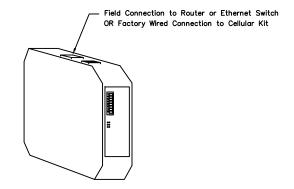
ELECTRICAL PACKAGES - Job#3060483

	CIRICAL P	ACKAGES -	100#3000463								
NO.	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	?	H.P.	VOLT	FLA
1		DCV-1111	Utility Cabinet Right	04 — Utility Cabinet Right	1 Light	Smart Controls DCV	Exhaust	3	1.500	208	6.6
				Hood # 1	1 Fan		Supply	3	1.500	208	4.4



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.

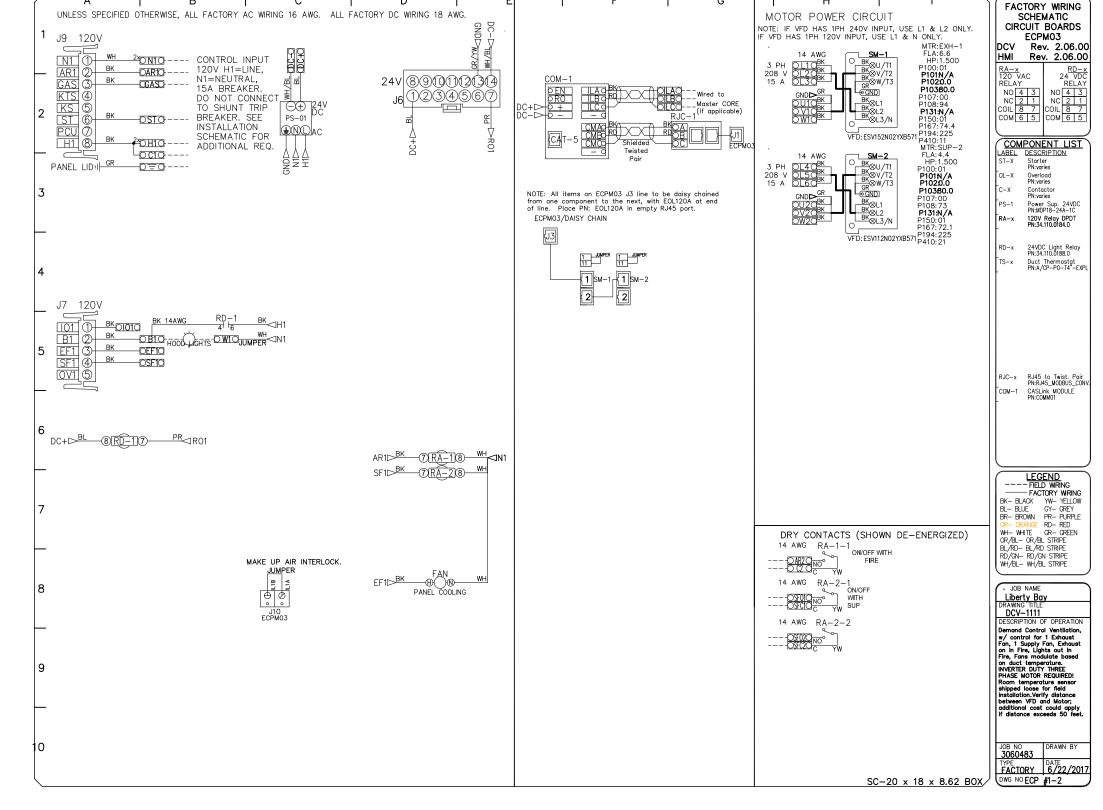
MONITORING AND CONTROL POINTS LIST

<u>M</u>	ONITORING AND CO	NTROL 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	CORE 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
CORE Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Pressures	MONITOR		
Prep Time Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Lights Button	MONITOR & CONTROL		

MONITOR & CONTROL

Wash Button

## SQUARES DUM-1111 MILE MARKET	OB NO 3060483	MODEL NUMBER DCV-1111		DRAWN BY	SCHEMATIC TYPE 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 m
BEAKER PANEL TO CONTROL PANEL CONTR		JOB NAME Liberty Bay				on duct temperature. INVENTER DUTY THREE PHASE MOTOR REQUIRED! Room temperature sensor shipped loose for fiel installation. Verify distance between VFD and Motor; additional cost could apply if distance exceeds 50 feet.
CONTROL PANEL TO FANS Responsibility: Electrician CONTROL PANEL TO TO TO TO TO TO TO TO TO T	BREAKER PANEL TO CON Responsibility: Elect BREAKER SIZE SHOWN IS THE M REAKER PANEL BREAKER 1PH 120 V 15 A CONTROL POWER. DO N- TO SHUNT TRIP BREAKER 1ST HOOD LIGHT BREAKER SHARED POWER. SWITCH #1 BREAKER 3PH 208 V ICA: 8.2 A ICCP: 15 A EXH—1 WIRE TO VFD QUICK CONNECTO SREAKER 3PH 208 V ICA: 5.5 A ICCP: 15 A SUP—2 SM—2	ITROL PANEL trician MAXIMUM ALLOWED CONTROL PANEL Hot OH10 Ground OGNDO OT WIRE D W/ CONTROL LINE 12 LINE 13 Ground OGNDO OR LINE 14 LINE 15 Ground OGNDO	CONTROL PANEL TO FIRE SYSTEM MICROSWITCH IF MORE THAN ONE FIRE SYSTEM, WIRE IN SERIES AS SHOWN CONTROL PANEL TO SWITCHES	6/22/2017 EL TO ACCE: sibility: Electi C1-T0-COMMON (1). AR1 TO NORMALLY (1). AR1 SHOULD HAVE (1). AR1 TO NORMALLY (1). WITCHES FACTORY (1).	SSORY ITEMS rician COMPO MICROSWI L: C MS-1 L: C MS-2 MS-2 MS-2 MS-1 HOOD LI BLACK WHITE GREEN	CONTROL PANEL STO- SIGNAL FOR NITO ST TERMINAL IS ENERGIZED IN FIRE CONDITION. COMMON SPARE FIRE SYSTEM DRY CONTACT SYSTEM DRY CONTACT SYSTEM IN ARE USED TO DISABLE EQUIPMENT OR PROVIDE SIGNALS (NOT FOR BUILDING FIRE ALARM WHICH MUST BE WIRED DIRECT TO THE ANSUL ALARM INITIATING SWITCH LOCATED IN ANSUL AUTOMAN) COMMON DRY CONTACT SECTO ON/OFF WITH SUPPLY FAN GROUP 1 COMMON SPARE CONTACTS WILL MAKE COMMON TO NORMALLY OPEN WHEN SUPPLY FAN IS ON. DCV SPEED O-10V OUTPUT VO-O ON PCB (TOTAL) WERE TO ECPMO3 TERMINALS. CONFIGURABLE OUTPUT SEE ECPMO3 OWNERS MANUAL. TO BMS
ZONE IN SERIES. SHOULD THE FOLLOWING CONNECTIONS	Responsibility: Electicontrol panel Load Wiring SM-1 WI - LOAD LEG 1 - LOAD LEG 2 - LOAD LEG 3	##: 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 1.500 VOLT: 208 V ##1 E D DISCONNECT ##1 E D D D D D D D D D D D D D D D D D D	CONTROL PANEL TIAO TO TIBO WRE SENSOR CONTROL PANEL TIAO TO TIBO FACTO SENSOR CONTROL PANEL TIAO TIBO FACTO SENSOR CONTROL PANEL TIAO TIBO FACTO SENSOR	5 ETHERNET CONNECTION OF THE PROPERTY OF THE P	NICATION NICATION WINCATION WHERS STRUCTIONS. MAWAY E MANUAL TURE HOO PSP PSP LI PSP	O-10V OUTPUT WRE TO VFD TERMINAL STRIP. PROPORTIONAL TO FREQUENCY. SEE VFD OWNERS MANUAL. BMS SWITCH CONTROL PANEL D H10 TO D 0 1010 EXTERNAL SWITCH SWITCH M TEMP OOD 1 SER 1



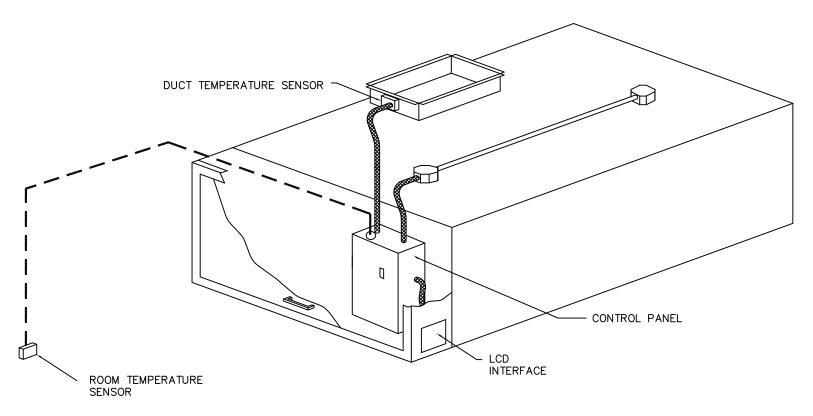
MAINE OFFICE

Caller

REVISIONS

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 5.7.1.1.
- 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 activationb. 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.
- <u>Manual:</u> 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)

101 Ave \mathbb{Z} D M S \circ ţ \Box 0 \sim <u>.</u> 4 \sim **DATE:** 6/22/2017 DWG.#: 3060483 DRAWN BY: BFC-21

3/4" = 1'-0"

MASTER DRAWING

SCALE:

SHEET NO.

IFS-14