

Electrical Control Panel

Kitchen Ventilation Control System

Installation and Operations Manual



**FOR MODELS:
ECP**

Striving for Excellence

STREIVOR.COM



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General Information

Pre-Installation Precautions



WARNING



PRIOR TO MAKING ANY ELECTRICAL CONNECTIONS TO THE ELECTRICAL CONTROL PANEL (ECP), READ AND UNDERSTAND THIS ENTIRE INSTALLATION AND OPERATIONS MANUAL. ALL WORK ON THE ECP SHOULD BE PERFORMED BY QUALIFIED CONTRACTORS IN ACCORDANCE WITH ALL APPLICABLE PREVAILING CODES AND STANDARDS.

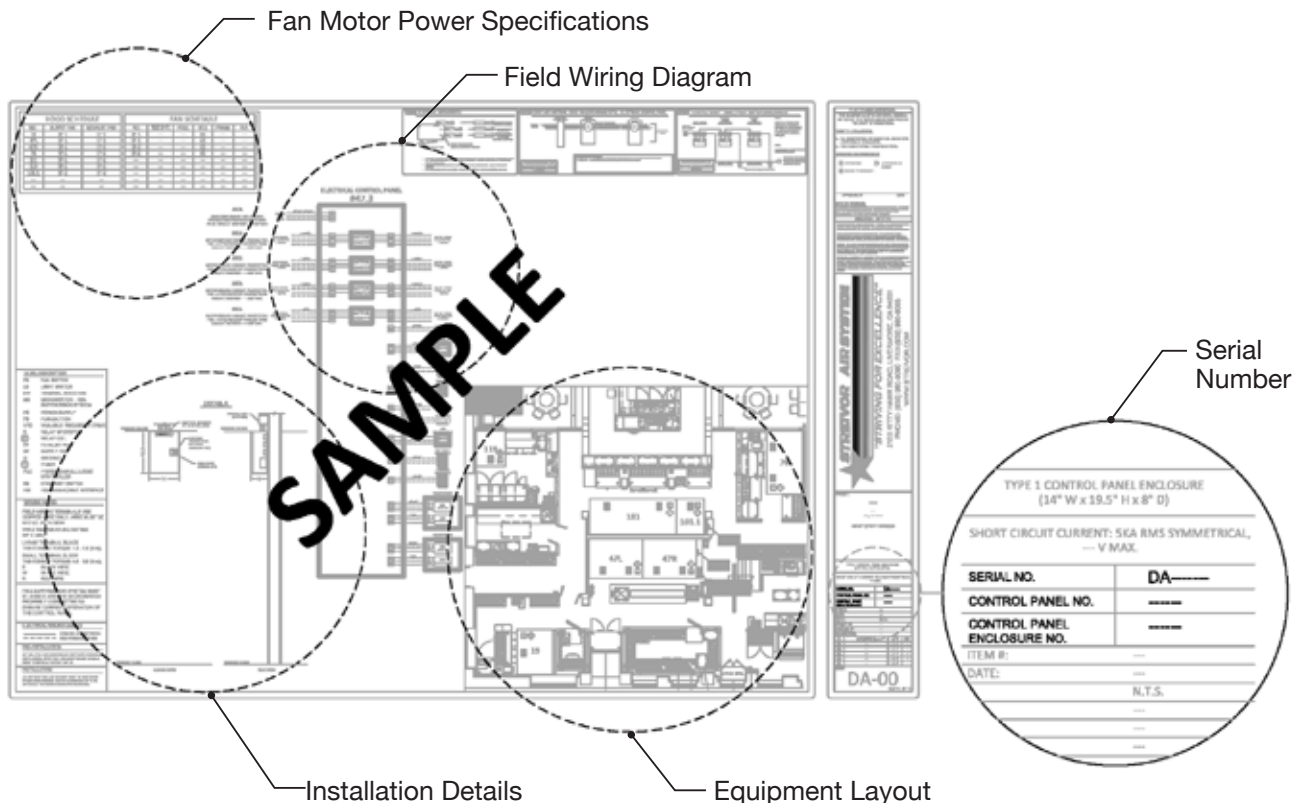
THE ECP HAS MULTIPLE ELECTRICAL CONNECTIONS. VERIFY THAT ALL POWER HAS BEEN DISCONNECTED TO THE ECP PRIOR TO WORKING ON OR NEAR THE ECP. LOCK OUT / TAG OUT ALL OF THE DISCONNECT SWITCHES OR CIRCUIT BREAKERS TO PREVENT ACCIDENTAL POWER UP.

ALL ELECTRICAL WIRING AND CONNECTIONS TO THE ECP SHALL BE IN ACCORDANCE WITH THE PREVAILING CODES, THE NATIONAL ELECTRICAL CODES, AND ANSI/NFPA70.

VERIFY THAT THE SERIAL NUMBER ON THE WIRING DIAGRAM (SEE SAMPLE DRAWING BELOW) PROVIDED WITH THE ECP MATCHES THE SERIAL NUMBER OF THE ECP BEFORE USING THE WIRING DIAGRAM FOR REFERENCE.

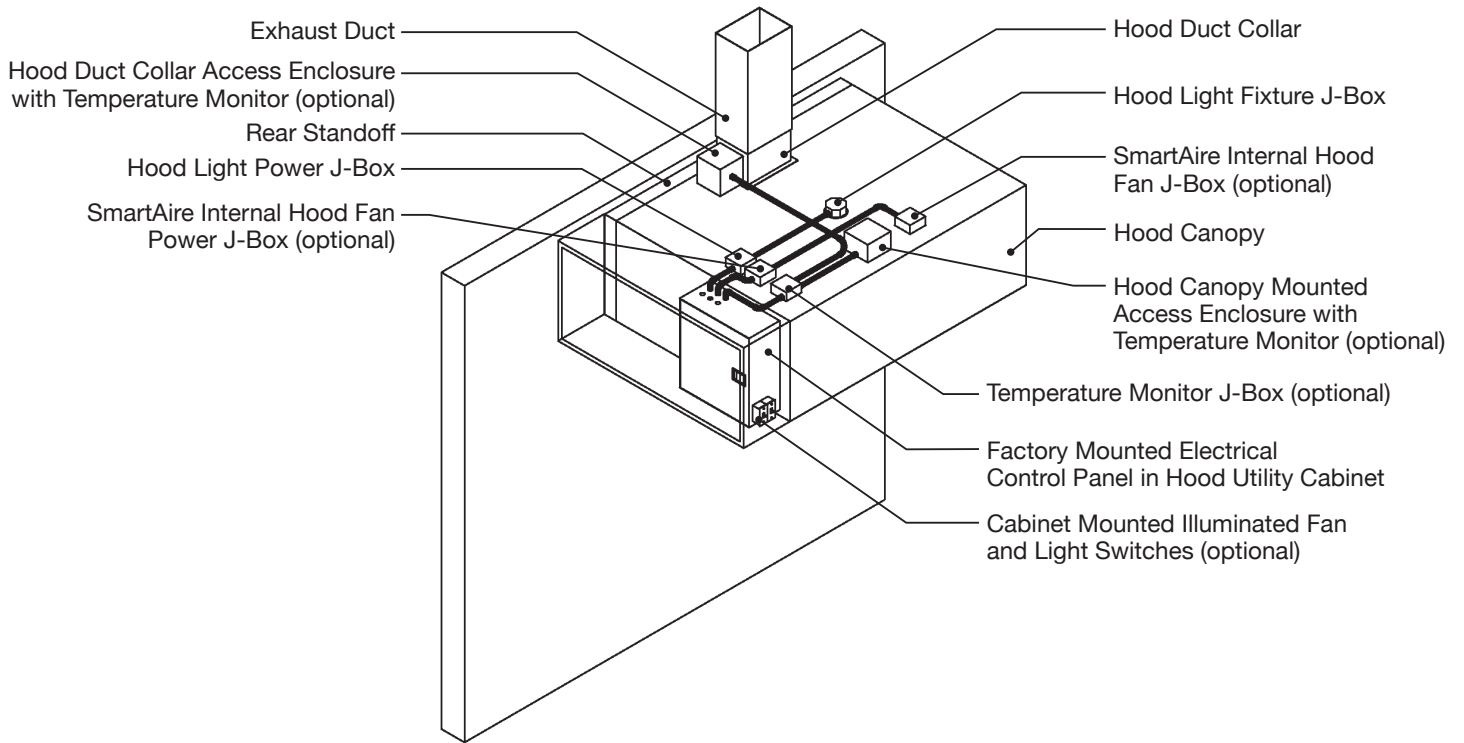
VERIFY THAT THE VOLTAGE AND WIRE AMPERAGE CAPACITY AND WIRE INSULATION IS IN ACCORDANCE WITH THE CONTROL PANEL NAMEPLATE.

Electrical Control Panel Drawing Sample

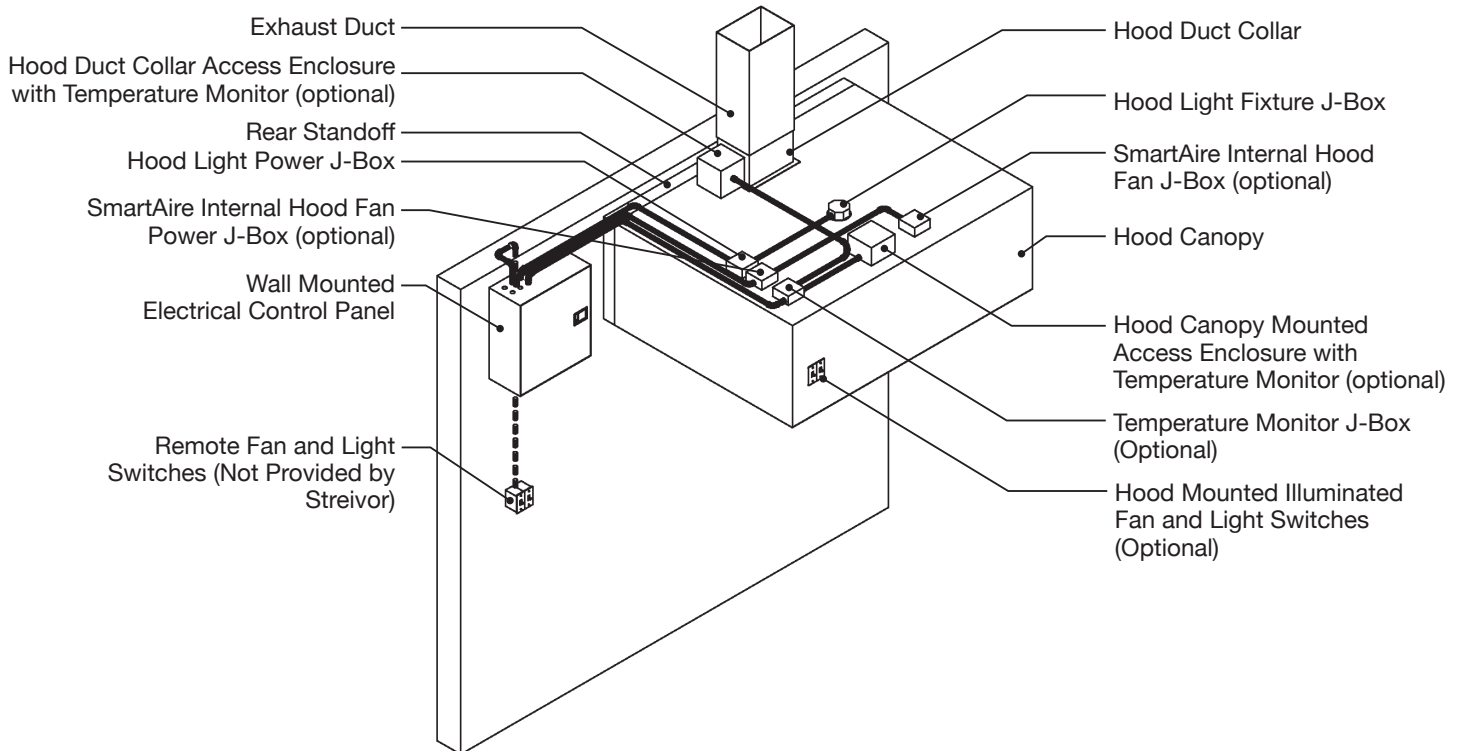


General Information

Electrical Control Panel: Hood Mounted



Electrical Control Panel: Wall Mounted



Installation Procedures

Control Circuit Input Power Wiring

- Verify that all supply power to the control panel is locked out and tagged out.
- Verify that the circuit breaker amperage is sized correctly for the control circuit per the Electrical Control Panel (ECP) drawings.
- Connect 120 VAC single phase power to the terminal blocks in the control panel labeled *H*, *N*, and *G* (Figure 1).
- The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

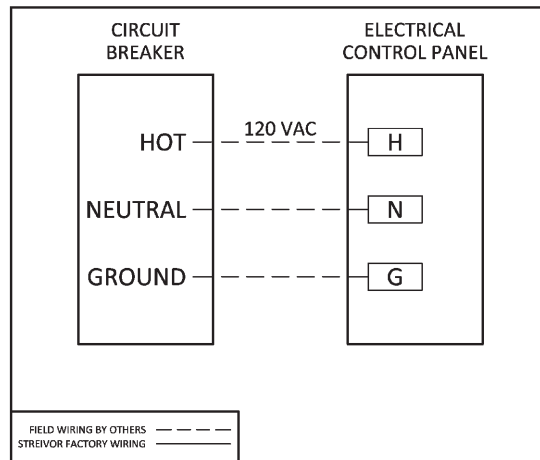


FIGURE 1: Control Circuit Input Power

Motor Circuit Input Power Wiring (ECP with Motor Starters)

- Verify that all power to the control panel is locked out and tagged out.
- Verify that the circuit breaker amperage is sized correctly for each motor input power circuit.
- Verify that the voltage and phase of each motor circuit is correct per the ECP drawings.
- Connect input power to the input power terminal blocks as shown on the ECP drawings.
- The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

Motor Circuit Output Power Wiring (ECP with Motor Starters)

- Verify that all power to the control panel is locked out and tagged out.
- The output terminals located on the Motor Starter(s) have been pre-wired to the designated output power terminal blocks in the control panel. Connect the output power terminal blocks to the designated fan motor(s) as shown on the ECP drawings.
- The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

Overload Setting (ECP with Motor Starters)

- Verify that all power to the control panel is locked out and tagged out.
- Verify that each overload has been set to 125% of the full load amps displayed on the corresponding motor nameplate.
- The overload setting can be adjusted as needed by rotating the dial to the desired amperage value (Figure 2).



FIGURE 2: Motor Starter (If Provided by Streivor)

Installation Procedures

Fan Control Signal Wiring (ECP without Motor Starters)

- Connect the terminal blocks in the control panel designated for the start/stop fan control signals to the appropriate external destination — Motor Starter(s) (by others) or Building Management System (BMS).
- Refer to the EPC drawings for more information on the control signals available (24 VDC, 120 VAC, or Dry Contact).
- The wires should be torqued to 0.6-0.8 N•m at the terminal blocks.

Fan Switch Wiring (Remote Fan Switch Not Provided by Streivor)

- Verify that all power to the control panel is locked out and tagged out.
- Connect 120 VAC from terminal block 1 in the ECP to the line terminal of the remote fan switch.
- Connect the load terminal of the remote fan switch to terminal block 2 in the ECP (Figure 3).
- The wires should be torqued to 1.5 – 1.8 N•m at the terminal blocks.

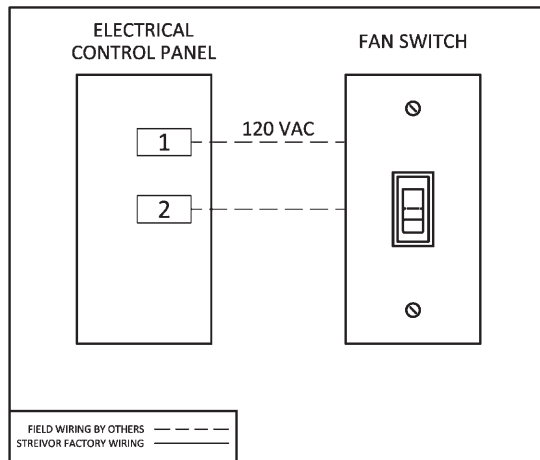


FIGURE 3: Fan Switch Wiring

Light Switch Wiring (Remote Light Switch Not Provided by Streivor)

- Verify that all power to the control panel is locked out and tagged out.
- Connect 120 VAC from terminal block 9 in the ECP to the line terminal of the remote light switch.
- Connect the load terminal of the remote light switch to terminal block 10 in the ECP (Figure 4).
- The wires should be torqued to 1.5 – 1.8 N•m at the terminal blocks.

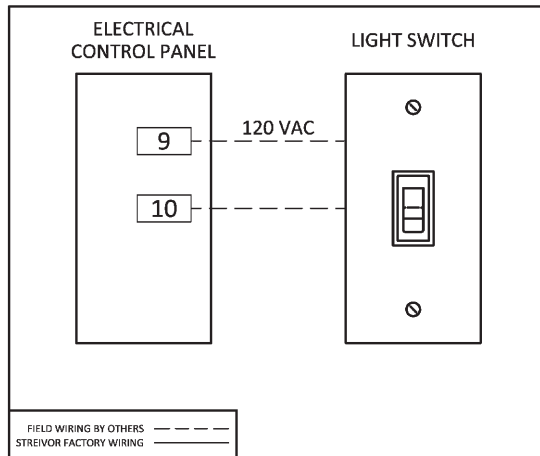


FIGURE 4: Light Switch Wiring

Installation Procedures

Fan Switch Wiring*

If included, the illuminated fan switch(es) provided by Streivor may be pre-wired when installed on the front of the hood or hood utility cabinet.

- Verify that all power to the control panel is locked out and tagged out.
- Connect 120 VAC from terminal block 1 in the ECP to the line terminal of the fan switch (Figure 5A).
- Connect the load terminal of the fan switch to terminal block 2 in the ECP (Figure 5A).
- Connect the green terminal on the fan switch to *ground* in the ECP to allow the switch to illuminate when turned on (Figure 5).
- The wires should be torqued to 1.5 – 1.8 N•m at the terminal blocks.

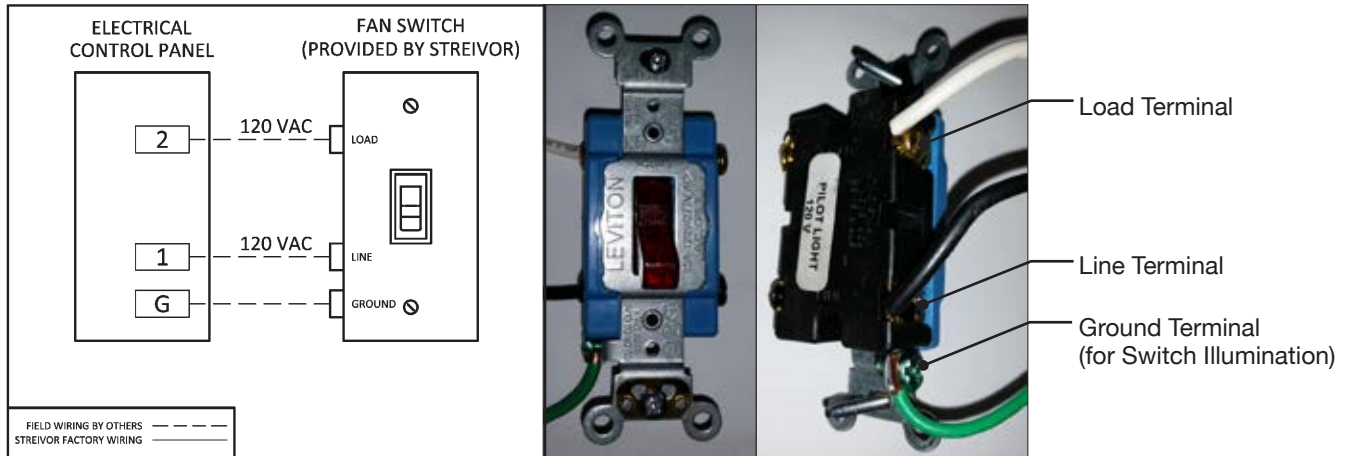


FIGURE 5A: Fan Switch Wiring*

Light Switch Wiring*

If included, the illuminated light switch(es) provided by Streivor may be pre-wired when installed on the front of the hood or hood utility cabinet.

- Verify that all power to the control panel is locked out and tagged out.
- Connect 120 VAC from terminal block 9 in the ECP to the line terminal of the light switch (Figure 5B).
- Connect the load terminal of the light switch to terminal block 10 in the ECP (Figure 5B).
- Connect the green terminal on the light switch to *ground* in the ECP to allow the switch to illuminate when turned on (Figure 5B).
- The wires should be torqued to 1.5 – 1.8 N•m at the terminal blocks.

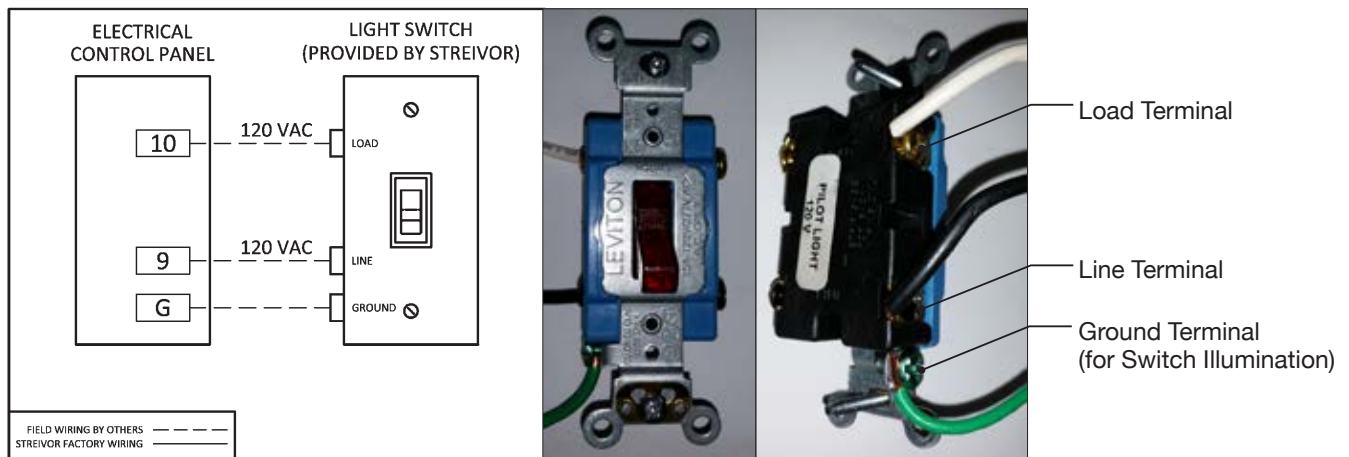


FIGURE 5B: Light Switch Wiring*

*Fan and Light Switches Provided by Streivor

Installation Procedures

Light Power Circuit Wiring for Hoods with Fire Suppression Systems (FSS)

- a. Verify that all power to the control panel is locked out and tagged out.
- b. There are two options regarding light circuit wiring for hoods with fire suppression systems.
 - i. To allow power to lights to remain connected upon a fire suppression system activation, connect 120 VAC single phase power from terminal block 11 (hot), terminal block 12 (neutral), and ground in the control panel to the wires labeled “Lights” in the junction box on the hood (Figure 6).
 - ii. To allow power to lights to automatically disconnect upon a fire suppression system activation, connect 120 VAC single phase power from terminal block 13 (hot), terminal block 14 (neutral), and ground in the control panel to the wires labeled “Lights” in the junction box on the hood (Figure 7).
- c. The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

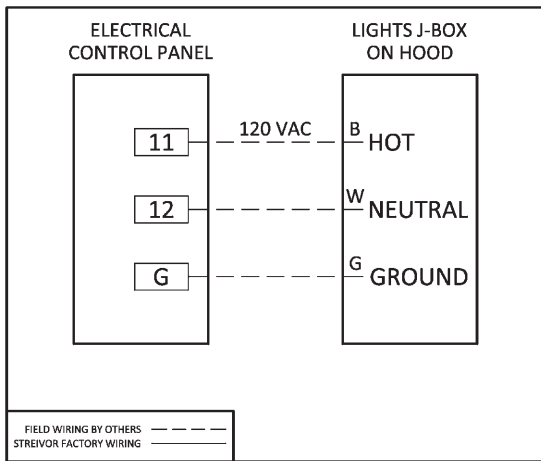


FIGURE 6:

Light Power Circuit: Lights On During a FSS Activation

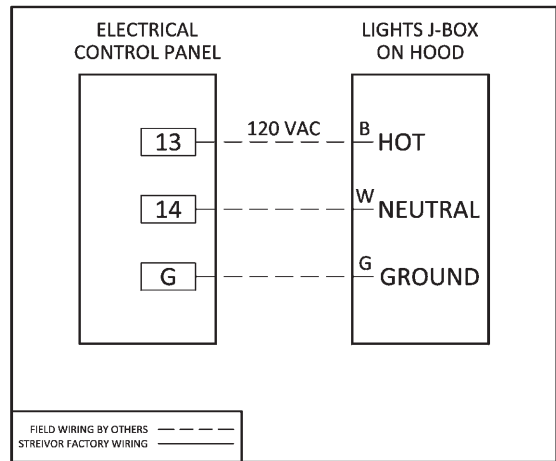


FIGURE 7:

Light Power Circuit: Lights Off During a FSS Activation

Internal Hood Fan (IHF) Circuit Wiring for SmartAire Technology Hoods

Per NFPA 96 Section 8.3.2: When its fire-extinguishing system discharges, makeup air supplied internally to a hood shall be shut off.

- a. Verify that all power to the control panel is locked out and tagged out.
- b. Connect 120 VAC single phase power from terminal block 3 (hot), terminal block 4 (neutral), and ground in the control panel to the wires labeled “IHF” in the junction box on each hood (Figure 8).
- c. Internal Hood Fan power to terminal blocks 3 and 4 will be automatically shunt during a fire suppression system activation to comply with NFPA 96 Section 8.3.2.
- d. The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

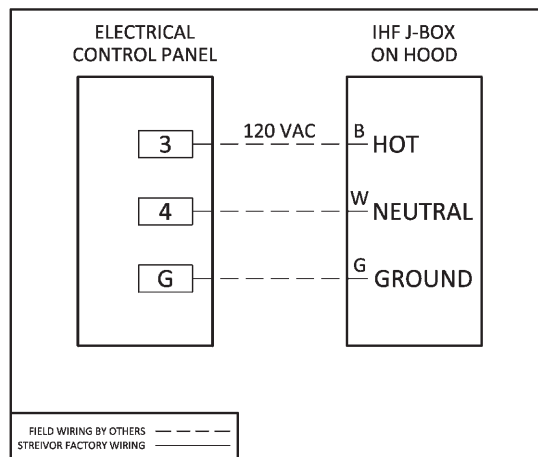


FIGURE 8: Internal Hood Fan Circuit

Installation Procedures

Fire Suppression System (FSS) Switch Circuit Wiring

- Verify that all power to the control panel is locked out and tagged out.
- Locate the FSS switch in the FSS Control Panel. The FSS Switch (also referred to as microswitch) shall have one set of single-pole-double-throw contacts.
- Connect the terminal blocks in the control panel to the FSS Switch(es) (Figure 9A). The building alarm circuit must be connected to the switch with lugs (Figure 9B).
- Refer to the ECP drawings for more detail regarding wiring additional FSS switches.
- The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

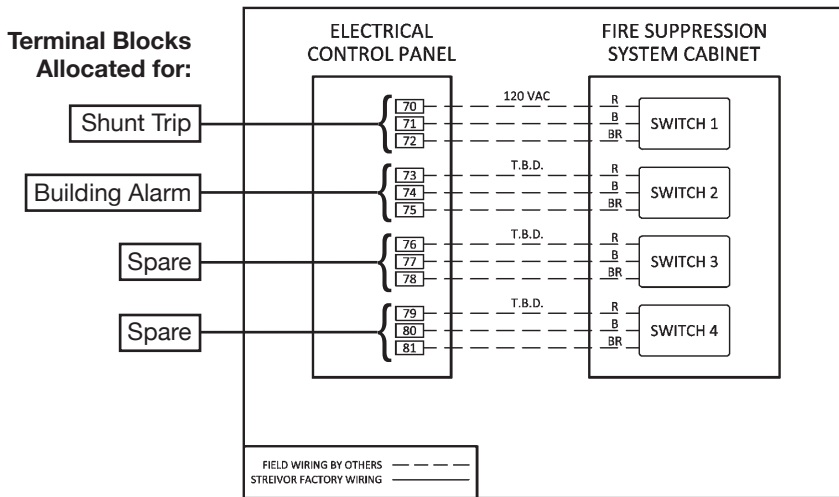


FIGURE 9A:
Fire Suppression System (FSS) Switch Circuits

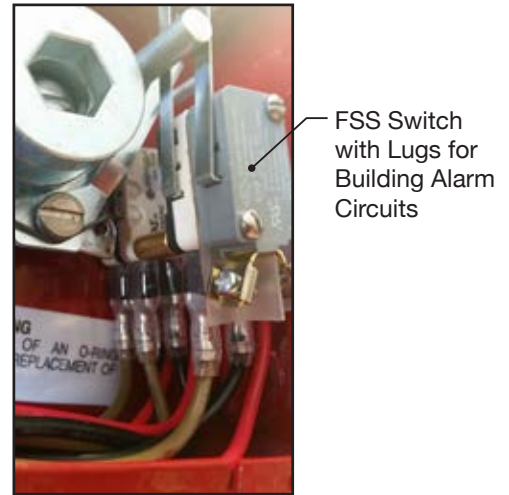


FIGURE 9B:
FSS Switch for Building Alarm

Hood Canopy and/or Duct Collar Temperature Monitor Wiring*

IMC 507.2.1.1 Operation. Type I hood systems shall be designed and installed to automatically activate the exhaust fan whenever cooking operations occur. The activation of the exhaust fan shall occur through an interlock with the cooking appliances, by means of heat sensors or by means of other approved methods.

- Verify that all power to the control panel is locked out and tagged out.
- Connect 120 VAC single phase control power from terminal block 7 (hot), terminal block 8 (signal), and ground in the ECP to the wires labeled “Temp” in the junction box on the hood closest to the ECP (Figure 10A).
- For systems with multiple hoods, perform step b. and connect the temperature monitor circuits from each additional hood to allow any temperature monitor on any hood to automatically activate the start signal for the fan(s) (Figure 10B).
- The wires should be torqued to 1.5-1.8 N•m at the terminal blocks.

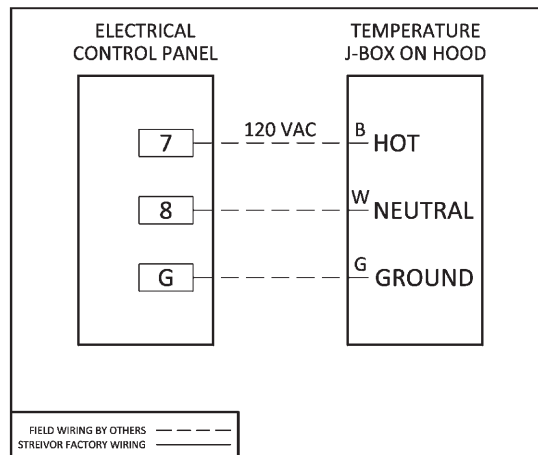


Figure 10A: Temperature Monitor Wiring*

*Temperature Monitor Provided by Streivor

Installation Procedures

Hood Canopy and/or Duct Collar Temperature Monitor Wiring* (Continued)

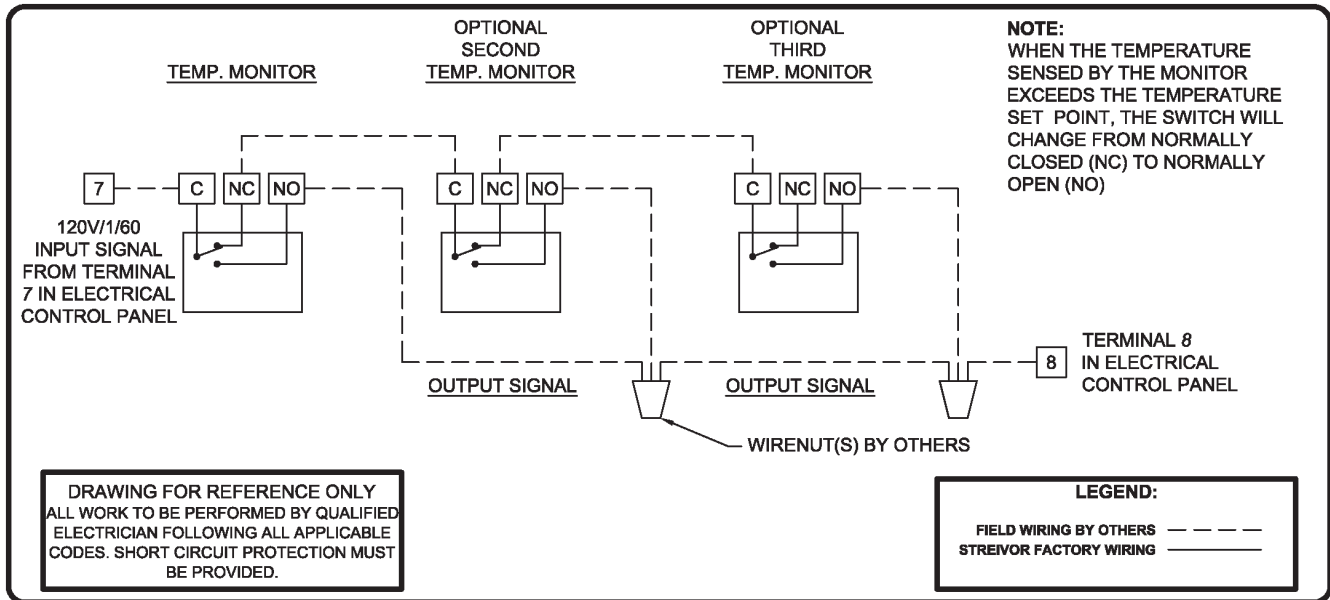


Figure 10B: Temperature Monitor Wiring for Multiple Hoods*

Shunt Trip Breaker Wiring (Optional Method)

Per NFPA 96 Section 10.4.1: Upon activation of any fire-extinguishing system for a cooking operation, all sources of fuel and electrical power that produce heat to all equipment requiring protection by that system and all electrical outlets located under the exhaust hood shall automatically shut off.

- Verify that all power to the control panel is locked out and tagged out.
- Terminal block 71 can be used to provide power to a shunt trip device to comply with NFPA 96 Section 10.4.1. Terminal block 71 provides 120 VAC power upon fire suppression system activation (Figure 11).
- The wires should be torqued to 1.5-1.8 N·m at the terminal blocks.

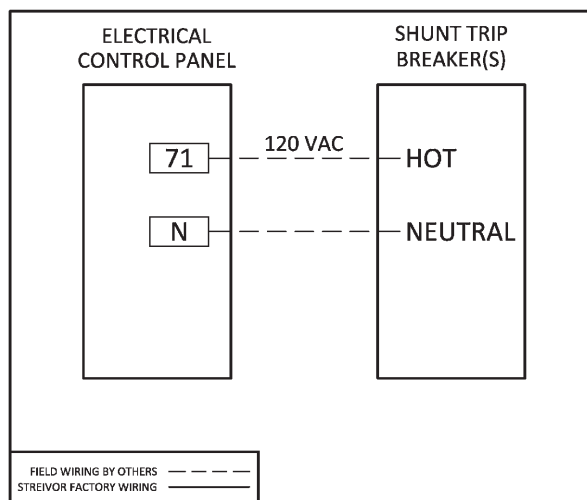


FIGURE 11: Shunt Trip Wiring (Optional Method)

*Temperature Monitor Provided by Streivor

Operation Procedures

Start Up

1. Apply power to the Electrical Control Panel CONTROL circuit via the appropriate circuit breaker protecting the ECP.
 - a. Verify that 120 VAC is applied between terminal blocks *H* and *N*.
2. If the control panel includes Motor Starter(s), apply power to the MOTOR circuits via the appropriate circuit breakers protecting the fan motors.
 - a. Verify that the specified fan motor power is applied to incoming power terminal blocks of each corresponding Motor Starter(s).
 - b. Refer to the ECP drawings for voltage, phase, and designated terminal blocks for each fan motor.

Fan Switch

The Fan Switch can be used to manually turn the fan(s) controlled by the ECP on or off. Fan Switches provided by Streivor can be wired to illuminate when turned on.



WARNING



NOTE: HOOD(S) WHICH INCLUDE TEMPERATURE MONITOR(S) MAY AUTOMATICALLY TURN THE FAN(S) CONTROLLED BY THE ECP ON EVEN IF THE FAN SWITCH IS TURNED OFF.

Light Switch

The Light Switch can be used to manually turn the hood light(s) controlled by the ECP on or off. Light Switches provided by Streivor can be wired to illuminate when turned on.

Temperature Monitor*

Hood(s) which include Temperature Monitor(s) will automatically turn on the fan(s) controlled by the ECP once the adjustable set point of at least one Temperature Monitor has been reached. The fan(s) will remain on, under normal operation, until the temperature below the hoods has decreased below the set points of all of the Temperature Monitors.

Temperature Monitor Set Point Adjustment*

Each Temperature Monitor has an adjustable temperature set point. The set point(s) have been preset by the factory; however, depending on field conditions and cooking appliances below the hoods, further adjustment may be necessary in the field to maintain normal operation.

In most cases, the recommended temperature set point is approximately 5°F – 15°F above the average ambient temperature in the kitchen space. For example, if the ambient temperature in the kitchen space is 75°F, the Temperature Monitor set point can be adjusted to approximately 80°F – 90°F.

Each Temperature Monitor can be accessed from below the hood via a UL Listed access enclosure. The access enclosure and Temperature Monitor may be located in the hood canopy and/or behind the grease filters against the top of the exhaust plenum near the exhaust duct collar.

*Temperature Monitor Provided by Streivor

Operation Procedures

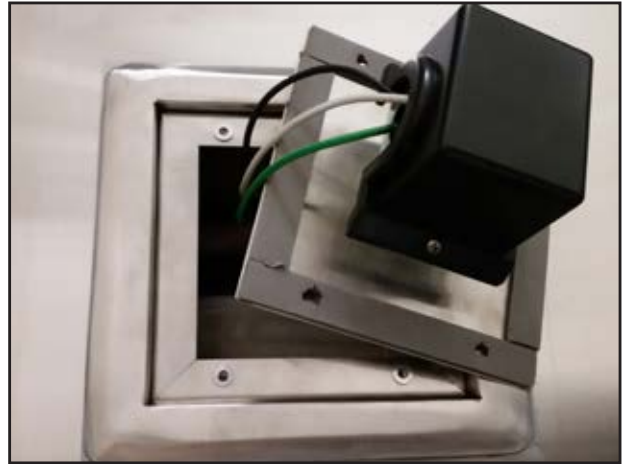
Temperature Monitor Set Point Adjustment* (Continued)

To perform a temperature set point adjustment for a Temperature Monitor:

- a. **Verify that all power to the control panel is locked out and tagged out and verify that the Temperature Monitor circuit is unpowered.**
- b. Locate the access enclosure and Temperature Monitor (*Figure 12A*).
- c. Remove the screws and remove the access enclosure and Temperature Monitor, being careful not to pull on the wires connected to the Monitor (*Figure 12B*).

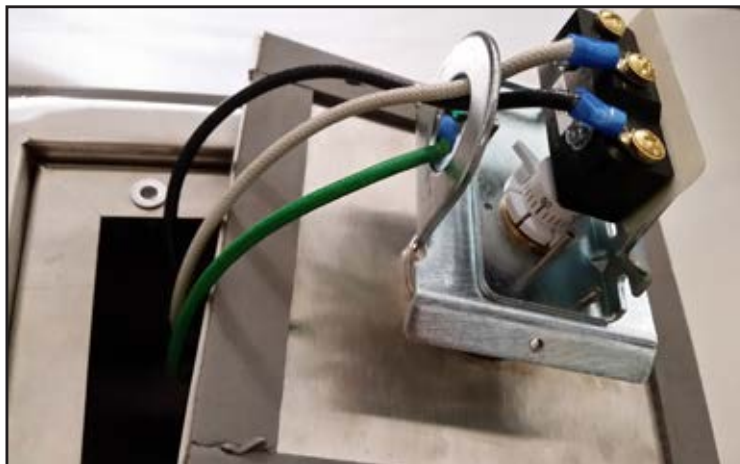


Figure 12A: Temperature Monitor Access Enclosure (Hood Canopy Mounted Temperature Monitor Shown)*



*Figure 12B: Temperature Monitor Housing**

- d. Remove the screw on the Temperature Monitor assembly, then remove the cover to allow access to the temperature set point dial inside (*Figure 12C*).



*Figure 12C: Temperature Monitor Set Point Dial**

- e. The temperature set point dial can be adjusted by hand by rotating the dial to the appropriate set point desired as indicated by the steel pin.
- f. Replace the Temperature Monitor cover and reinstall the Temperature Monitor assembly.
- g. Repeat as necessary for additional Temperature Monitors.

*Temperature Monitor Provided by Streivor

Warranty

Streivor, Inc., (Seller), warrants this equipment to be free from defects in materials and workmanship, under normal use and service, for the period of 18 months from the date of shipment.

This warranty shall not apply if:

1. The equipment is not installed by a qualified installer per the Seller's installation instructions (copy of which is shipped with the product).
2. The equipment is not installed in accordance with federal, state and local codes and regulations by a qualified installer.
3. The equipment is misused or neglected.
4. The equipment is not operated within its published capacity.

The Seller shall not be liable for incident and consequential losses and damages potentially attributed to malfunctioning equipment.

Should any part of the equipment prove to be defective in material or workmanship within the 18 months warranty period, upon examination by the Seller, such part will be repaired or replaced by Seller at no charge. The Buyer shall pay all labor costs incurred in connection with such repair or replacement.

Equipment shall not be returned without Seller's prior authorization and all returned equipment shall be shipped by the Buyer, F.O.B. Seller's factory, freight prepaid.

The ULTIMATE In Kitchen Ventilation Systems



SmartAire Hoods
The Ultimate in Energy Efficient Hood Design
US Patent No. 8,857,424



ExtractAire
The Ultimate Adjustable High Velocity Cartridge Filter
US Patent No. 6,394,083



BalanceAire
The Ultimate Hood Balancing Damper
US Patent No. D634,419




DemandAire
The Ultimate in Demand Ventilation Systems

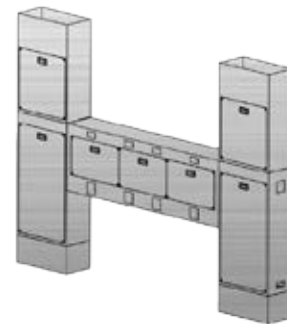


Enclosures
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Monitors

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