Grease duct joints shall be held together by means of formed vee clamps and sealed with 3M Fire Barrier 2000+. Screws used to secure the vee clamps shall be of the hex-head type with flanged stops and tapered "lead in" threads for easy starting. Nuts shall be retained by means of a free-floating cage to allow easy alignment. Single-Wall Grease Duct shall be installed in accordance with the manufacturer's "Installation, Operation and Maintenance Manual", ETL listing and state and local codes. Grease duct installed outside of the building shall be protected against accidental damage or vandalism. Support vertically installed grease duct from the building structure using rigid structural supports. Anchor supports to the structure by welding or bolting steel expansion anchors or concrete inserts. Support horizontally installed grease duct from the building structure using above method or use *Duct Mate, Wire Rope & Clutchers*, part numbers WR20 & CL20. 1/2" Threaded rod and saddles may also be used for the support of horizontal grease duct. Fans shall be supported independently from the grease duct sections. Protect grease duct from twisting or movement caused by fan torque or vibration.

CLEARANCE TO COMBUSTIBLES			
DIAMETER	COMBUSTIBLES	LIMITED COMBUSTIBLES	NON COMBUSTIBLES
8"	18"	3"	0"
10"	18"	3"	0"
12"	18"	3"	0"
14"	18"	3"	0"
16"	18"	3"	0"
18"	18"	3"	0"
20"	18"	3"	0"
24"	18"	3"	0"

ADJUSTABLE DUCT OVERLAP - MINIMUM	
DIAMETER	OVERLAP
8"	4"
10"	5"
12"	6"
14"	6"
16"	6"
18"	6"
20"	6"
24"	6"

**SINGLE WALL FACTORY BUILT DUCTWORK**

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

DUCT DIAMETER	HORIZONTAL SUPPORT (ft)	VERTICAL WALL SUPPORT (ft)	VERTICAL CURB SUPPORT (ft)
8"	10'	10'	24'
10"	10'	10'	24'
12"	10'	10'	24'
14"	10'	10'	24'
16"	10'	10'	24'
18"	10'	10'	24'
20"	10'	10'	24'
22"	10'	10'	24'
24"	10'	10'	24'



JOB DIG INN - Cambridge MA	
LOCATION CAMBRIDGE, MA, 02138	
DATE 5/13/2019	JOB # 3802300
DWG # 22	DRAWN BY
REV.	SCALE 3/8" = 1'-0"