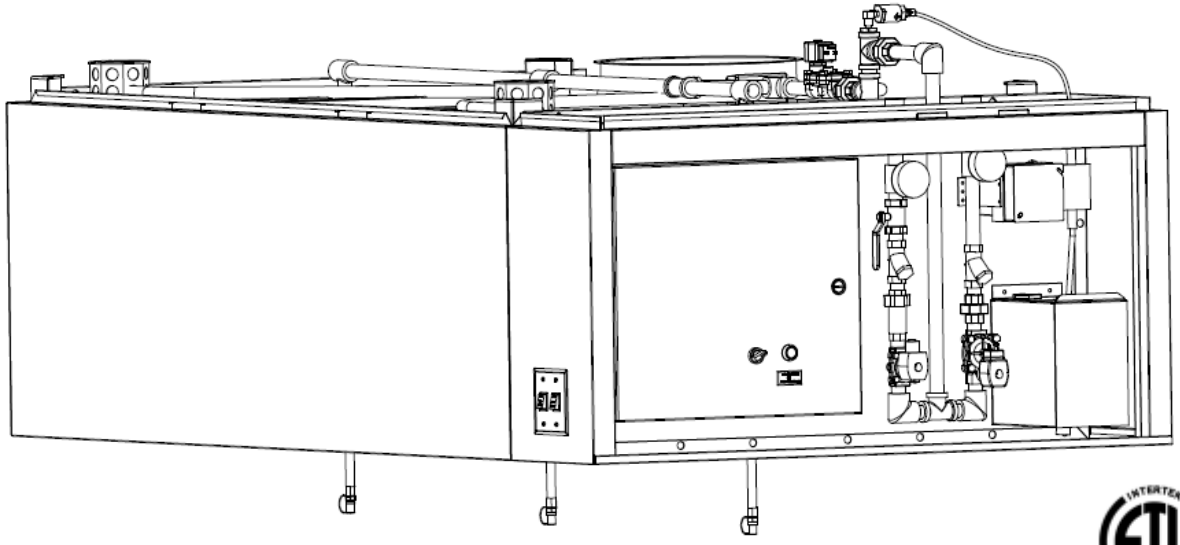
CORE Protection Fire System

Installation, Operation, and Maintenance Manual



RECEIVING AND INSPECTION

Upon receiving unit, check for any interior and exterior damage, and if found, report it immediately to the carrier. Also check that all accessory items are accounted for and are damage free.

WARNING!!

Installation of this module should only be performed by a qualified professional who has read and understands these instructions and is familiar with proper safety precautions. Improper installation poses serious risk of injury due to electric shock and other potential hazards. Read this manual thoroughly before installing or servicing this equipment. ALWAYS disconnect power prior to working on module.

ONLY CORE CERTIFIED PERSONNEL MAY INSTALL, AND PERFORM MAINTENANCE AND REPAIRS ON CORE SYSTEMS.

Save these instructions. This document is the property of the owner of this equipment and is required for future maintenance. Leave this document with the owner when installation or service is complete.

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WARRANTY

This equipment is warranted to be free from defects in materials and workmanship, under normal use and service, for a period of 12 months from date of shipment. This warranty shall not apply if:

1. The equipment is not installed by a certified CORE qualified installer per the MANUFACTURER'S installation instructions shipped with the product,
2. The equipment is not installed in accordance with federal, state and local codes and regulations,
3. The equipment is misused or neglected,
4. The equipment is not operated within its published capacity,
5. The invoice is not paid within the terms of the sales agreement.

The MANUFACTURER shall not be liable for incidental and consequential losses and damages potentially attributable to malfunctioning equipment. Should any part of the equipment prove to be defective in material or workmanship within the 12-month warranty period, upon examination by the MANUFACTURER, such part will be repaired or replaced by MANUFACTURER at no charge. The BUYER shall pay all labor costs incurred in connection with such repair or replacement. Equipment shall not be returned without MANUFACTURER'S prior authorization and all returned equipment shall be shipped by the BUYER, freight prepaid to a destination determined by the MANUFACTURER.

INSTALLATION

It is imperative that this unit is installed and operated with the designed airflow and electrical supply in accordance with this manual. If there are any questions about any items, please call the service department at **1-866-784-6900** for warranty and technical support issues.

Mechanical

WARNING: APPLY THE APPROPRIATE WATER PRESSURE AND TEMPERATURE TO ALL FITTINGS TO PREVENT LEAKAGE AND COMPONENT FAILURE. SYSTEM MUST BE INSTALLED IN CONDITIONED SPACE BETWEEN 32°F AND 130°F

Ensure there is 36 Inches of service clearance to the front of the panel. The panel shall also be located in an accessible area where the audible and visual alarms can be heard and seen.

Plumbing Connections for CORE Total Flood Protection

Several field plumbing connections are required for proper Self Cleaning with CORE Total Flood Protection fire system hood operation. It is recommended that all plumbing connections be sealed with Teflon tape or pipe dope. Use care not to contaminate the interior surfaces of the water lines when plumbing the unit, as small particulate can clog the orifices of the spray nozzles.

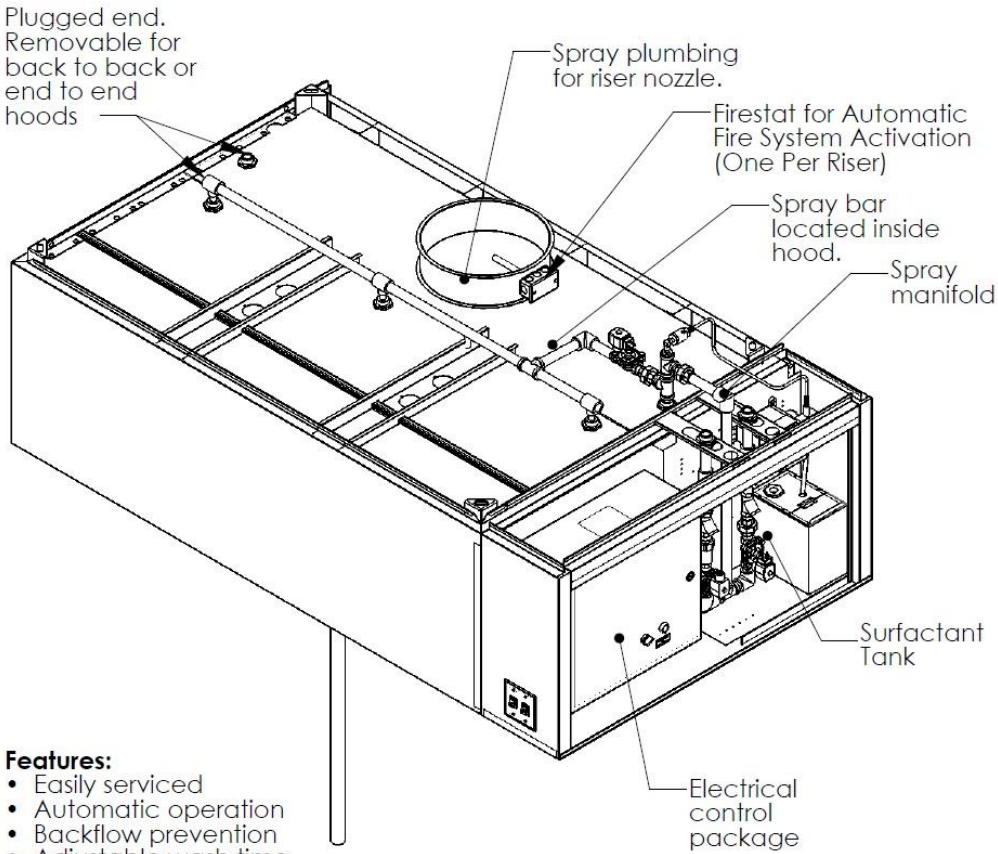
1. All incoming plumbing connections are connected via ¾" quick-seals at the top of the utility cabinet. See Figures 1 and 2 for details.
2. Self Cleaning hoods with the **WC** option (Hot Water Wash) require a hot water connection at 140°F to 170°F and a minimum required PSI, per **Table 1**, to 70 PSI operating pressure. If the operating pressure is greater than 70 PSI, a water regulator must be connected. Max water static pressure is 125 PSI. Typical water flow rate is 0.7 GPM per foot of hood. The spray lasts for a factory setting of 3 minutes every time the fans are switched off.
3. A supervised water supply must be connected to the CORE inlet. This requires an unheated water connection per the minimum required PSI, per **Table 1**, to 70 PSI operating pressure. Water pressure may not drop below the minimum recommended PSI while the hood is spraying. Pressure may not rise above 70 PSI when the hood is spraying. If the operating pressure is greater than 70 PSI, a water regulator must be connected. Max water static pressure is 125 PSI. Typical water flow rate is 1.5 GPM per foot of hood. The water connection must be minimum ¾" pipe. This must be connected to a water supply line immediately downstream from the building main shut-off valve or a fire sprinkler system. This main valve must be continuously supervised. If the CORE water supply is connected to the building sprinkler system, it is preferred that the connection be from the main sprinkler riser, or a branch line as long as the CORE system is calculated in the overall sprinkler system capacity. For domestic water supply if other appliances are connected to the CORE water supply line, those appliance must be operated during CORE system testing and taken into consideration when calculating the size of the water pipe. See **Table 1** for hood length and pressure requirements.
4. If multiple hoods are arranged in an end-to-end or back-to-back arrangement, plumbing connecting the hoods must be piped in the field. The plugged end of the Appliance and Plenum spray bars is used to do this. Remove the plugs on the main hood and the adjacent hood and simply pipe the Appliance spray bars together and Plenum spray bars together. It is important to not cross connect the spray bars.
5. If a remote mounted manifold is used with CORE Total Flood Protection, the appliance solenoid will be installed at the plant.
6. There is also a non-pressurized 1-1/2 inch drain connection that must be piped. This allows water to drain from the hood grease trough. It must be connected to the building grease trap. Hoods 10' in length (or greater) will require 2 drains. 24" tall hoods with 20" filters will require 2 drains. All other hoods will require 1 drain. See Figure 3 for details.
7. If a remote mounted manifold with backflow preventer is used, the backflow preventer drain must be piped according to the manufacturer's instructions.

8. Once all supply and drain lines are connected, remove one of the nozzles and flush the lines.

Warning

All field connections between hoods, and incoming CORE Protection lines must be run with Steel, Stainless Steel, or Copper pipe. Drain lines must be run with Brass, Stainless Steel, or Copper Pipe. Plastic pipe cannot be used for drains, field connections between hoods, or CORE Protection supply lines as it could fail and become hazardous.

Self Cleaning with CORE Protection Fire System Overview



Features:

- Easily serviced
- Automatic operation
- Backflow prevention
- Adjustable wash time
- Drip less nozzles with internal strainer
- Adjustable surfactant injection timing and quantity

Note:
Filters must be installed for proper system operation. Filters can be removed once the system is off.

The Fully Integrated Self Cleaning System has the following options.

1. **Hot Water Fully Integrated Self Cleaning System (W1).**
The hot water fully integrated self cleaning system uses the basic manifold with the addition of a detergent pump and timers to control the system. When the fan power switch is turned off, the system sprays and injects surfactant into the plenum for cleaning. The length of the wash cycle and surfactant injection are adjustable. It is recommended that the wash time be 3 minutes and detergent injection is 1 second every 1 minute.
Water Pressure = 30 to 70 PSI Operating
Water Pressure = 125 PSI Maximum Static
Water Temp = 140° to 170° F

2. **CORE PROTECTION (WC)**
Primary Water Sprinkler Fire Protection for Commercial Kitchen Hoods. Duct, Plenum, and Appliance Fire System protection is provided by this option per UL300. Appliance protection provided by Total Flood Protection. Duct mounted sensor electrically activates the water spray system to extinguish duct, plenum, and appliance fires.
Operating Water Pressure varies dependent on length of hood, and generally falls between: 30 to 70 PSI**
**Water pressure may not drop below the minimum recommended PSI while water is spraying. Pressure may not raise above 70 PSI when water is spraying. Max water static pressure is 125 psi.

Figure 1

IMPORTANT!!
CORE Protection water connection requires a supervised supply line. This must be connected immediately downstream from the building main shut-off valve or building sprinkler system. The main shut-off valve must be supervised. A minimum water operating pressure (while the hood is spraying) must be achieved at the hood, based off Table 1.

Piping Loss Calculation for Wall Mount CORE Total Flood Protection Fire Systems

To ensure proper operation of the CORE Protective Fire System, the correct water pressure must be achieved at the hood inlet per **Minimum Operating Pressure for Lengths of Hood** chart (see Tables 1-3). For this to occur, proper sizing of the water line is required. Use the following steps to calculate the piping minimum size.

1. Use the **Minimum Operating Pressure Requirements for Lengths of Hood** chart and find the CORE minimum PSI required at the hood inlet. Subtract this value from the available PSI at the panel pressure gauge. Maximum panel operating pressure is 70 PSI. This will be your maximum allowable pressure drop for field installed pipes between the panel and the hood.
2. Most fittings add an equivalent pipe length to the total run. Use the chart below to calculate the equivalent pipe length for installed fittings. If you have multiple fittings of one type, simply multiply the number below by the total number of the fitting and add to the total run length.

Equivalent Pipe Length For Various Pipe Fittings

Pipe Size Inches	45° Elbow	90° Elbow	Tee Thru Run	Tee Thru Branch
3/4"	0.97	2.10	1.40	4.10
1"	1.23	2.60	1.80	5.30
1 ½"	1.90	4.00	2.70	8.00
2"	2.40	5.20	3.50	10.40

3. To calculate the total flowing pressure drop between the panel and the hood, take the total equivalent length found in step 2 and add the total linear field installed pipe length. Multiply this number by the value found in the table below, Pressure Drop (PSI) per Equivalent Foot of Waterline. (Gallons per minute is calculated by multiplying the length of the hood by 1.5 gpm) This will be the friction pressure drop between the hood and the panel.
4. Add in the pressure drop due to gravity. This must be evaluated to overcome any rise in pipe elevation between the panel and the hood. There is .43 PSI/ft of vertical rise of pressure drop.
5. Now, compare the maximum allowable pressure drop from step 1 to the calculated pressure drop from step 3. If the calculated pressure drop exceeds the maximum allowable pressure drop, increase the pipe size and recalculate steps 2 and 3. Continue this step until the calculated pressure drop is below the maximum allowable.

Pressure Drop (PSI) per Equivalent Foot of Waterline - Pipe Size

Gallons per Minute	Waterline Pipe Size (psi per foot of pipe)			
	3/4”	1”	1 1/2”	2”
5	0.028	0.008	0.001	0.000
10	0.102	0.029	0.004	0.001
15	0.216	0.062	0.008	0.001
20	0.368	0.105	0.014	0.002
25	0.556	0.159	0.022	0.003
30	0.779	0.223	0.030	0.004
35	1.036	0.296	0.040	0.006
40	1.327	0.379	0.052	0.008
45	1.650	0.472	0.064	0.009
50	2.005	0.573	0.078	0.011
55	2.391	0.684	0.093	0.014
60	2.809	0.803	0.110	0.016
65	3.257	0.931	0.127	0.019
70	3.736	1.068	0.146	0.021
75	4.244	1.213	0.166	0.024
80	4.782	1.367	0.187	0.027
85	5.350	1.529	0.209	0.030
90	5.946	1.700	0.232	0.034
95	6.572	1.879	0.256	0.037
100	7.226	2.066	0.282	0.041
105	7.909	2.261	0.309	0.045

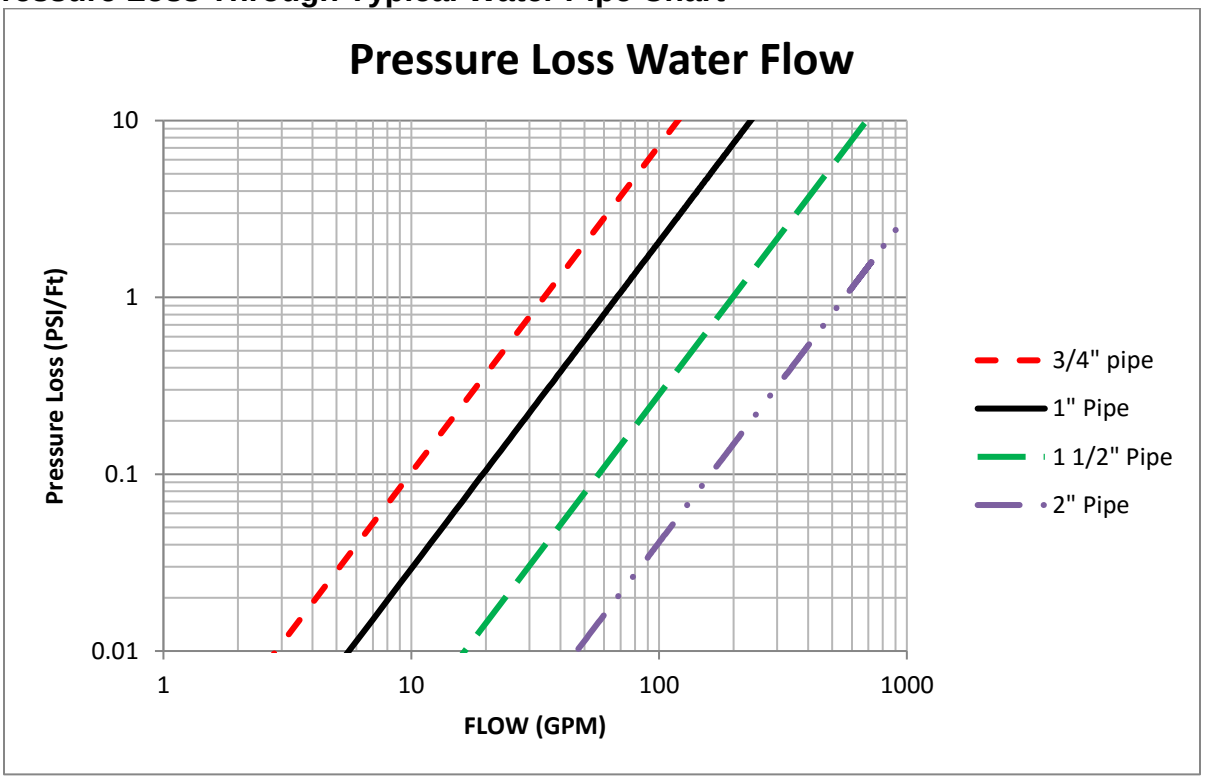
Field Pipe Pressure Drop Calculation Example:
Wall mount panel installed with 30 feet of ¾" linear pipe between panel and hood. (4) 90 degree elbows are installed in the pipe run and the pipe run has a vertical rise of 5 feet. Length of end-to-end hood system is 32 feet.

Hood System = 32 feet. Flow rate = 32 feet * 1.5 gpm = 48 gpm
Pressure required at hood = 44 psi.
Pressure at panel gauge = 50 psi.
Allowable pressure drop between panel and hoods: 50 psi – 44 psi = **6 psi**

Equivalent length of pipe = 30 + 4 * 2.10 = 38.40 feet
Friction Pressure Drop through pipe = 38.40* 2.005 = 76.99 psi
Gravitational Pressure = 0.43 psi/ft * 5 feet = 2.15 psi
Total Pressure Drop in Field Pipe between panel and hood = 76.99 psi + 2.15 psi = **79.14 psi**
Allowable pressure drop = 6 psi
This system will not work correctly because calculated pressure drop is greater than allowable pressure drop. Pipe size will need to be change to 1-1/2 inch diameter.

Re-calculate with 1-1/2 inch pipe instead of ¾" pipe:
Equivalent length of pipe = 30 + 4 * 4.00 = 46 feet
Friction Pressure Drop through pipe = 46 * 0.078 = 3.58 psi
Gravitational Pressure = 0.43 psi/ft * 5 feet = 2.15 psi
Total Pressure Drop in Field Pipe between panel and hood = 3.58 psi + 2.15 psi = **5.74 psi**
Allowable pressure drop = 6 psi
This system will work correctly because calculated pressure drop is less than allowable pressure drop.

Pressure Loss Through Typical Water Pipe Chart



3/4" Manifold Minimum Operating Pressure Requirements for Lengths of Hood

Hood of Length (FT)	Minimum Inlet Water Pressure for Self Cleaning (PSI)	Minimum Inlet Water Pressure for Duct & Plenum Protection Only (PSI)	Duct and Plenum Discharge Coefficients (K Factor)	Minimum Inlet Water Pressure for CORE Total Flood Protection (PSI)	Total Flood Discharge Coefficients (K Factor)
4	30	30	0.6	30	1.3
8	30	30	1.3	30	2.7
12	30	30	1.9	30	4.0
16	30	30	2.5	30	5.4
20	31	31	3.1	33	6.4
24	32	32	3.7	36	7.4
28	34	34	4.2	39	8.4
32	37	37	4.6	44	9.1
36	39	39	5.0	49	9.7
40	42	42	5.4	56	10.2
44	46	46	5.7	63	10.7
48	50	50	6.0	70	11.1

Table 1

1" Manifold Minimum Operating Pressure Requirements for Lengths of Hood

Hood of Length (FT)	Minimum Inlet Water Pressure for Self Cleaning (PSI)	Minimum Inlet Water Pressure for Duct & Plenum Protection Only (PSI)	Duct and Plenum Discharge Coefficients (K Factor)	Minimum Inlet Water Pressure for CORE Total Flood Protection (PSI)	Total Flood Discharge Coefficients (K Factor)
4	30	30	0.6	30	1.3
8	30	30	1.3	30	2.7
12	30	30	1.9	30	4.0
16	30	30	2.5	30	5.4
20	30	30	3.1	30	6.7
24	30	30	3.8	30	8.1
28	31	31	4.3	33	9.0
32	33	33	4.8	35	10.0
36	35	35	5.3	45	10.1
40	42	42	5.4	50	10.7
44	43	43	5.9	55	11.3
48	45	45	6.3	60	11.9

Table 2

1-1/2" Manifold Minimum Operating Pressure Requirements for Lengths of Hood

Hood of Length (FT)	Minimum Inlet Water Pressure for Self Cleaning (PSI)	Minimum Inlet Water Pressure for Duct & Plenum Protection Only (PSI)	Duct and Plenum Discharge Coefficients (K Factor)	Minimum Inlet Water Pressure for CORE Total Flood Protection (PSI)	Total Flood Discharge Coefficients (K Factor)
4	30	30	0.6	30	1.3
8	30	30	1.3	30	2.7
12	30	30	1.9	30	4.0
16	30	30	2.5	30	5.4
20	30	30	3.1	30	6.7
24	30	30	3.8	30	8.1
28	30	30	4.4	30	9.4
32	30	30	5.0	30	10.7
36	33	33	5.4	35	11.3
40	35	35	5.9	40	11.8
44	38	38	6.2	45	12.4
48	40	40	6.6	50	12.9

Table 3

Note: Water pressure may not drop below the minimum required PSI while the hood is spraying hot water or for CORE. Pressure may not rise above 70 PSI when the hood is spraying. If the operating pressure is greater than 70 PSI, a water regulator must be connected.

The chart above is for continuous back to back and/or end to end hood installations. If the pipe connecting any hood contains excessive elbows or complicated paths, additional pressure may be required to overcome this pressure loss. Contact engineering for clarification in these circumstances.

When additional nozzles are added to a CORE system, beyond the standard overlapping coverage, each nozzle is equal to 1 gpm. Each nozzle is equivalent to adding 8 additional inches of hood. To find the new pressure requirements, add the additional length to the base hood length, then refer to the chart above based on the new equivalent hood length.

Example: When three (3) additional nozzles are added to a CORE system, the total consumption is increase by 3 gpm. The minimum pressure requirements can be found in the chart above, by adding 24 inches to the base hood length.

To determine the minimum pressure requirements when CORE Total Flood Protection is mixed with CORE Duct & Plenum Coverage, it is necessary to recalculate the system total hood length. The equivalent hood length of Duct & Plenum coverage is equal to 8 inches per 1 foot.

Example: If you have a 10'-0" Hood with CORE Total Flood protection and a 12'-0" Hood with CORE Duct & Plenum coverage, the total equivalent hood length is 10'-0" + (12'-0" * 0.75) = 19'-0"

The discharge coefficient, or "K Factor", is used to calculate the actual GPM through the system when the incoming pressure is above the minimum stated in the table above. This K factor can be applied to the completed hood assembly. The formula below will provide the Gallons per Minute discharge rate of the hood fire system.

$$Total\ Flowrate = K\ Factor\ x\ Pressure^{0.44}$$

CORE Hood Top and Bottom View

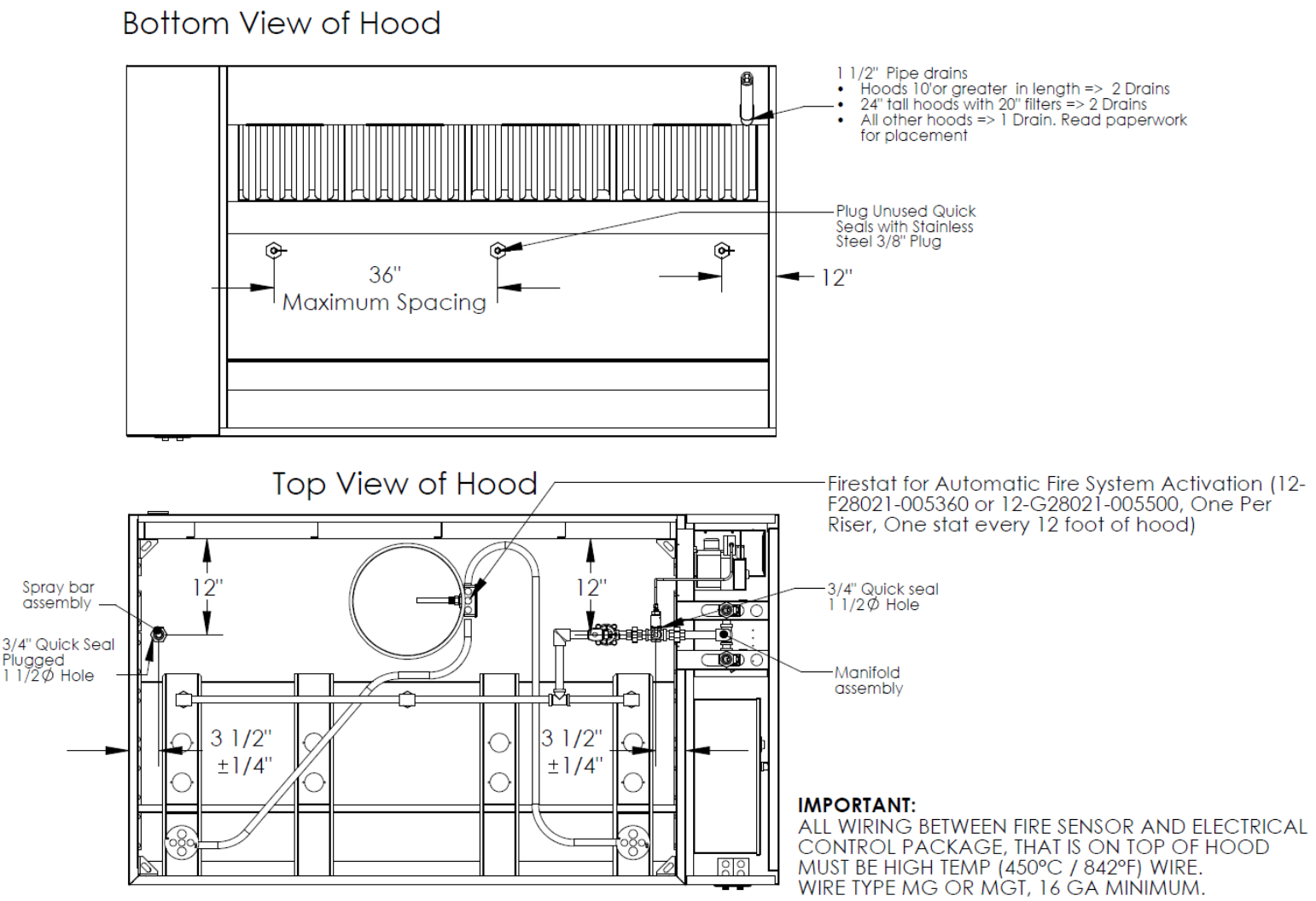


Figure 2

Drain Assembly

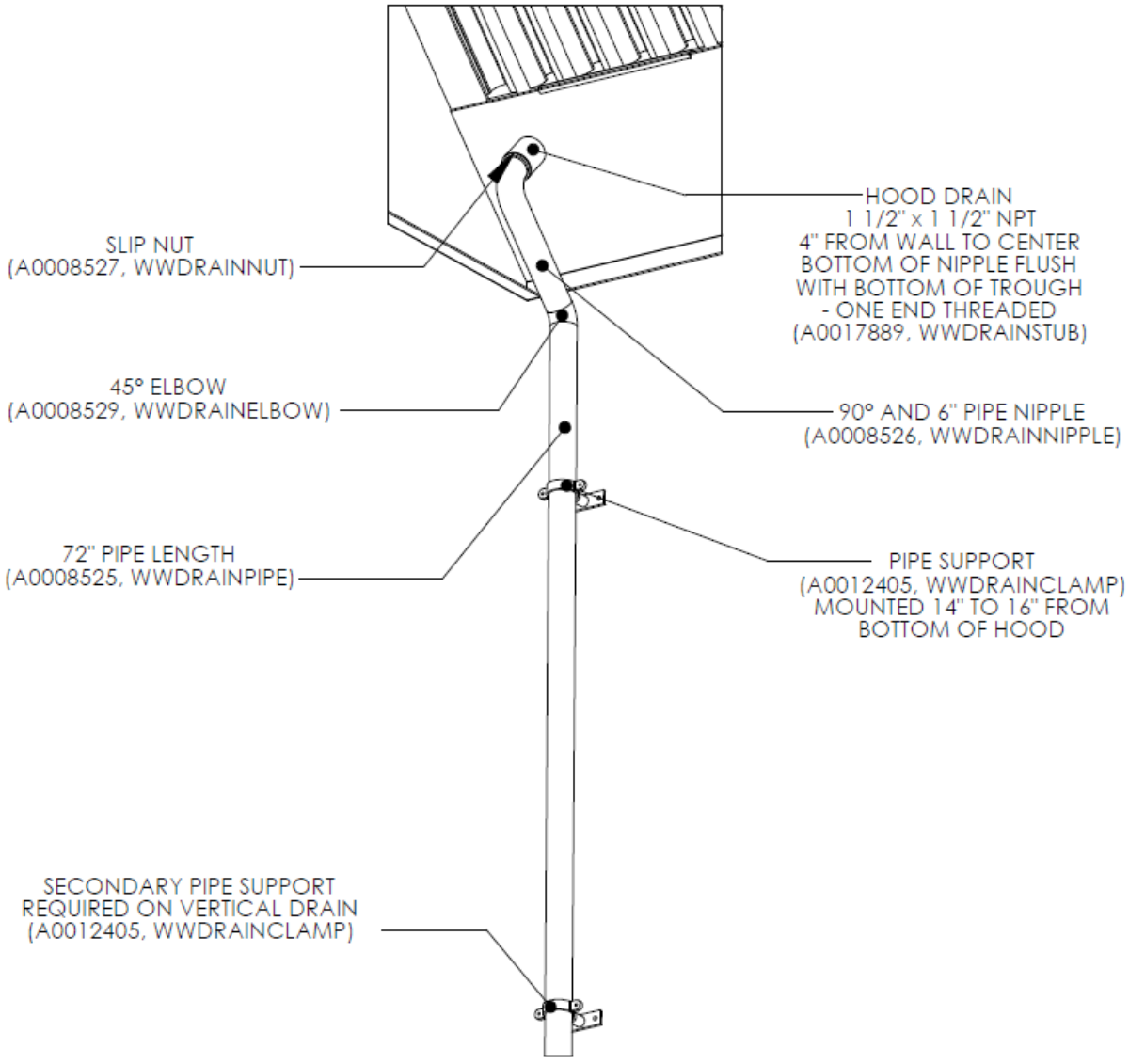
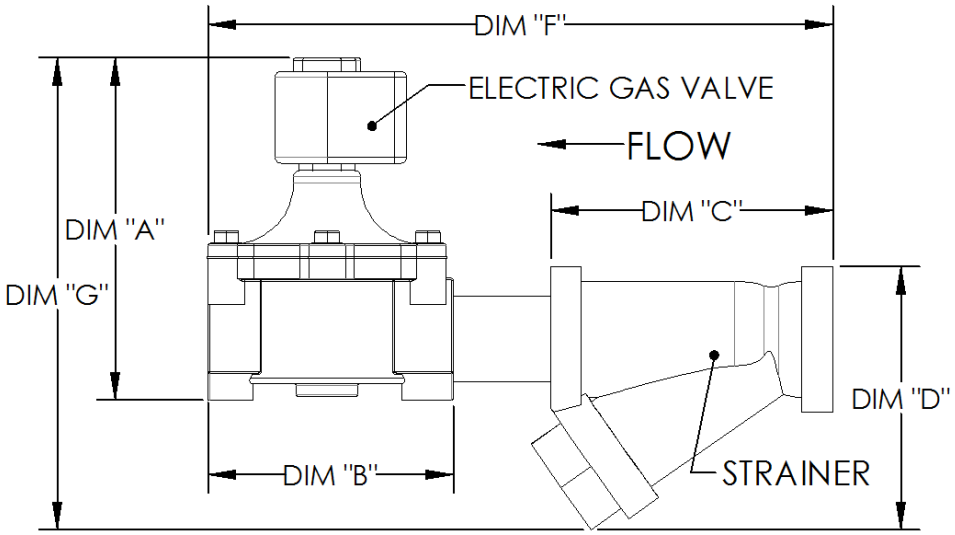


Figure 3

Gas Valve Installation

Gas valves are designed to shut off the flow of gas to the kitchen appliances in the event of fire system activation. Gas valves must be installed with an upstream strainer to prevent debris from prohibiting valve function. New pipe, properly reamed and cleaned of metal burrs is to be used. Proper care is needed to ensure that the gas flow is in the same direction as indicated on the gas valve and strainer. Do not overtighten pipe connections. Pipe dope is to be applied to the male threads only. If necessary, install drip leg in gas line in accordance with the authority having jurisdiction.

SIZE	GAS VALVE	DIM "A"	DIM "B"	STRAINER	DIM "C"	DIM "D"	DIM "F"	DIM "G"
3/4"	8214235	6.97"	5.95"	4417K64	4"	4.5"	11.95"	9.87"
1"	8214250	6.97"	5.95"	4417K65	4.875"	5.1875"	12.825"	10.658"
1-1/4"	8214265	7.63"	6.36"	4417K66	5.125"	5.9375	13.485	12.068"
1-1/2"	8214275	7.63"	6.36"	4417K67	5.75"	6.1875"	14.11"	12.318"
2"	8214280	7.63"	6.36"	4417K68	7.25"	7.8125"	15.61"	13.943"
2-1/2"	8214290	10.3"	8.03"	4417K69	8.875"	9.875"	18.905"	18.675"
3"	8214240	10.3"	8.03"	4417K71	10"	10.9375"	20.03"	19.738"



All **120VAC** gas valves 3/4" through 3" can be mounted with the solenoid in any position above horizontal.
All **24VDC** gas valves 3/4" through 3" valves must be mounted with the solenoid vertical and upright; the pipe must be horizontal.
Proper clearance must be provided in order to service the strainers, a minimum of 4" clearance distance must be provided at the base of the strainer.

Electrical

Before connecting power to the control, read and understand the entire section of this document. As-built wiring diagrams are furnished with each control by the factory, and are attached either to the door of the unit or provided with the paperwork packet.

Electrical wiring and connections should be done in accordance with local ordinances and the National Electric Code, ANSI/NFPA70. Be sure the voltage and phase of the power supply and the wire amperage capacity is in accordance with the unit nameplate.

WARNING!!
Disconnect power before installing or servicing control. High voltage electrical input is needed for this equipment. A qualified electrician should perform this work.

Copper Wire Ampacity

Wire Size AWG	Maximum Amps
14	15
12	20
10	30
8	50
6	65
4	85

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

1. Always **disconnect power** before working on or near this equipment. Lock and tag the disconnect switch or breaker to prevent accidental power up.
2. **120VAC** should be wired to terminals **H1** and **N1**. **H1** and **N1** should not be connected to a shunt trip breaker.
3. The maximum distance between the CORE Protection System, PCU CORE Protection System, and a Hood CORE Protection System is 1000 feet. Shielded twisted pair cable must be used for this connection.
4. Make certain that the power source is compatible with the requirements of your equipment. The system wiring schematic identifies the **proper phase and voltage** of the equipment.
5. Before connecting control to power source, verify power line wiring is de-energized.
6. Secure the power cable to prevent contact with sharp objects.
7. Do not kink power cable and never allow the cable to come in contact with oil, grease, hot surfaces or chemicals.
8. The firestats should be wired to terminal blocks as indicated on the wiring schematic. Verify connections on wiring schematic.
9. Before powering up the system, make sure that the interior of the control is free of loose debris or shipping materials.
10. If any of the original internal wire supplied with the system must be replaced, it must be replaced with type THHN wire or equivalent.
11. The battery must be plugged into the connector labeled J1 on the CORE printed circuit board after wiring is complete.
12. It is recommended to use Belden #6320UL, 18 Gauge, plenum rated wire for the supervised loop.
13. It is recommended to use Belden #88760 for the CORE interlock network and CAT-5 for Modbus communications.
14. All exterior wiring connections to the PCU must be run inside liquid tight conduit. This includes the supervised loop and airflow switch wiring.

IMPORTANT!!
CORE Protection battery backup produces output power even when main power is disconnected from system. When performing major electrical service to the control, the battery backup must be disconnected then reconnected before commissioning.

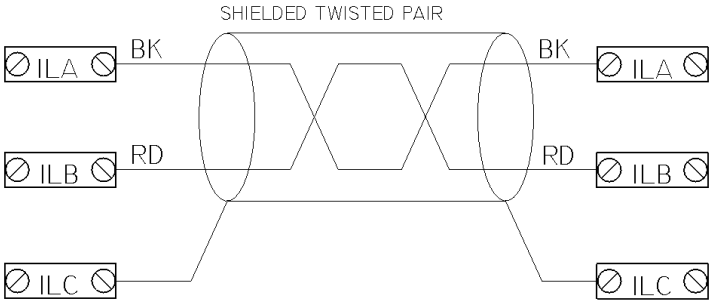
Wiring Distance Limitations

Wire size is an important consideration when making the connections between the CORE Protection Fire System and a gas valve. The chart to the right should be consulted to verify wire gauge.

Wiring connections to remote CORE Protection Fire Systems must be done using shielded twisted pair wire. The maximum length of this connection is 1000 feet.

Maximum Distance Between CORE System and Remote Gas Valve

Wire Gauge	Distance in feet
12	1049
14	660
16	414
18	260
20	164
22	103

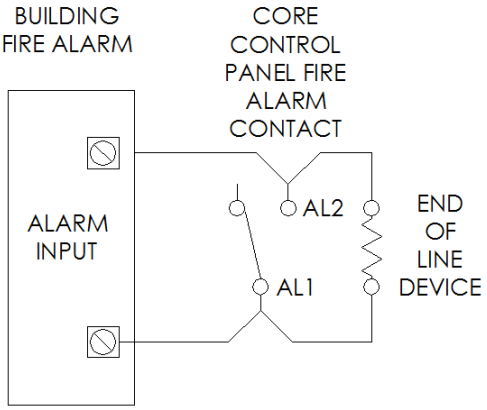


RS-485 INTERLOCK NETWORK

Fire Alarm Contacts

The CORE Protection Fire System is equipped with normally open contacts that can be connected to the premise Fire Alarm Control Panel (FACP) (terminals **AL1** and **AL2**). During a fire condition the contacts will close and trigger the premise FACP to initiate a general fire alarm.

WIRING CONNECTION FOR FIRE ALARM CONTACT



Fire Group

Fire Groups are for the purpose of using multiple CORE systems, and grouping specific CORE systems together. This will allow the user the ability to assign different zones for independent activation.

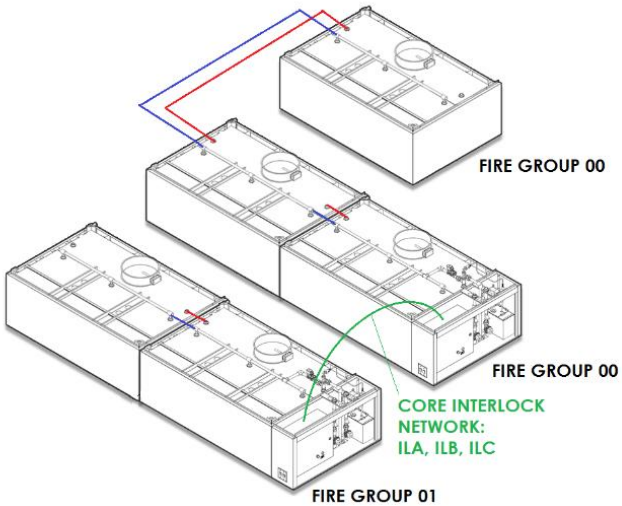
In order to set a fire group, you will need to set the CORE board dip switch setting to:

Dip Switch position		
6	7	Fire group number
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3

NOTE: Every panel with matching fire group settings (dip switches 6 and 7) will activate simultaneously in a fire condition.

An example of different zones on separate fire groups, but still connected via the interlock network. In the example, when 2 Fire groups (00 and 01) are assigned on the CORE boards, and if a fire condition exists in any one group, it will NOT activate the other fire group although both are connected to the same interlock network.

- Fire Group 00 CORE board dip switch setting will be set to: Switch 6 OFF, and Switch 7 OFF.
- Fire Group 01 CORE board dip switch setting will be set to: Switch 6 ON, and Switch 7 OFF.

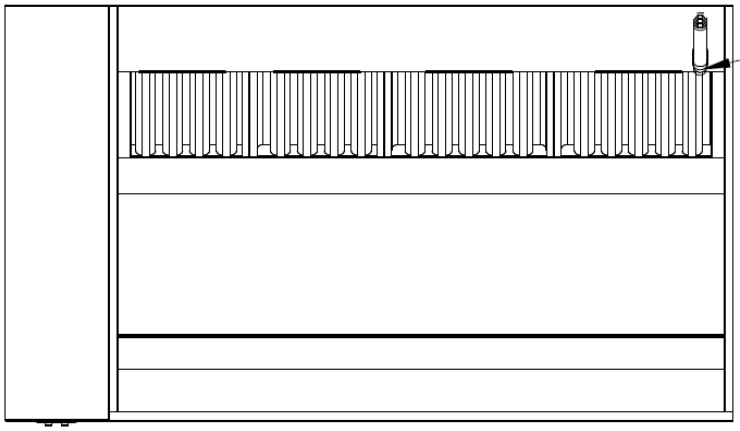


See Typical CORE Dip Switch Arrangement, for setting multiple system CORE boards.

CORE Duct and Plenum Coverage

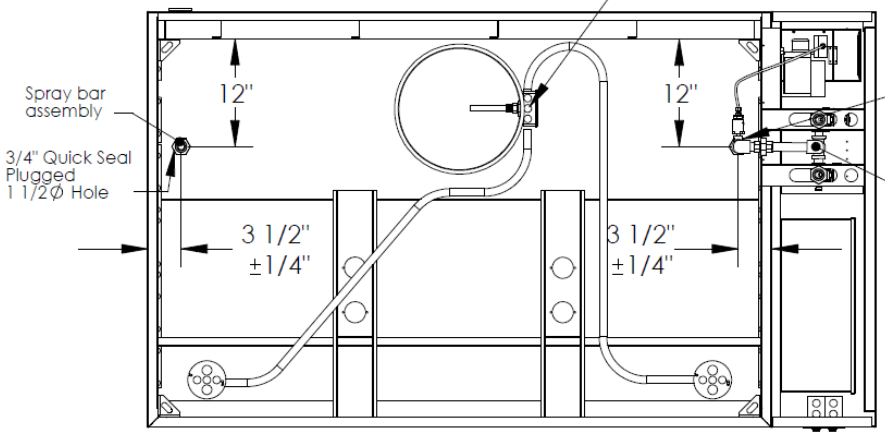
The CORE Protection System for Duct and Plenum coverage can be utilized when specific appliances do not require total flood protection. When enclosed appliances such as ovens are used duct and plenum coverage still offers protection for the plenum of the hood, as well as the ductwork.

Bottom View of Hood



1 1/2" Pipe drains
- Hoods 10'or greater in length => 2 Drains
- 24" tall hoods with 20" filters => 2 Drains
- All other hoods => 1 Drain. Read paperwork for placement

Top View of Hood



Firestat for Automatic Fire System Activation (12-F28021-005360 or 12-G28021-005500, One Per Riser, One stat every 12 foot of hood)

3/4" Quick seal 1 1/2Ø Hole

Manifold assembly

IMPORTANT:
ALL WIRING BETWEEN FIRE SENSOR AND ELECTRICAL CONTROL PACKAGE, THAT IS ON TOP OF HOOD MUST BE HIGH TEMP (450°C / 842°F) WIRE.
WIRE TYPE MG OR MGT, 16 GA MINIMUM.

CORE Total Flood Coverage

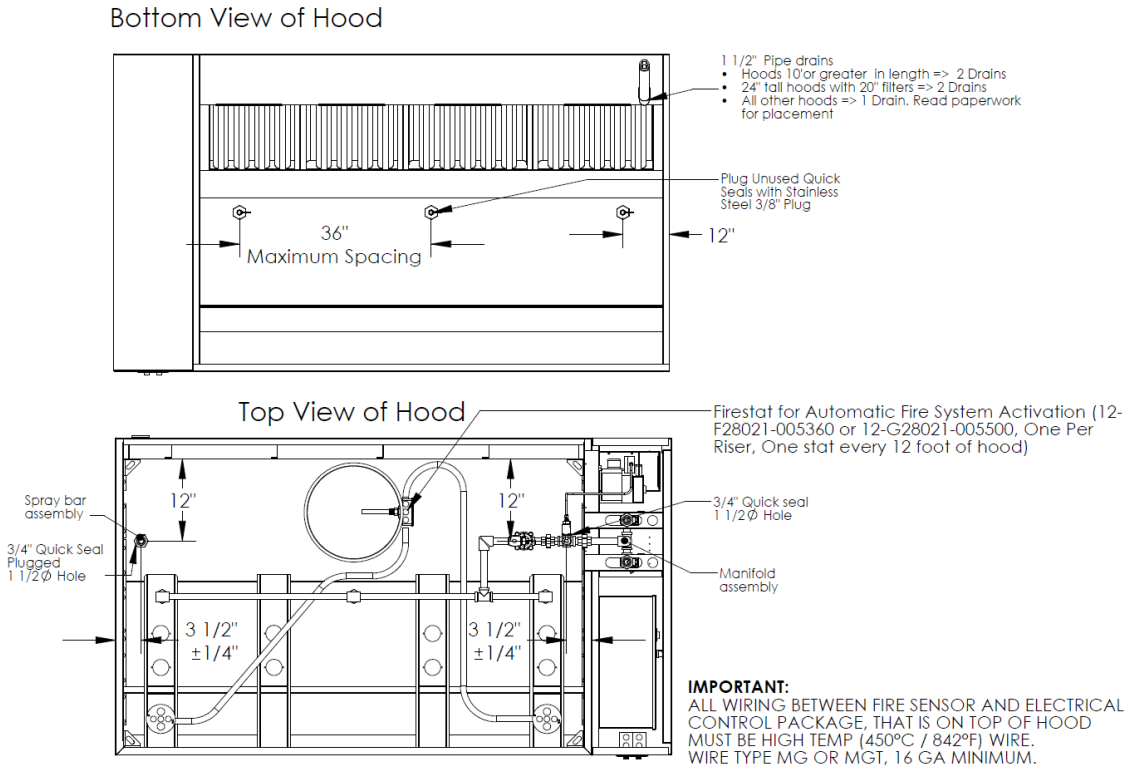
The CORE Protection System for appliances depends on proper placement of the fire suppression nozzles. The fire system can be tailored to suit the individual needs of the appliances. It is important to remember that the nozzles will need an unobstructed path to the cooking surface for proper fire suppression. The overall cooking surfaces of the appliances under the hood are called the hazard zone and will determine the fire protection system.

Hazard Zone and Nozzle Placement

The Hazard Zone consists of the cooking surface of each appliance underneath each hood. All appliances outlined in UL300 and on the chart on the following page are suitable to be covered with the CORE total flood system. There are specific branch appliance drop requirements for upright charbroilers and salamanders. The lowest and highest cooking surface will determine the height of the fire suppression nozzles. This nozzle height can range between 30 and 55 inches. For applications where the appliance is vertical, such as an upright char broiler, the nozzle setup will need to be adjusted. The sections below contain more detailed information about the Total Flood system.

Proper placement of the appliance hazard zone will maximize the performance of the fire system. There are several factors which need to be accounted for when placing the appliances under the fire system, such as the front and side overhang measurements of the hoods with respect to the hazard zone, and the appliance clearances to combustibles. The common line placement will depend on where the appliance hazard zone is installed under the hood. The common line is a 3/4" NPT line typically installed 24" off the back of the hood and will supply the nozzles. This line can be extended to additional CORE Protection hoods to continue the coverage of the hazard zone to a maximum of 48 feet.

The nozzles must be positioned along the hood length to allow Total Flood of each appliance in the hazard zone. The nozzles must be no more than 12" away from the end of the hazard zone and the nozzles cannot be spaced further than 36" from each other. The nozzle must be no more than 18" away from the front or back of the hazard zone. The pipe for the nozzle drops cannot be sleeved in stainless steel, but can be made from polished stainless steel or polished chrome plated black iron.



Appliance Coverage Details

The chart below illustrates the maximum permitted cooking surface depth and area to be covered by CORE Protection for each individual appliance. Multiple appliances may be covered under the CORE Total Flood system. The maximum length of the hazard zone is 48 feet. Remember that the cooking surface is different than the appliance size.

Appliance	Fuel Source	Maximum Depth of Cooking Surface	Maximum Length of Cooking Surface	Maximum Height of Fuel
Deep Fat Fryer (with or without dripboard) (3)	Gas or Electric	26.75 inches	26.75 inches	N/A
Multi Vat Fryer (with or without dripboard) (3)	Gas or Electric	28 inches	41 inches	N/A
Split Vat Fryer (with or without dripboard) (3)	Gas or Electric	21 inches	14 inches	N/A
Griddle	Gas or Electric	24 inches	Unlimited	N/A
Char-Broiler (Radiant or Standard)	Gas or Electric	36 inches	Unlimited	N/A
Up-Right Char-Broiler (Upright, Salamander, Chain)	Gas or Electric	27 inches	Unlimited	N/A
Cook Range (with or without back shelf) (4)	Gas or Electric	25 inches	Unlimited	N/A
Natural Charcoal Broiler (5)	Charcoal	24 inches	Unlimited	8 inches
Solid Fuel Char-Broiler (5)	Mesquite or Hardwood	24 inches	Unlimited	8 inches
Lava Rock Char-Broiler (5)	Gas or Electric	24 inches	Unlimited	8 inches
Wok (6)	Gas or Electric	11 inch to 20 inch diameter	11 inch to 20 inch diameter	5.25 inches

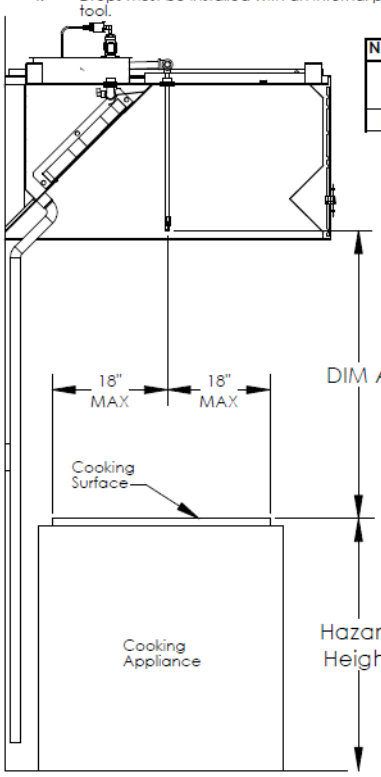
Notes:

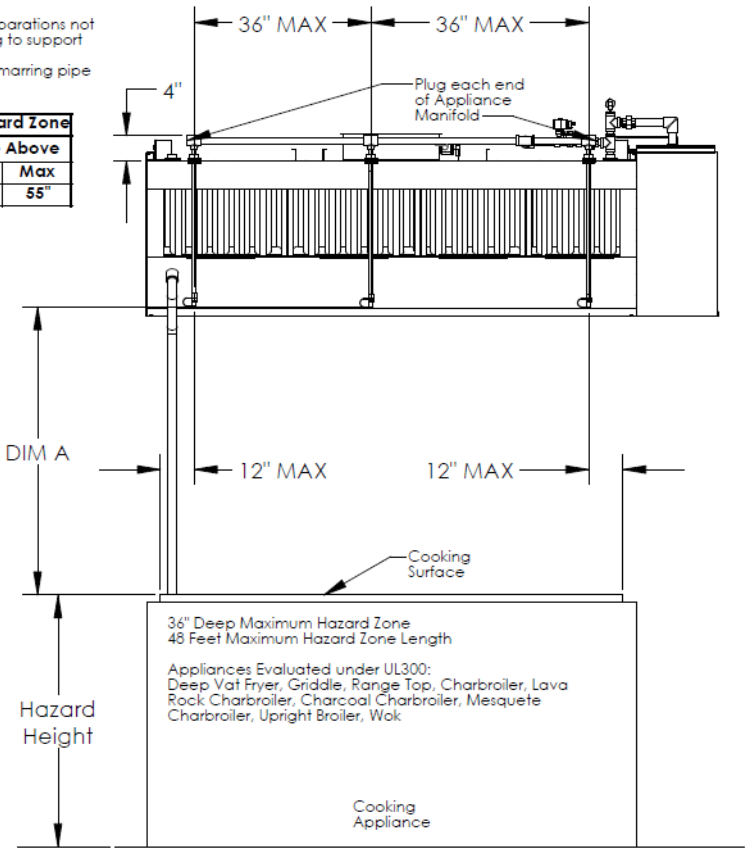
1. All dimensions above are based off total flood, overlapping protection.
2. All dimensions and areas above are referencing the cooking surface of the appliance, which is typically smaller than the outside dimensions of the appliance itself.
3. Deep fat fryers, multi vat fryers, and split vat fryers are permitted to have a drip-board.
4. The Cook Range may have an integral back shelf that protrudes no more than 12 inches from the back of the appliance. The shelf is to be at least 18 inches above the cooking surface. The cooking surface of the range is defined as the raised portion of the appliance grating encompassing the burners as identified on the range detail on the following pages. The grating dimension may extend beyond this.
5. Dimensions above for the Natural Charcoal Broiler, Solid Fuel Char-Broiler and Lava Rock Char-Broiler are referencing the metal housing containing the fuel source. All solid fueled appliances must have additional firestat(s) mounted as near to the fan as possible, if duct run is longer than 10 feet or horizontal. See Figure 11.1 firestat detail below for more information.
6. If a Wok exceeds 20”, Large Wok coverage must be used as outlined below. Large Wok Coverage is for protection of Wok sizes greater than 20” up to 24” in diameter.

The drawings below illustrate the placement of the nozzles for CORE Total Flood. The dimension A, shown below, can range between 30 inches to a maximum of 55 inches above the cooking surface.

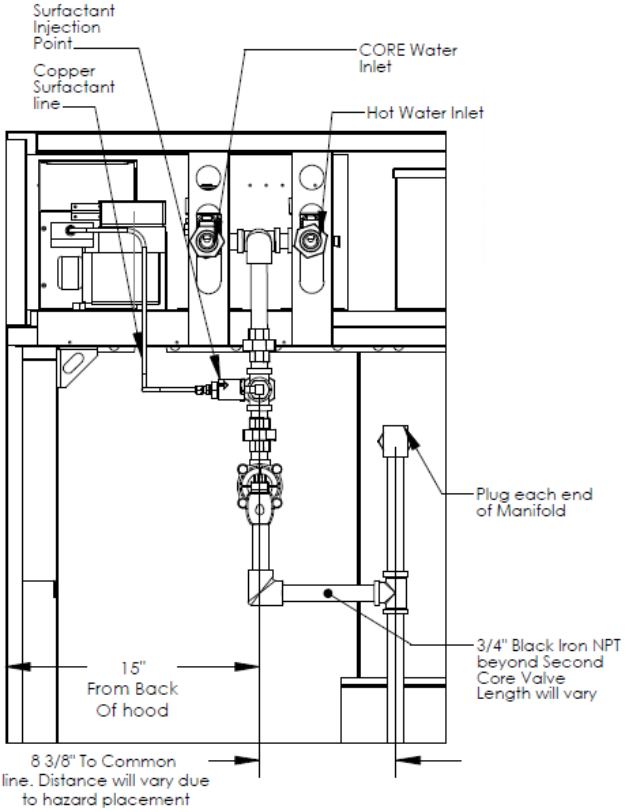
Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.
3. Install Drops at 36" Maximum spacing. If the hazard zone contains separations not covered by the fire system, Install a quick seal and Stainless Steel plug to support the spray bar.
4. Drops must be installed with an internal pipe wrench or another non-marring pipe tool.

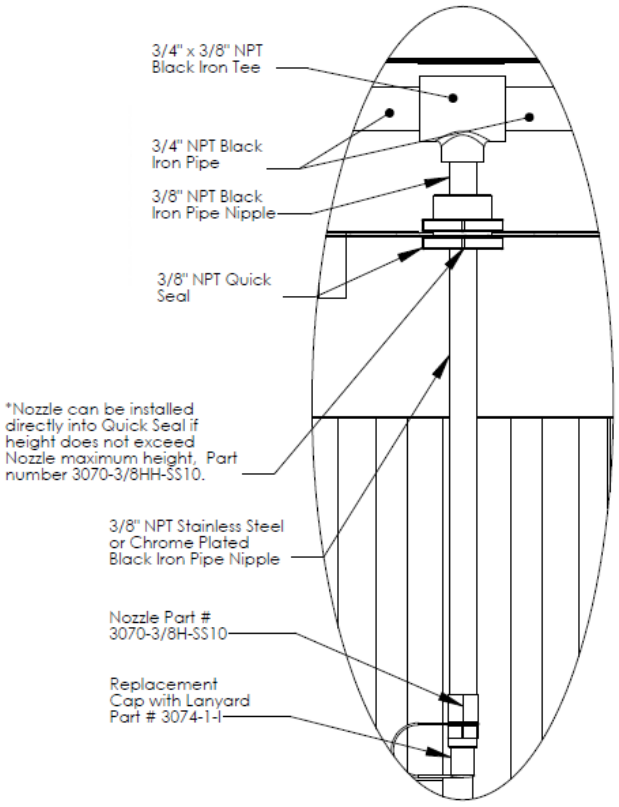
Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above	
	Min	Max
3070-3/8H-SS10	30"	55"





Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Polished pipe fittings must be installed with an internal pipe wrench or another non-marring pipe tool.





DETAIL K
SCALE 1 : 3

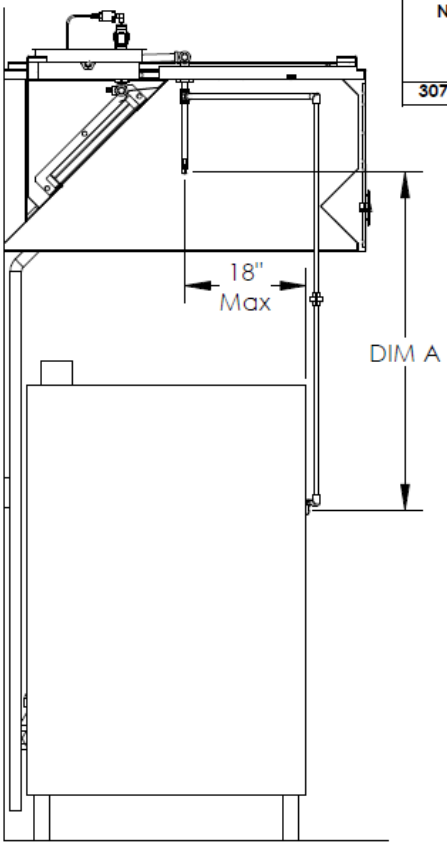
Upright Broiler Protection

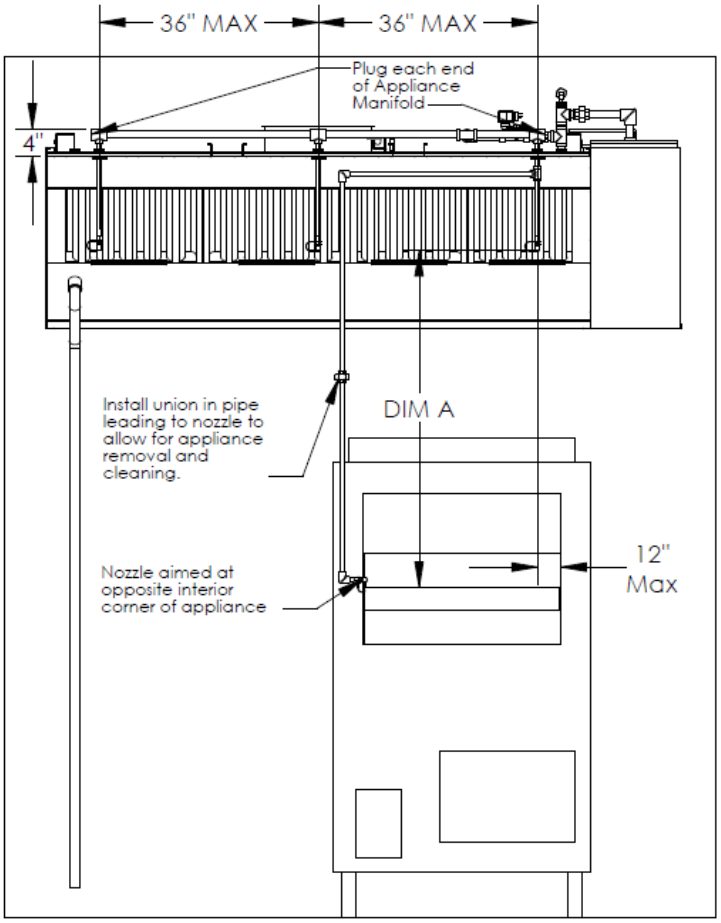
Upright broilers, chain broilers, and cheese-melters have specific coverage requirements. Unlike appliances with an exposed flat cooking surface, these appliances have an internal cooking surface and only have a small opening in the face or end of the appliance.

To cover the internal hazard posed by these appliances, a nozzle must be placed at the opening and aimed to the opposite rear corner of the appliance. This nozzle must be branched off one of the nozzle drops and piped to the appliance opening. The drawing below illustrates how this should be accomplished. Should the cooking surface of the appliance exceed 675 in^2, an additional nozzle will be required on the opposite of the appliance for added fire protection.

Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"





Range Top Protection

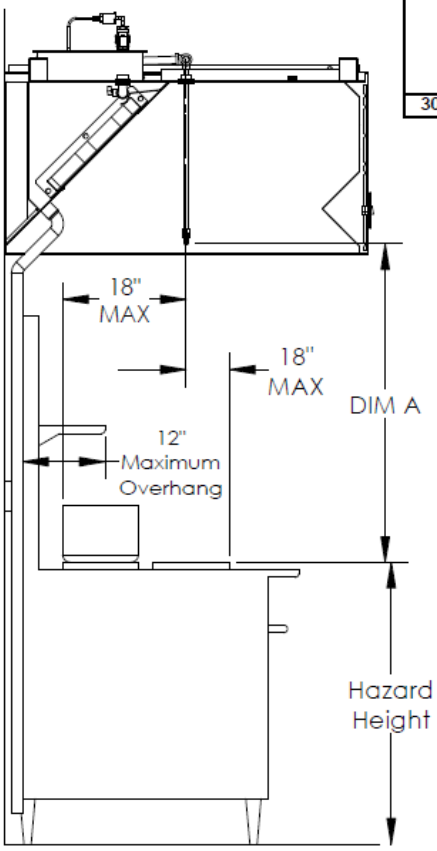
Range top cooking appliances are available with multiple burner assemblies. Some ranges are equipped with shelving behind the appliance for additional storage. For CORE Total Flood protection, this shelf cannot overhang the appliance more than 12” from the back of the appliance.

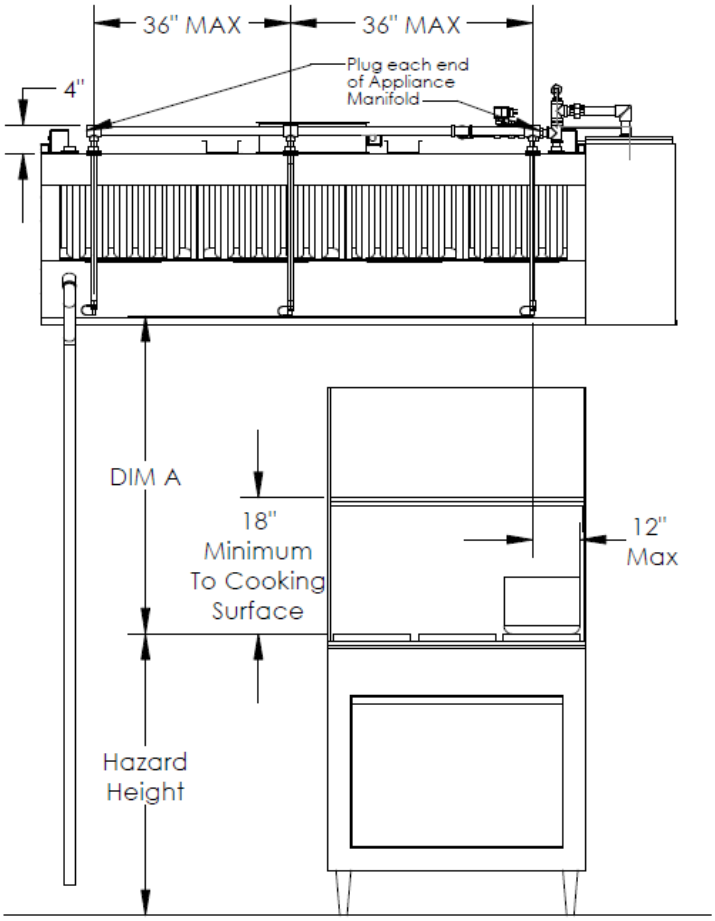
Below is an illustration showing the position of the hood in relation to the CORE Total Flood Protection system.

Notes:

1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving permitted.
2. Nozzle heights must follow table below.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"



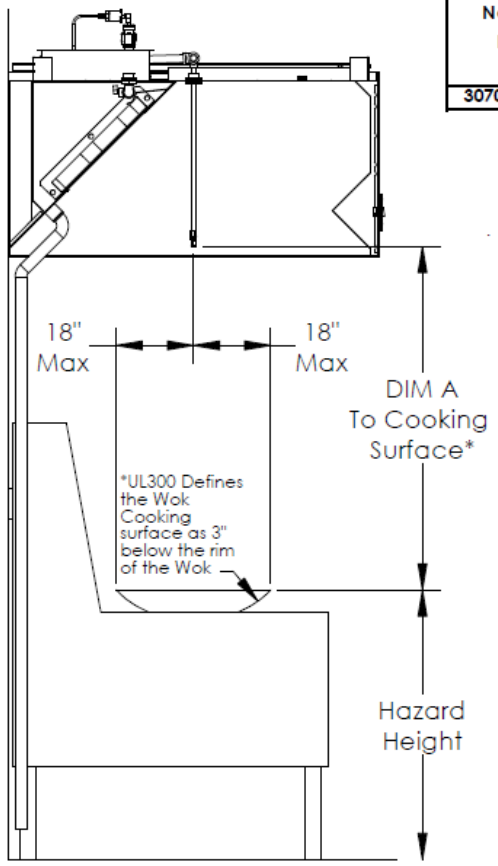


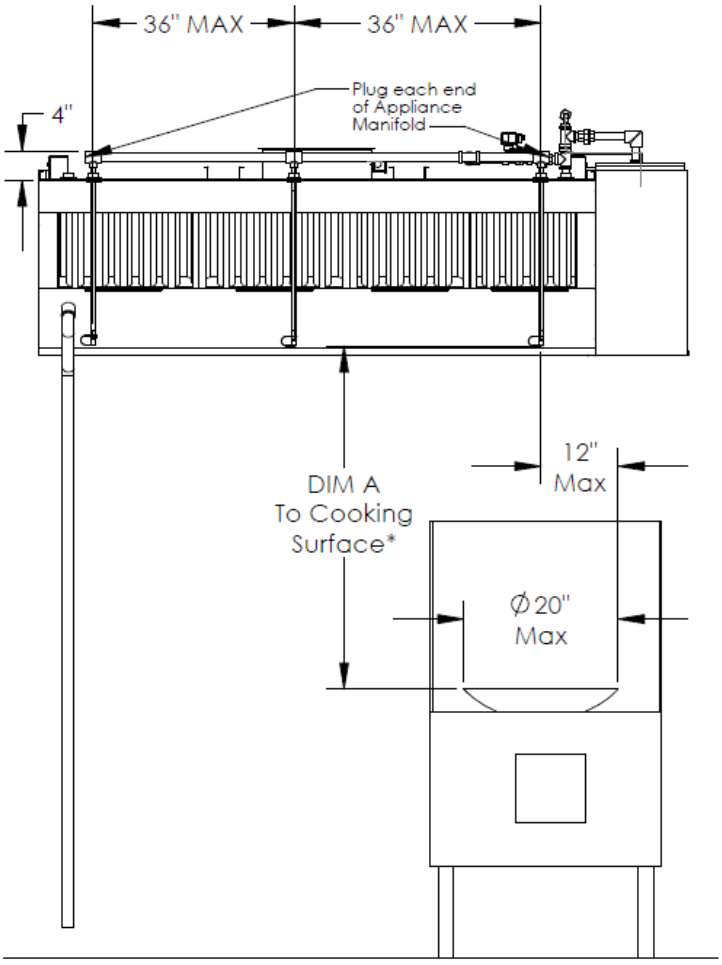
Wok Protection

Nozzle for Wok protection must be located within 12” from the left or right of the Wok and 18” from the front or back of the Wok. The Wok diameter range for CORE protection is 11” to 20” diameter.

Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"





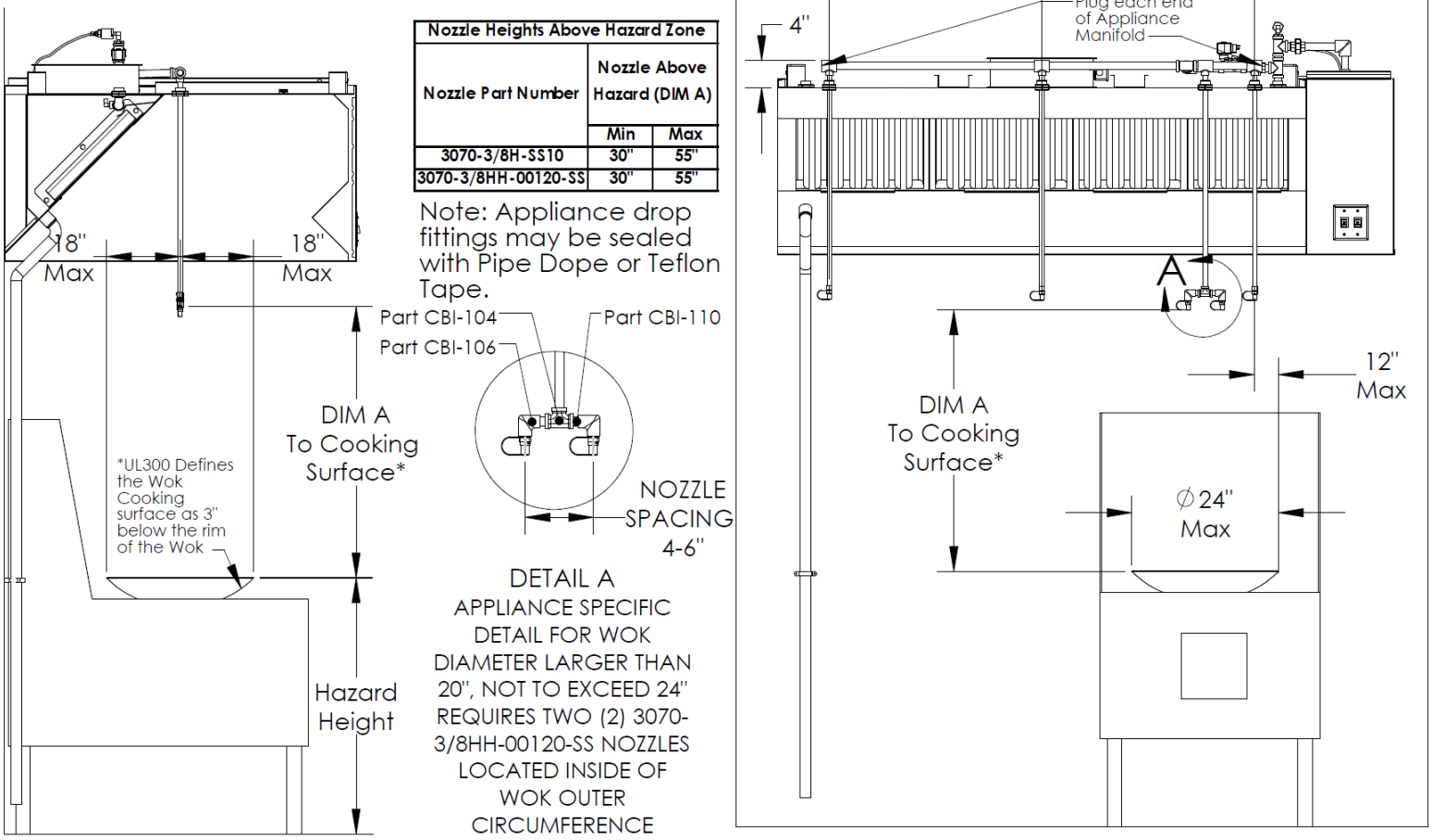
Large Wok Protection

Standard overlapping protection must be in place following the same guidelines for standard Wok Coverage. Overlapping Nozzle for Wok protection must be located within 12” from the left or right of the Wok and 18” from the front or back of the Wok.

Appliance specific protection is required for a Wok with a diameter larger than 20”, not to exceed 24”. The appliance specific coverage includes two (2) 3070-3/8HH-00120-22 nozzles, spaced 4 to 6” apart, located inside of the wok outer circumference. This nozzle arrangement is to be located 30” from the Wok cooking surface, defined in UL300 as 3” below the rim of the Wok.

Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron, unless noted otherwise. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.
3. Woks exceeding 20" dia, no larger than 24" dia. must be covered with appliance specific coverage as outlined below in addition to total flood overlapping coverage.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"
3070-3/8HH-00120-SS	30"	55"



Salamander Protection

Salamanders have specific coverage requirements, unlike appliances with an exposed flat cooking surface, these appliances have an internal cooking surface and only have a small opening in the face or end of the appliance.

To cover the internal hazard posed by these appliances, a nozzle must be placed at the opening and aimed to the opposite rear corner of the appliance. This nozzle must be branched off one of the nozzle drops with a tee and piped to the appliance opening. No more than two nozzles can be utilized for a single drop. Should the cooking surface of the appliance exceed 675 in^2, an additional nozzle will be required on the opposite side of the appliance for added fire protection.

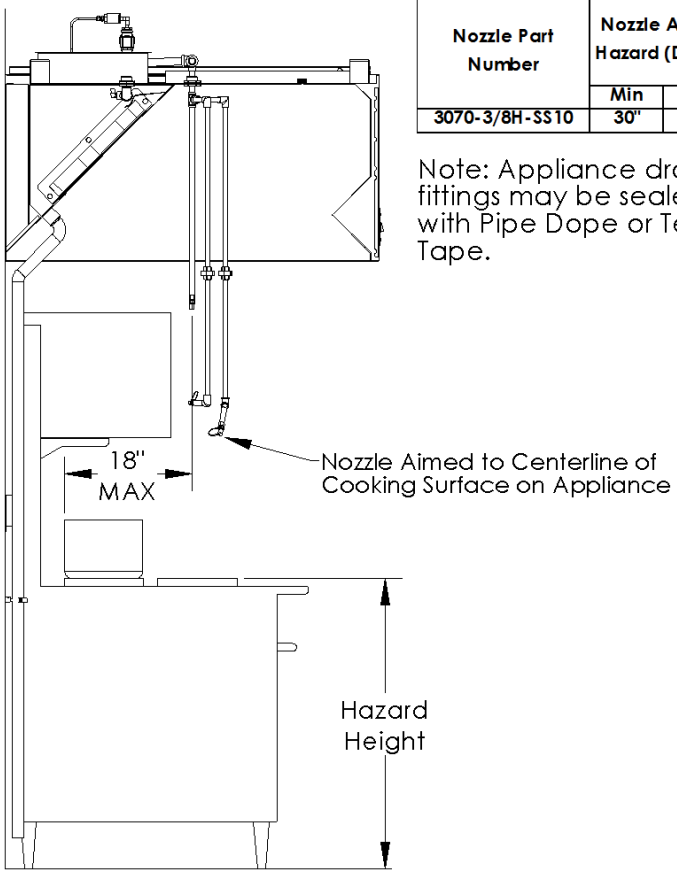
An additional nozzle must be piped from a nozzle drop nearest the appliance, to cover the hazard underneath the salamander. This nozzle is to be aimed at the centerline of the hazard zone, a minimum of 30" away. The drawing below illustrates how this should be accomplished.

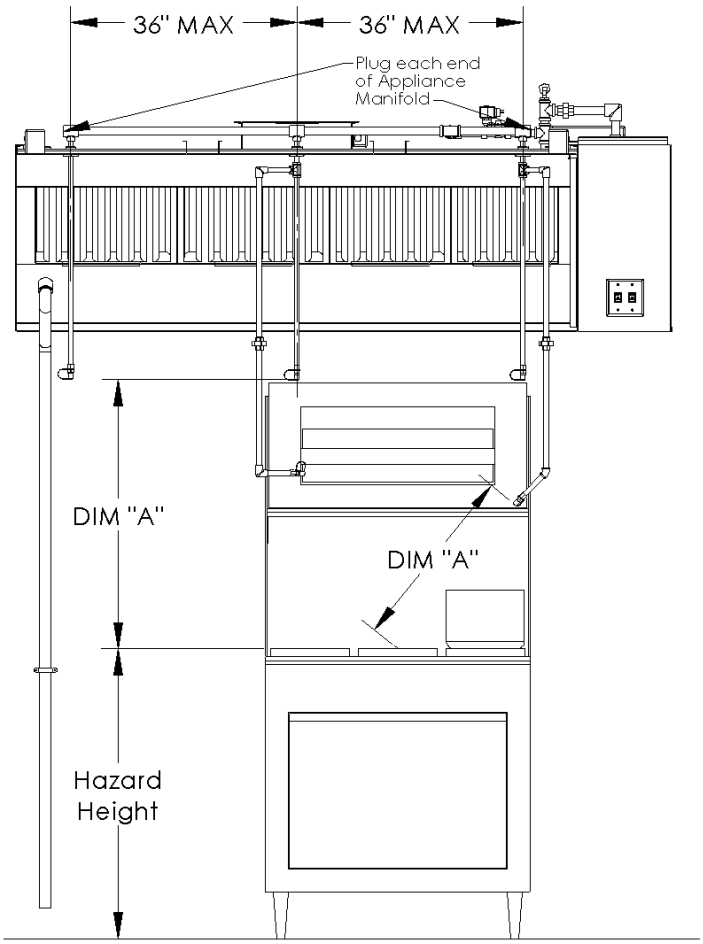
Notes:

1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving permitted.
2. Nozzle heights must follow table below.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"

Note: Appliance drop fittings may be sealed with Pipe Dope or Teflon Tape.





Large Appliance Protection

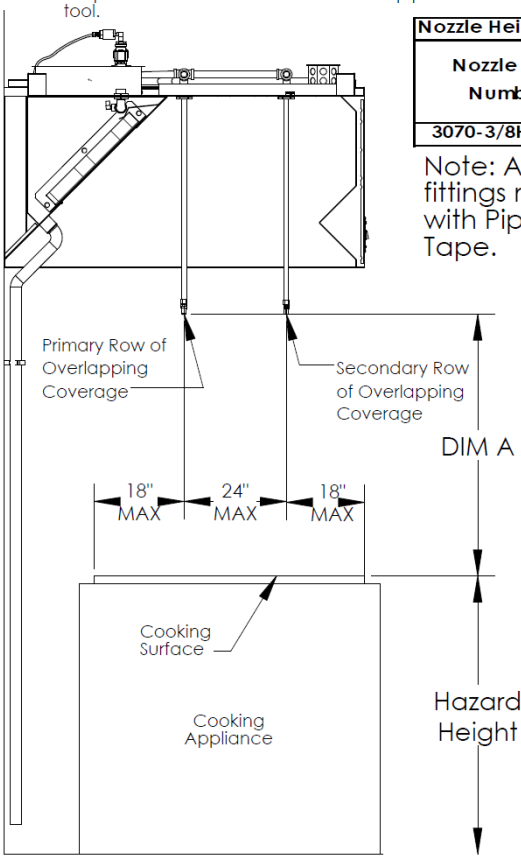
When the depth of the appliance cooking surface exceeds the listed sizes in the appliance coverage details chart, it can be covered by doubling the row of overlapping protection. By doubling the rows of overlapping protection, a greater surface area can be protected. Appliance cooking surfaces that exceed 36” in depth will require a secondary row of appliance protection.

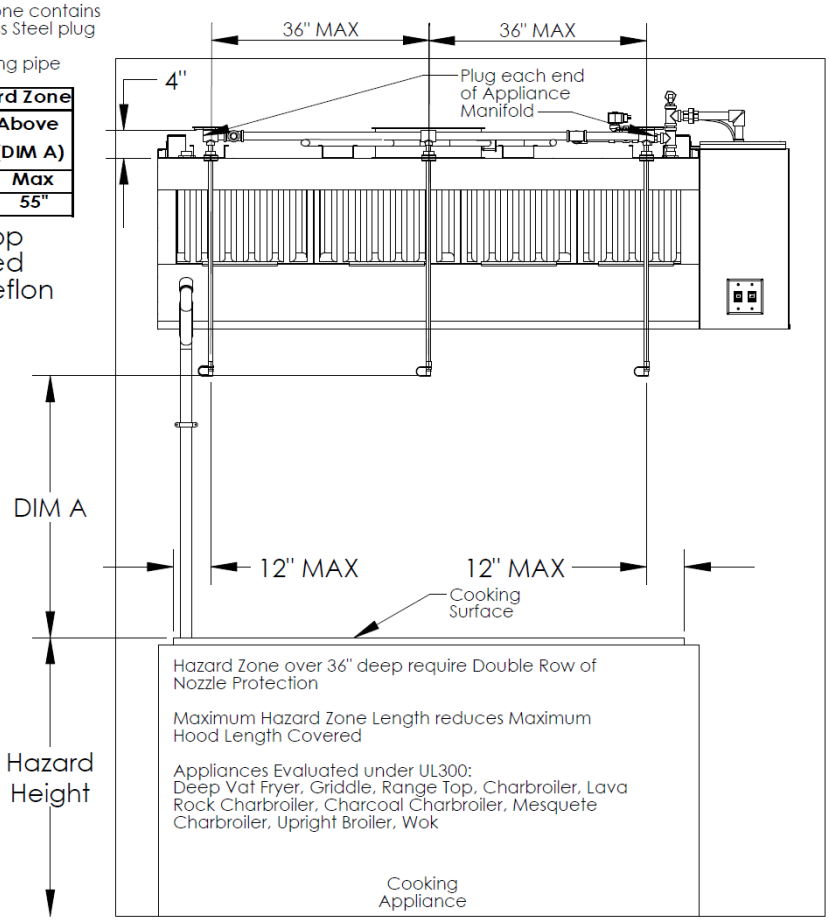
When providing protection for large solid-fuel appliances exceeding 24” in depth, a secondary row of nozzle will be required.

Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron unless noted otherwise. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.
3. Install Drops at 36" Maximum spacing for Standard Appliance Protection, 24" Maximum spacing between Primary and Secondary rows. If the hazard zone contains separations not covered by the fire system, Install a quick seal and Stainless Steel plug to support the spray bar.
4. Drops must be installed with an internal pipe wrench or another non-marring pipe tool.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"

Note: Appliance drop fittings may be sealed with Pipe Dope or Teflon Tape.





Large Industrial Fryer Protection

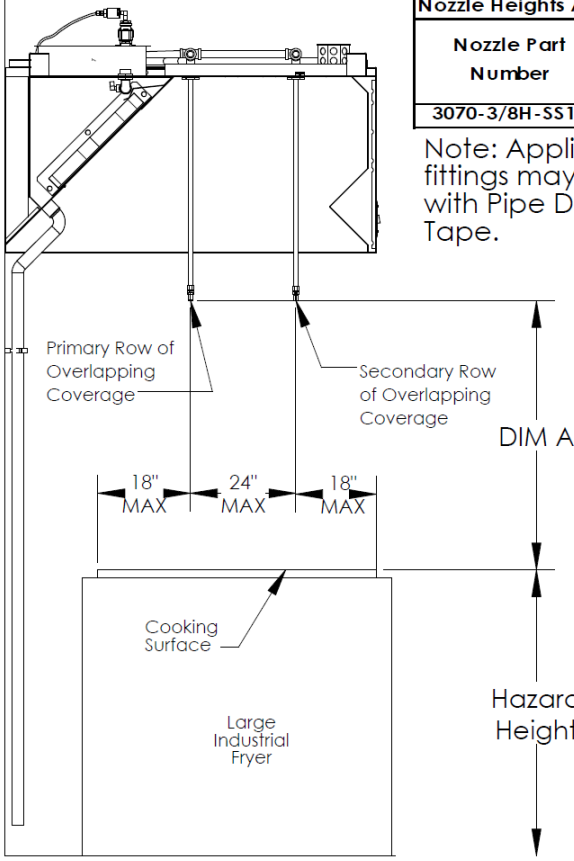
When providing protection for large industrial fryers, the nozzles are to be spaced no greater than 24” in a row, rows are spaced no more than 24” apart. Large Industrial Fryer coverage is limited to CORE manifolds 1” and 1-1/2” in size, and appliances with a capacity no greater than 80 gallons.

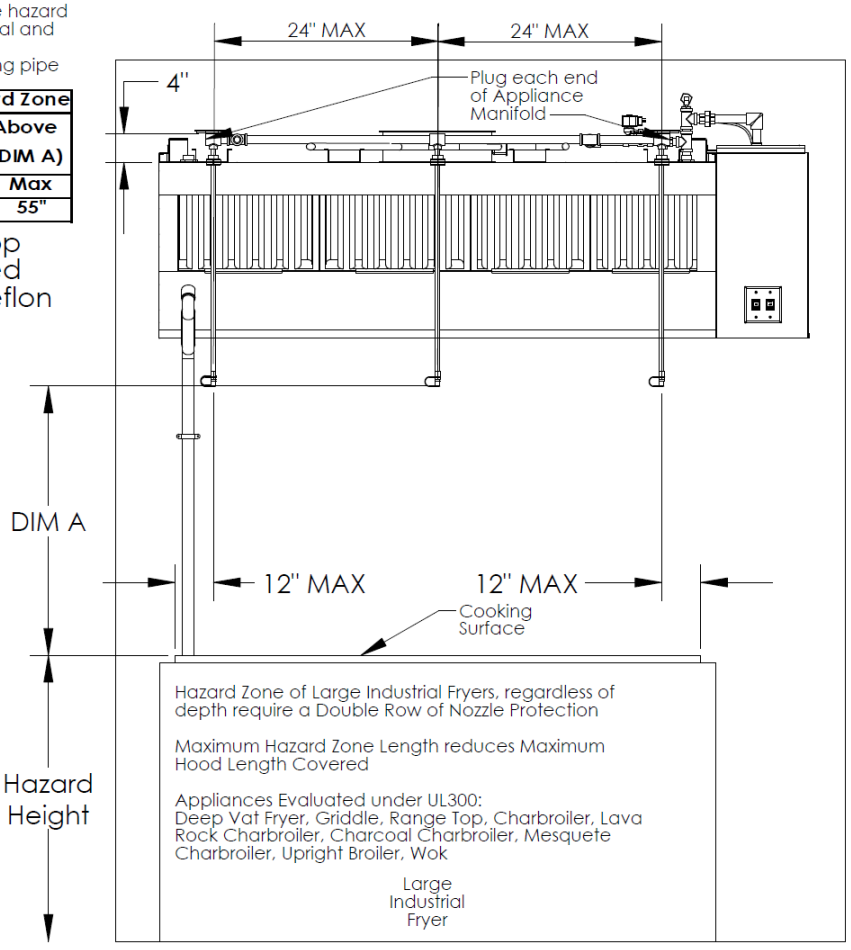
When providing protection for large industrial fryers, regardless of depth, a secondary row of nozzle will be required.

Notes:
1. Pipe and fittings above the hood, after the second CORE solenoid, will be 3/4" NPT Black Iron unless noted otherwise. Pipe and fittings inside the hood capture volume will be 3/8" NPT Stainless Steel or Chrome Plated Black Iron. No Sleeving Permitted.
2. Nozzle heights must follow table below.
3. Install Drops at 24" Maximum spacing for Large Industrial Fryer Protection, 24" Maximum spacing is required between Primary and Secondary rows. If the hazard zone contains separations not covered by the fire system, Install a quick seal and Stainless Steel plug to support the spray bar.
4. Drops must be installed with an internal pipe wrench or another non-marring pipe tool.

Nozzle Heights Above Hazard Zone		
Nozzle Part Number	Nozzle Above Hazard (DIM A)	
	Min	Max
3070-3/8H-SS10	30"	55"

Note: Appliance drop fittings may be sealed with Pipe Dope or Teflon Tape.





OPERATION

Prior to starting up or operating the system, check all fasteners for tightness. Ensure that the wiring is installed properly and that all nozzles and panels are installed.

Self Cleaning Hood

The Self Cleaning hood is designed to use hot water to wash the hood plenum and immediate duct section every time the fan switch is switched from the “ON” position on the main control panel. When the switching action occurs, hot water sprays along the entire length of the hood and towards the back of the hood for a factory setting of 3 minutes. During this time, surfactant is injected into the water stream for duration of 1 second for each minute of wash time. Once the wash cycle is complete, water stops spraying and the hood filters are to be removed and cleaned.

Self Cleaning Hood Start Up

Special Tools Required

- AC Voltage Meter
- Standard Hand Tools
- Hand-held Heat Source
- Surfactant (Part Number WWDETER for 4 Gallons, WWDETER-1G for 1 Gallon)
- High Temperature Wire for Supervised Loop on Hood (Type MG, White Part Number 441601C6.FE9, Black Part Number 441601C6.FE0)
- Supervised Loop Wire for Off Hood Connections (Belden Part Number 6320UL or similar)

Jobsite Qualifications – Pre-installation Self Cleaning Hood

1. Verify the proper amount of water pressure and flowrate is available for Self Cleaning. Should the operating and static pressures exceed our maximum listing, correctly identify and size a pressure reducing valve.
2. Determine the pressure drop from the connection at the source to the connection at the Self Cleaning manifold inlet.
3. Verify the location of the manifold, and if a backflow preventer is required.
4. Verify hot water minimum temperature rating of 140°F will be provided.

Start Up Procedure – Self Cleaning Hood

1. Check all nozzles to make sure they are installed and tight.
2. Install all hood filters per the filter installation configuration (Figure 4) chart below. There are drip blanks secured to the filters to prevent water from exiting the hood between the filters.
3. Open all water valves to the hood.
4. Fill surfactant tank with surfactant. The “Add Surfactant” light should not be on, once the tank is full. Prime the surfactant pump with the push-button on the face of the electrical control package.
5. There are 2 timers that control the water wash spray and the surfactant injection. The wash timer, which is controlled by R3 on the CORE printed circuit board and labeled WASH, is set to 3 minutes from the factory. The surfactant timer that is fixed and factory set for 1 second of injection during each minute of wash time. The injection occurs at the start of each minute. The Wash timer setting should be verified. (See section “Self Cleaning Water Wash Timers for information)
6. Turn the hood fan switch to the “ON” position. Fans should operate. If they do not, check wiring. If the hood has the cold water mist option, cold water should begin to spray.
7. To operate the wash cycle, simply turn the fan switch off. The wash cycle energizes automatically and will remain on for the duration of the wash timer setting. The wash cycle may not run if the minimum fan run time has not been met.
8. Verify that surfactant is being injected properly into the water stream.
9. Verify the pressure and temperature of the water via the pressure/temperature gauge. See Figure 3 for a picture of the gauge. Self Cleaning pressure should be between the required minimum PSI, from **Table 1**, and a maximum of 70 PSI operating pressure.
10. Check all manifold pipe connections to ensure there are no water leaks.
11. Check all filters to make sure that no water is leaking back through the filters.
12. Verify that the hood grease trough is draining properly and there are no clogs in the drain.

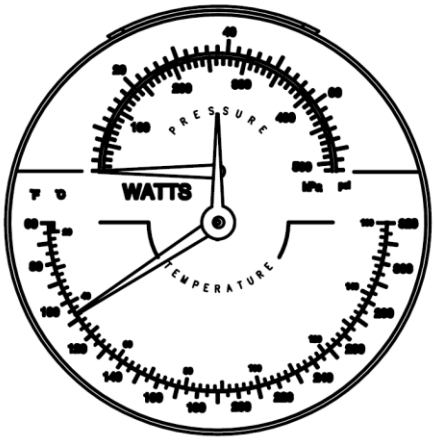


Figure 3.1

Filter Installation Configuration

The hood filters have drip blanks attached to them to prevent water leakage through the filters. The chart below shows the location of the drip blanks and the last filter to be installed into the hood. See Figure 4 below for details.

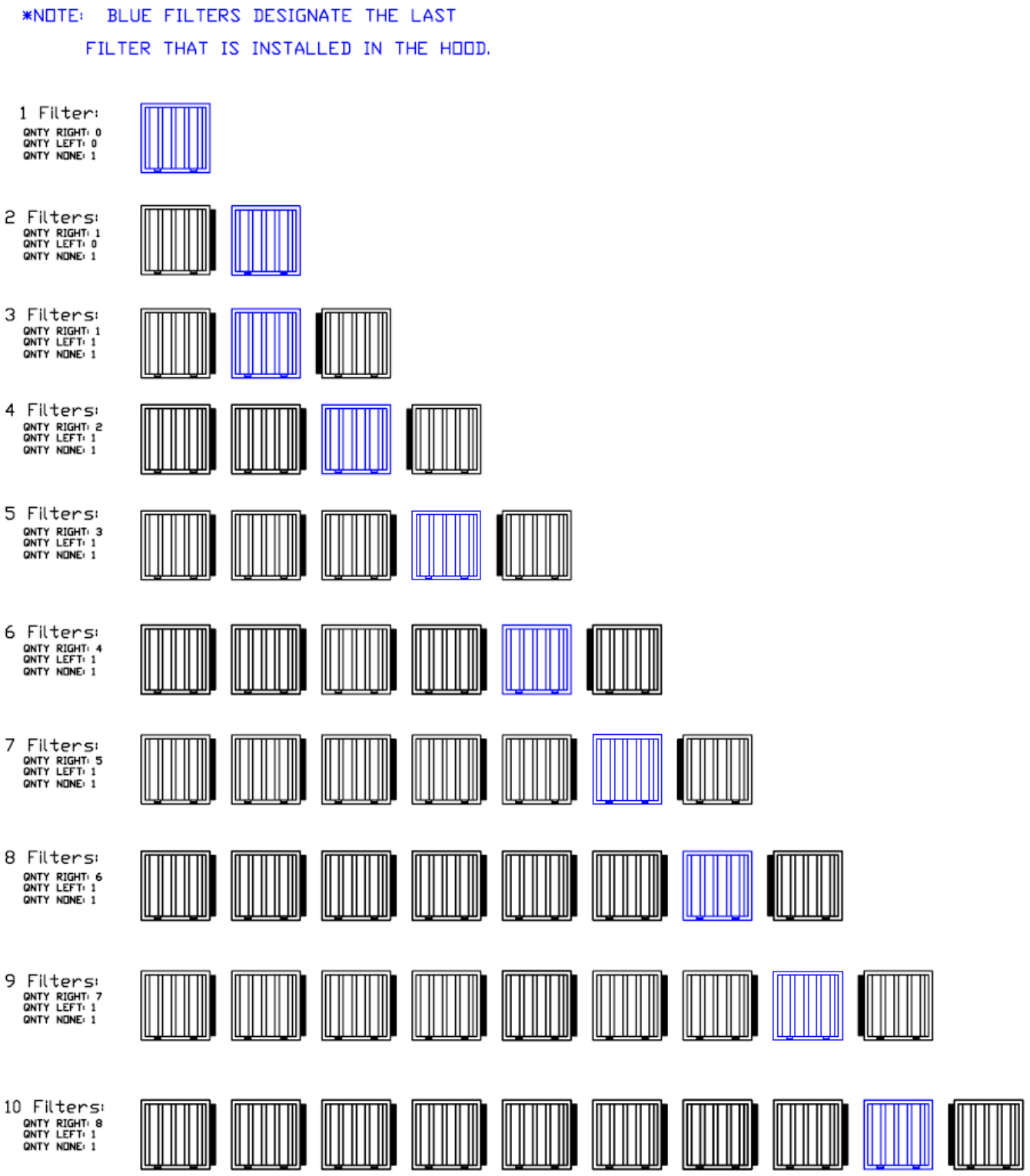


Figure 4

CORE Protection Fire System

The Self Cleaning hood is required to be installed to achieve CORE Protection. The daily basic operation of the CORE Protection system is identical to the Self Cleaning hood. In the event of a hood fire, CORE Protection is activated.

If the hood Firestat installed in the riser senses a temperature hotter than its internal setpoint or if the remote manual actuation device (push/pull station) is pushed, an electric signal is sent to the appliance protection fire system solenoid and the hood duct and plenum water system solenoid. Two electric water solenoids are energized allowing the flow of water to the hood duct and plenum and the appliance nozzles. At the same time, surfactant is continually injected into the water stream to help suppress the fire.

Once the fire system is activated, a “Fire System Activated” light is illuminated on the hood control panel and an audible alarm sounds. All gas and electric appliances under the hood must be electrically interlocked to shut off. This is achieved via a gas valve relay and/or a shunt trip breaker. Two timers are also energized upon fire system activation. The first timer is factory set for 30 minutes and keeps the duct and plenum water spray system running for a minimum of 30 minutes. The second timer is set for 15 minutes and keeps the appliance water spray running for a minimum of 15 minutes. This is necessary to ensure complete extinguishment of all fire potential.

The fire system is electrically operated and thus requires a battery backup system. In the event of a loss of building electrical power, all gas and electric appliances under the hood must be electrically interlocked to shut off. This is achieved via a gas valve relay and/or a shunt trip breaker. The battery backup will automatically energize upon a loss of power. The battery backup will monitor the fire system circuit for up to 24 hours and be able to operate the fire system circuit for a minimum of 30 minutes. Once power is restored, the battery will automatically recharge.

CORE Protection Test Mode Overview

The CORE Protection System has an integrated option for testing. This test mode, when active, will shut down the appliance coverage solenoid and prevent the water from spraying on the appliances. It will allow activation of the fire system including the water spray in the duct and plenum, audible alarm, shunt trip breaker (if applicable) and shut-down of appliances via gas valve reset relay. This mode will also activate any additional CORE package attached to the system, including any Pollution Control Unit CORE Protection systems and other hood mounted CORE Protection systems.

Please note that the appliances must be started before test mode is entered on any CORE Protection package for proper demonstration of this function. If the CORE Protection System is left in in Test Mode for more than 15 minutes, the appliances will be shut down. This is to prevent cooking operations from occurring while the appliances and ventilation system are not protected.

CORE Protection Reset Overview

There are multiple actions required to reset the fire system. First, the duct Firestat must be cooled to below its internal set point and the remote manual actuation device (push/pull station) must be reset by twisting the button clockwise until it resets. Once both of these devices have been reset, the timer will automatically stop the fire system once its time duration has ended. An alternative method to bypassing the timer is to press the fire system reset button on the face of electrical control package. This will de-energize the timer and reset the system. NOTE: The Firestat must be cool and the remote manual actuation device (push/pull station) must be reset for this button to work.

After a fire, full inspection by a certified professional must be conducted prior to restarting the fire system.

CORE Total Flood Protection Fire System Start Up

This is the test method for hoods with CORE Total Flood Protection. For CORE Protection with separate appliance coverage, see previous section.

Special Tools Required

- AC Voltage Meter
- Standard Hand Tools
- Hand-held Heat Source
- Surfactant (Part Number WWDETER for 4 Gallons, WWDETER-1G for 1 Gallon)
- Silicone Lubricant, Danco 88693.
- High Temperature Wire for Supervised Loop on Hood (Type MG, White Part Number 441601C6.FE9, Black Part Number 441601C6.FE0)
- Supervised Loop Wire for Off Hood Connections (Belden Part Number 6320UL or similar)

Jobsite Qualifications – Pre-installation CORE Protection Fire System

1. Verify the source for the CORE water supply (domestic or sprinkler), and determine the pressure drop from the connection at the source to the connection at the CORE manifold inlet.
2. Verify the proper amount of water pressure and flowrate is available for CORE Protection. Should the operating and static pressures exceed our maximum listing, correctly identify and size a pressure reducing valve.
3. Verify if a shutoff valve will be required on the CORE supply line.
4. Verify the manifold location, and if a backflow preventer is required.
5. Verify the availability of a grease drain and grease trap size.
6. Verify there is access to the top of the hood
7. Verify a network connection for CASLink
8. Verify duct location

Start Up Procedure – CORE Protection Fire System

1. Perform the Self Cleaning hood start-up as outlined in the Self Cleaning Hood Manual.
2. The CORE Protection water connection must be minimum ¾" pipe. This must be connected to a water supply line immediately downstream from the building main shut-off valve or a water fire system. This main valve must be continuously supervised. If other appliances are connected to the CORE water supply line, these appliances must be operated during CORE system testing, and taken into consideration when calculating the size of the water line pipe.
3. When a solid-fuel appliance is in use, verify if additional firestats are installed. Given the complexity of a duct run, additional firestats must be installed in all horizontal duct runs exceeding 10 feet in length, and at all 50 foot intervals.
4. Verify that additional firestat are installed at 50 Feet intervals when the duct length exceeds 50 Feet.
5. Verify remote manual actuation device (push/pull station) is protected with provided clear cover.
6. Verify CORE Protection nozzle caps are easily removed. If nozzle caps stick on the nozzles during a fire system discharge, apply silicone lubricant to the O-ring. Use Danco 88693 lubricant.
7. Verify that all solenoid cables are secured to water lines and not touching hood.
8. Ensure there are no supervision faults being reported by the "Fire System Activated" light and that the light flashes one brief flash every 3 seconds, indicating the CORE system is armed and ready.
9. Ensure that the maximum water static pressure on the panel is less than 125 PSI.

NOTE: Activating a CORE system will also activate any other CORE, PCU or HOOD fire system that is connected to the same fire group system. Ensure that all other systems are ready to be tested by placing the system panels in the test mode and ensuring hood filters and drains are in place.

Start Up Procedure – Firestat Activation

1. Place any PCU CORE panel (if present) in "Test Mode"
2. Place Hood CORE Package in Test Mode to prevent Appliances from getting wet.
3. Remove a hood filter directly below the Firestat.
4. Use a portable heat source to apply heat to the duct Firestat. Heat should activate the fire system and water should begin to spray. The use of a torch or flame, is strictly prohibited. Air pressure may exit the appliance drops.
5. Replace the filter and allow the water to spray while reviewing the system.
6. Verify that the water operating pressure is the required minimum PSI, from **Table 1**, and 70 PSI maximum.
7. Verify that surfactant is constantly being injected into the water stream.
8. Verify that all gas and electric cooking appliances have been disabled.
9. Verify that the "Fire System Activated" light illuminates on the control panel and that the audible alarm is sounding.
10. If all of the above is confirmed, reset the fire system by pressing the button on the face of the electrical control package.
11. Place the PCU CORE panel (if present) in "Armed Mode"
12. Place Hood CORE Package in "Armed Mode".

IMPORTANT!!
The use of a torch or flame to test the CORE System Firestats, is strictly prohibited.

Start Up Procedure – Remote Manual Actuation Device Activation

1. Place the PCU CORE panel (if present) in “Test Mode”.
2. Place the Hood CORE Package in “Test Mode”.
3. Lift clear, protective cover and depress pushbutton until it latches.
4. Verify that the water operating pressure is the required minimum PSI, from **Table 1**, and 70 PSI maximum.
5. Verify that surfactant is constantly being injected into the water stream.
6. Reset the remote manual actuation device (push/pull station). Lift clear, protective cover and rotate pushbutton clockwise to release pushbutton.
7. Verify that all gas and electric cooking appliances have been disabled.
8. Verify that the “Fire System Activated” light illuminates on the control panel and that the audible alarm is sounding.
9. If all of the above is confirmed, reset the fire system by pressing the button on the face of the electrical control package.
10. Place the PCU CORE panel (if present) in “Armed Mode”
11. Place Hood CORE Package in “Armed Mode”.

Start Up Procedure – Battery Back Up

1. Place the PCU CORE panel (if present) in “Test Mode”
2. Place the Hood CORE Package in “Test Mode”.
3. Remove **120VAC** to the hood control panel by shutting down the circuit breaker to the panel. After a few seconds, the “Fire System Activated” light will flash a power failure supervision fault code (11 flashes followed by a pause).
4. Lift clear, protective cover and depress pushbutton until it latches.
5. Verify that the water operating pressure is the required minimum PSI, from **Table 1**, and 70 PSI maximum.
6. Verify that surfactant is constantly being injected into the water stream.
7. Reset the remote manual actuation device (push/pull station). Lift clear, protective cover and rotate pushbutton clockwise to release pushbutton.
8. Verify that all gas appliances have been disabled. In the event of power loss to the building electric appliances will be disabled.
9. If all of the above is confirmed, reset the fire system by pressing the button on the face of the electrical control package.
10. Reset the circuit breaker applying power to the hood panel.
11. Place the PCU CORE panel (if present) in “Armed Mode”
12. Place the Hood CORE Package in “Armed Mode”. “Fire System Activated” light will begin flashing one brief flash every 3 seconds, indicating the CORE system is armed and ready.

Start Up Procedure – Final

1. Verify that the “Fire System Activated” light is flashing one brief flash every 3 seconds, indicating the CORE system is armed and ready.
2. Verify that remote manual actuation device (push/pull station) is reset.
3. Fill the surfactant tank with surfactant.

Reset Procedure – CORE Protection Fire System

1. Fully inspect system to make sure fire is extinguished.
2. If fire is out, Firestat should be cool.
3. Reset remote manual actuation device (push/pull station) if tripped.
4. If Firestat is cool and the remote manual actuation device (push/pull station) has been reset, the CORE system will automatically reset once fire system timer expires after 30 minutes. Alternatively, the reset button on the face of the electrical control package can be pressed to reset system.
5. Fill the surfactant tank with surfactant.
6. Inspect or Replace the Appliance Coverage nozzles.
7. Inspect all piping connections, hood lights, wiring, and hood insulation for integrity.

Start Up Checklists

Self Cleaning Hood Start Up Checklist

Action	Completed (Yes/No)	Result
Check All Nozzles for Tightness		
Open all Valves to Hood		
Fill Surfactant Tank		
Prime Surfactant Pump		
Set All Timers		
Check Fan Operation		
Operate Wash Cycle		
Verify Surfactant Pump Operation		
Verify Operating Hot Water Pressure (Table 1)		
Verify Max Water Static Pressure (125 PSI)		
Verify Min Hot Water Temperature (140°F)		
Check For Leaks in Manifold		
Check For Leaks through Filters		
Verify that Water is Draining Properly		

CORE Protection System Start Up Checklist

Action	Completed (Yes/No)	Result
Self Cleaning Startup Complete		
Main Water line ¾" or Larger		
Main Water Line from Supervised Supply		
"Fire System Activated" light flashing ready code (1 short flash every 3 seconds)		
Test Firestat System Activation		
Test Remote Manual Actuation Device (push/pull station) System Activation		
Verify Manual Actuation Device Cover Installed		
Verify Water Pressure (Table 1)		
Verify Max Water Static Pressure (125 PSI)		
Verify Constant Surfactant Injection		
Verify Appliance System Activates		
All Gas and Electric Appliances Shut Down		
Fire System Activated Light Illuminates		
Audible Alarm Sounds		
Verify Reset Button Works Correctly		
System Activates on Battery Backup		
Verify Surfactant Tank is Full		
Verify Appliance System Test Switch is in Armed Mode		
Reset Remote Manual Actuation Device (push/pull station)		

CORE Protection System Reset Checklist

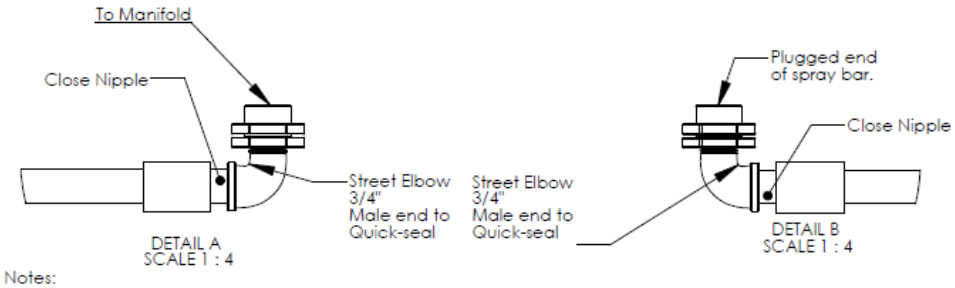
Action	Completed (Yes/No)	Result
Ensure Fire is Extinguished		
Reset Remote Manual Actuation Device (if pushed)		
Press The CORE Reset Button		
Verify Surfactant Tank is Full		
Verify Appliance System Test Switch is in Armed Mode		
Inspect or replace All Appliance Nozzles After a Fire		
Inspect All Piping Connections After a Fire		
Inspect All Hood Lights After a Fire		
Inspect All Wiring and Hood Insulation After a Fire		

Component Description

The following section lists the major controls and components used in the Self Cleaning hood and the CORE Protection fire system.

Self Cleaning Spray Bar/CORE Duct and Plenum Coverage

The Self Cleaning hood contains a spray bar that extends the entire length of the hood immediately behind the filters in the hood. The bar is ¾" brass fittings with nozzles that spray directly toward the back of the hood. The same spray bar is used in hot water wash, cold water mist and CORE Protection fire systems. Water enters the spray bar through a ¾" quick-seal. The other end of the spray bar is plugged. If hoods are installed back-to-back or end-to-end, the plugged end of the spray bar can be un-plugged and connected to the next spray bar. See Figure 5 below for details.



Notes:

1. All fittings and pipe will be Brass.
2. Sections of pipe and tees can be pre-assembled for use. The majority of the length will use these parts.
3. Ends will be made using a Street elbow inside a quick-seal. See Detail A and B.
4. The Variable length section of pipe will be used to complete the spray assembly.
5. On hoods 10' and longer, a tee will be installed at the center of the spray bar for support. This will be a 3/4" Tee with a plugged quick-seal. If this interferes with riser, move supports to both sides of riser.
6. Riser plumbing will be 1/4" NPT Brass. The placement of the elbow is dependant on the riser location. The nozzle needs be centered, both vertically and horizontally, within the riser. Riser nozzle must follow table to right. Maintain 13" nozzle spacing.
7. When riser nozzle is located directly under center of riser on spray bar, main elbow must point upwards.
8. Omit plenum nozzle on riser nozzle branch.

Nozzles for CORE Protection (WC)			
Description	Part Number	A/X	Flow Rate
Riser Nozzle	1/4TT+TP1530+CP1325	A0002784	2.6 GPM @ 30 PSI
Spray Bar Nozzle	1/4TT+TG-4.3W	A0025166	.70 GPM @ 30 PSI

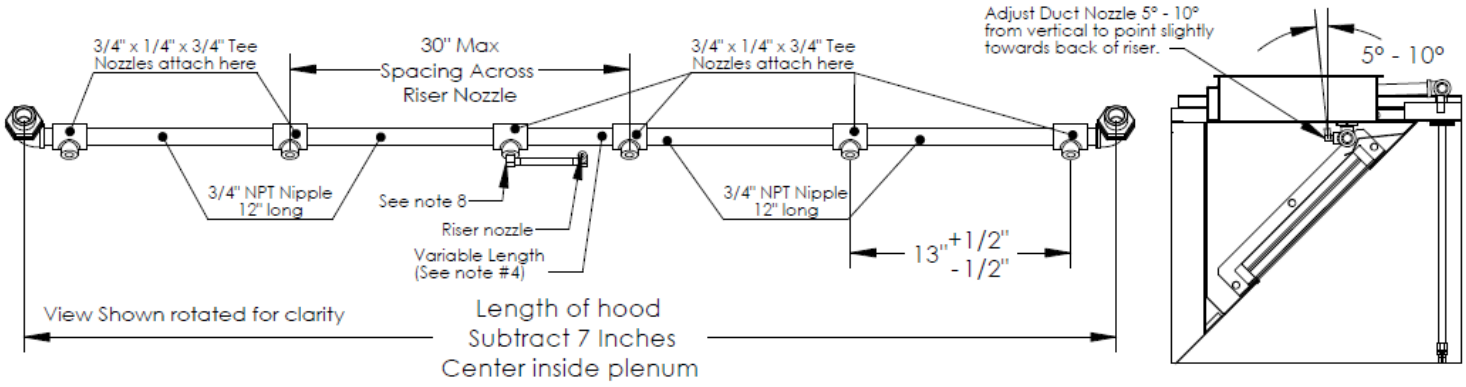


Figure 5

Water Manifolds

The Self Cleaning with CORE Protection fire system has one hot water connection and one supervised water source connection for CORE. Figures 6-8 show self-cleaning hood and CORE Protection manifold component details.

Self Cleaning with CORE Total Flood Protection

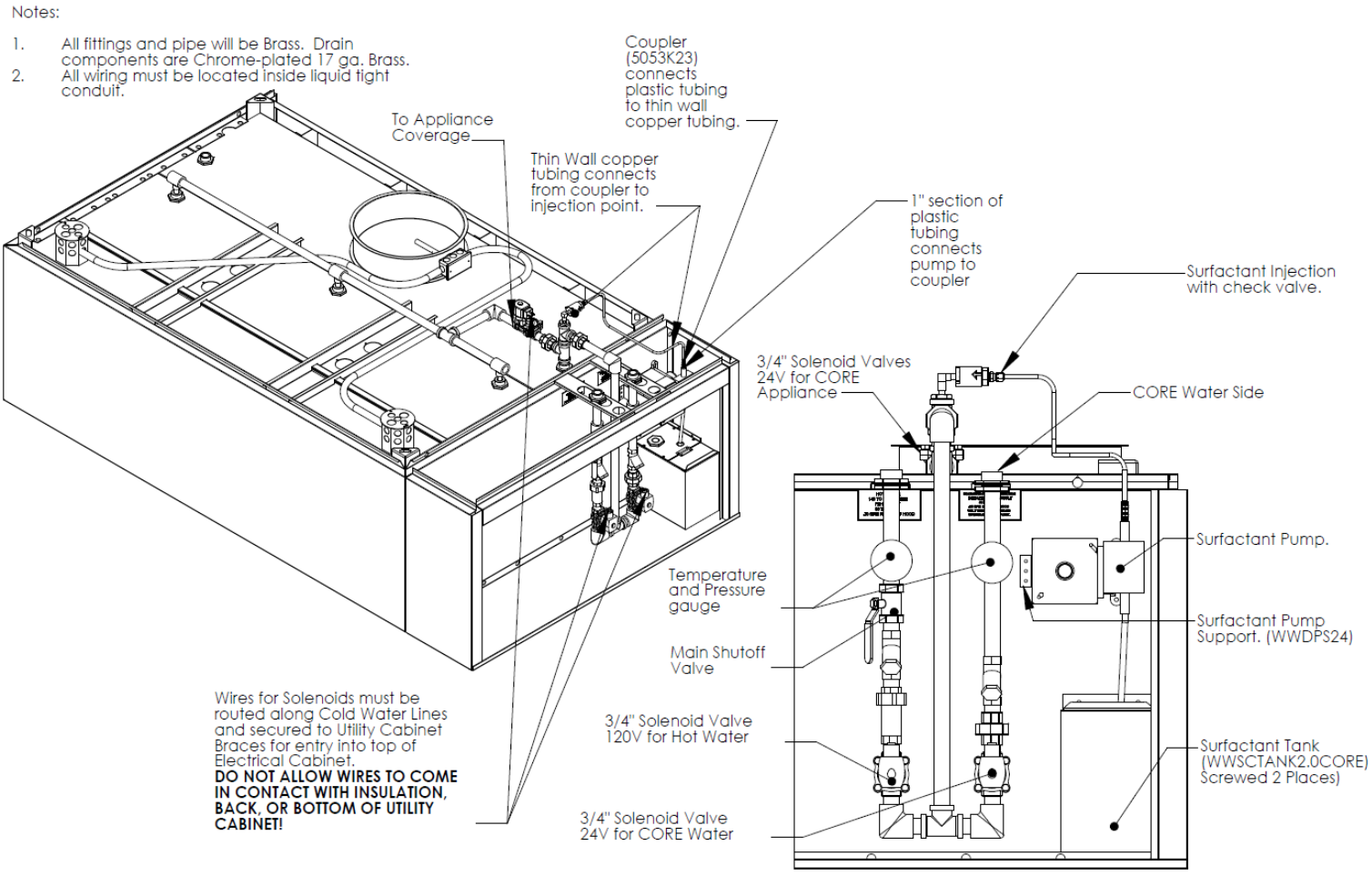


Figure 6

3/4" Self Cleaning with CORE Total Flood Protection Manifold Detail

Notes:

1. All fittings and pipe will be Brass. Drain components are Chrome-plated 17 ga. Brass.
2. Length and width of manifold must match measurements listed on this page.
3. All pipe nipples are close unless otherwise noted.
4. For 30" tall hoods, plumbing must be lengthened in three places by 5-1/2". This is noted below with an *.
5. Valves can be rotated for best fit inside cabinet
6. Thin wall copper tubing to be run to the coupling near the pump to #17. 1" of plastic tubing is used between coupler and pump.
7. Do not use Pipe Dope on union mating surfaces as this can cause leaks.
8. Optional Slow-Close Solenoid Part # SC8221G005-120VAC may be used an an alternative.
9. Optional Slow-Close Solenoid Part # SC8221G005-24DC may be used an an alternative
10. Slow-Close Soldenoids can NOT be used as an Appliance Solenoid in this location

Manifold Parts					
#	Description	Part #		Macola #	Quantity Used
		24" Tall Hoods	30" Tall Hoods		
1	3/4" Close Brass Nipple	4568K191		4568K191	15
2	3/4" x 24" Brass Nipple	4568K56	BRMP-29-1/2	VARIES	1
3	3/4" x 4 1/2" Brass Nipple	4568K335	4568K515	VARIES	1
4	3/4" Brass Elbow	4429K164		4429K164	2
5	3/4" Brass Tee	4429K254		4429K254	3
6	3/4" x 1/2" x 3/4" Brass Tee	BRF205IG		A0007789	2
7	3/4" Brass Union	4429K215		4429K215	4
8	3/4" Brass Wye Strainer	43935K24		43935K24	2
9	3/4" Brass Solenoid Valve, 120V	SC8210G009-120/60,110/50		AQ3105	1
10	3/4" Manual Ball Valve	47865K24		47865K24	1
11	3/4" To 1/4" Brass Bushing	AQ2564		A0007016	1
12	3/4" Quick Seal	172		372	2
13	3/4" Backflow Preventer	LF7RU22		A0025518	1
14	Temperature and Pressure gauge	DPTG3-2-1/2		AQ2516	2
15	1/4" Close Brass Nipple	4568K131		4568K131	2
16	1/4" Check Valve	47715K21		47715K21	1
17	1/4" to Copper tubing adapter	5220K65		5220K65	1
	1/4" Thin Wall Copper tubing				1
	1/4" Tube Coupler	5053K23		5053K23	1
18	3/4" x 5" Brass Nipple	4568K198		A0019014	1
19	3/4" Brass Solenoid Valve, 24V	SC8210G003-24DC		AQ3205	2
20	Solenoid Connection Cable 120V	5J684-551-US0A		AQ3602	1
21	Solenoid Connection Cable 24V	5J684-251-US0A		AQ3603	2
22	1/4" Brass Elbow	AQ2509		AQ2509	1
23	3/4" x 6" Brass Nipple	4568K211		4568K211	1
	CORE Appliance Manual				1

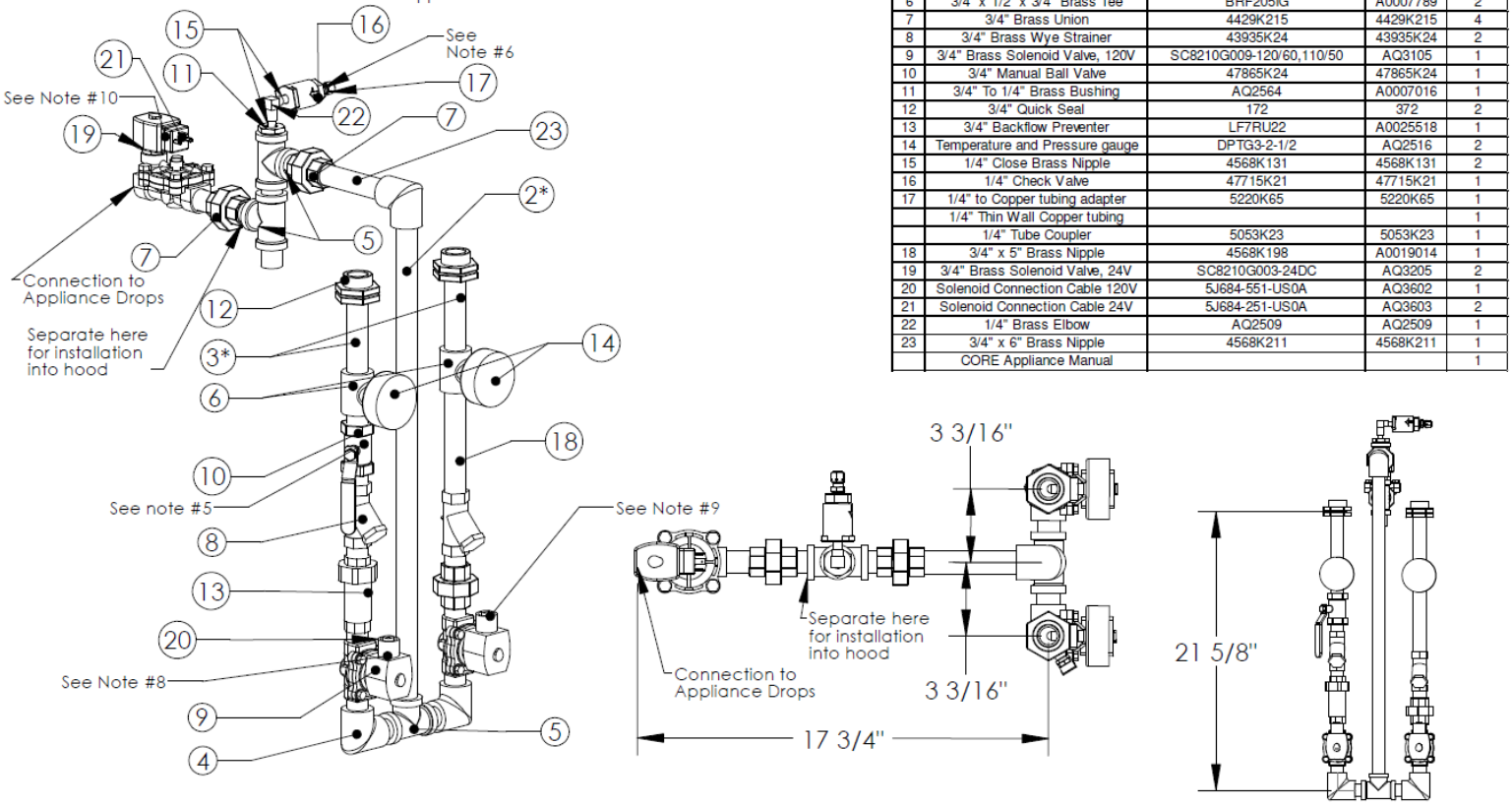


Figure 7

Self Cleaning with CORE Total Flood Protection and Monitored Ball Valve Detail

1. All fittings and pipe will be Brass. Drain components are Chrome-plated 17 ga. Brass.
2. Length and width of manifold must match measurements listed on this page.
3. All pipe nipples are close unless otherwise noted.
4. For 30" tall hoods, plumbing must be lengthened in three places by 5-1/2". This is noted below with an *.
5. Valves can be rotated for best fit inside cabinet
6. Thin wall copper tubing to be run to the coupling near the pump to #17. 1" of plastic tubing is used between coupler and pump.
7. Do not use Pipe Dope on union mating surfaces as this can cause leaks.
8. Optional Slow-Close Solenoid Part # SC8221G005-120VAC may be used an an alternative.
9. Optional Slow-Close Solenoid Part # SC8221G005-24DC may be used an an alternative.
10. Slow-Close Soldenoids can NOT be used as an Appliance Solenoid in this location.

Manifold Parts

#	Description	Part #		Macola #	Quantity Used
		24" Tall Hoods	30" Tall Hoods		
1	3/4" Close Brass Nipple	4568K191		4568K191	15
2	3/4" x 24" Brass Nipple	4568K56	BRMP-29-1/2	VARIES	1
3	3/4" x 4 1/2" Brass Nipple	4568K335	4568K515	VARIES	1
4	3/4" Brass Elbow	4429K164		4429K164	3
5	3/4" Brass Tee	4429K254		4429K254	3
6	3/4" x 1/2" x 3/4" Brass Tee	BRF205IG		A0007789	2
7	3/4" Brass Union	4429K215		4429K215	4
8	3/4" Brass Wye Strainer	43935K24		43935K24	2
9	3/4" Brass Solenoid Valve, 120V	SC8210G009-120/60,110/50		AQ3105	1
10	3/4" Manual Ball Valve	47865K24		47865K24	2
11	3/4" To 1/4" Brass Bushing	AQ2564		A0007016	1
12	3/4" Quick Seal	172		372	2
13	3/4" Backflow Preventer	LF7RU22		A0025518	1
14	Temperature and Pressure gauge	DPTG3-2-1/2		AQ2516	2
15	1/4" Close Brass Nipple	4568K131		4568K131	2
16	1/4" Check Valve	47715K21		47715K21	1
17	1/4" to Copper tubing adapter	5220K65		5220K65	1
	1/4" Thin Wall Copper tubing				1
	1/4" Tube Coupler	5053K23		5053K23	1
18	3/4" x 2 1/2" Brass Nipple	4568K193		4568K193	1
19	3/4" Brass Solenoid Valve, 24V	SC8210G003-24DC		AQ3205	2
20	Solenoid Connection Cable 120V	5J684-551-US0A		AQ3602	1
21	Solenoid Connection Cable 24V	5J684-251-US0A		AQ3603	2
22	1/4" Brass Elbow	AQ2509		AQ2509	1
23	Potter Ball Valve Monitoring Switch	PL-RVBS		4568K211	1
24	3/4" x 6" Brass Nipple	4568K211		4568K211	1
	CORE Appliance Manual				

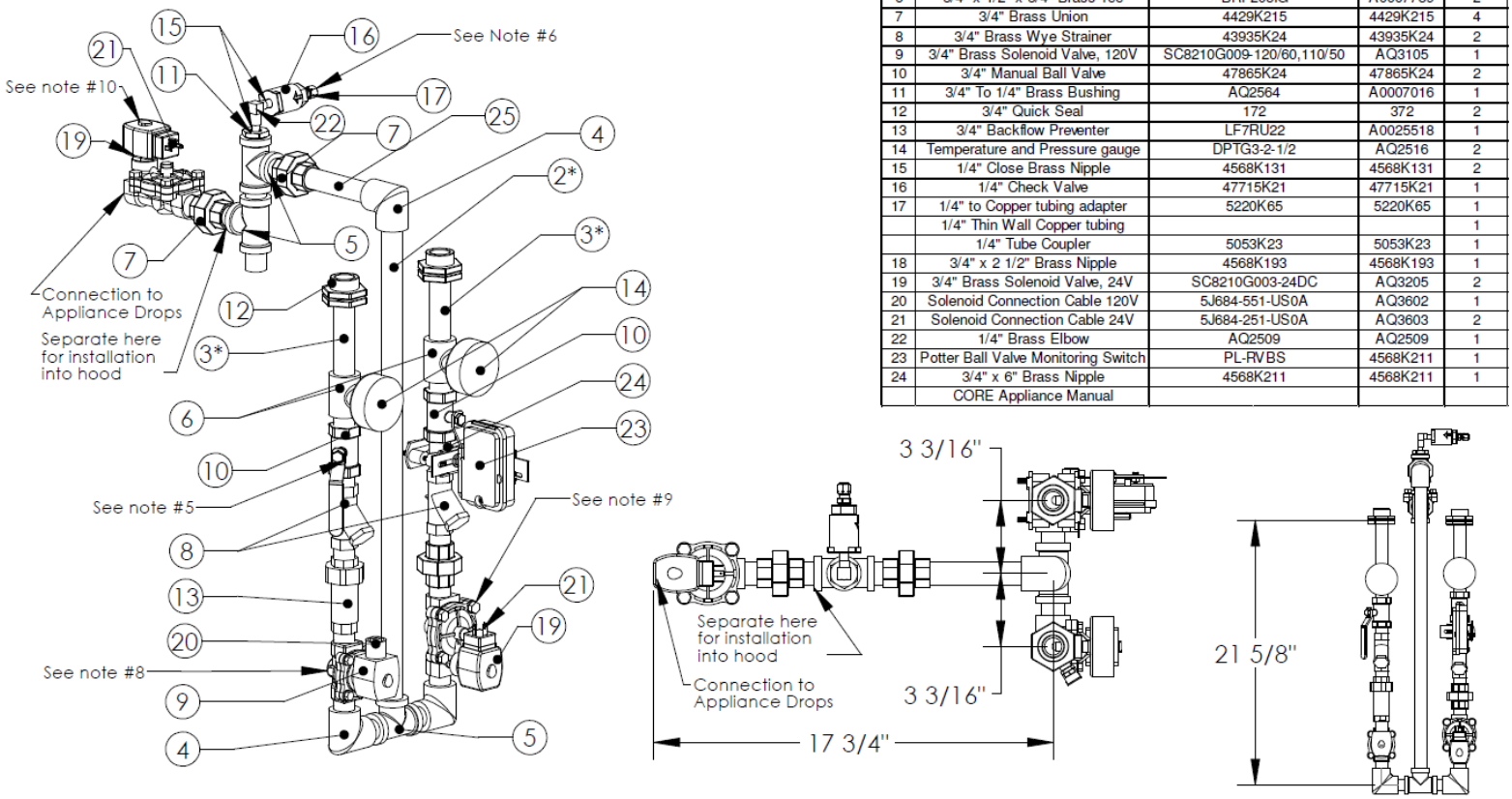


Figure 8

1” Self Cleaning with CORE Total Flood Protection Manifold Detail

Notes:

1. All fittings and pipe will be Brass. Drain components are Chrome-plated 17 ga. Brass.
2. Length and width of manifold must match measurements listed on this page.
3. All pipe nipples are close unless otherwise noted.
4. For 30" tall hoods, plumbing must be lengthened in three places by 2 1/2". This is noted below with an *.
5. Valves can be rotated for best fit inside cabinet
6. Thin wall copper tubing to be run to the coupling near the pump to #22. 1" of plastic tubing is used between coupler and pump.
7. Do not use Pipe Dope on union mating surfaces as this can cause leaks.
8. Optional Slow-Close Solenoid Part # SC8221G007-120VAC may be used an an alternative.
9. Optional Slow-Close Solenoid Part # SC8221G007-24DC may be used an an alternative.
10. Slow-Close Solenoids can NOT be used as an Appliance Solenoid in this location.

Manifold Parts					
#	Description	Part #		Macola #	Quantity Used
		24" Tall Hoods	30" Tall Hoods		
1	1" Close Brass Nipple	AQ2522		AQ2522	15
2	1" x 24" Brass Nipple	4512K57	4512K51	VARIES	1
3	1" x 2" Brass Nipple	4568K222		A0026977	2
4	1" x 6" Brass Nipple	4568K231	4568K716	VARIES	1
5	1" x 7" Brass Nipple	4568K376		A0026978	2
6	1" Brass Elbow	4429K165		A0014022	4
7	1" Brass Tee	AQ2578		AQ2578	1
8	1" x 1/2" x 1" Brass Tee	4429K236		A0026973	2
9	1" x 3/4" x 1" Brass Tee	4429K238		A0024232	1
10	1" x 1" x 3/4" Brass Tee	4429K241		A0026976	1
11	3/4" x 1" x 3/4" Brass Tee	4429K234		A0026975	1
12	1" Brass Union	BR106A		A0007774	3
13	1" Brass Wye Strainer	43935K25		A0026974	2
14	1" Brass Solenoid Valve, 120V	SC8210G004-120VAC		A0017119	1
15	1" Manual Ball Valve	MBV-1.0NN (EC)		10406	1
16	3/4" To 1/4" Brass Bushing	AQ2564		AQ2564	1
17	1" Quick Seal	213		A0003378	2
18	1" Backflow Preventer	LF7RU2-2		A0026338	1
19	Temperature and Pressure gauge	DPTG3-2-1/2		AQ2516	2
20	1/4" Close Brass Nipple	4568K131		4568K131	2
21	1/4" Check Valve	47715K21		47715K21	1
22	1/4" to Copper tubing adapter	5220K65		5220K65	1
	1/4" Thin Wall Copper tubing				1
	1/4" Tube Coupler	5053K23		5053K23	1
23	1" Brass Solenoid Valve, 24V	SC8210G004-24DC		A0019960	2
24	Solenoid Connection Cable 120V	5J684-551-US0A		AQ3602	1
25	Solenoid Connection Cable 24V	5J684-251-US0A		AQ3603	2
	CORE Appliance Manual				1

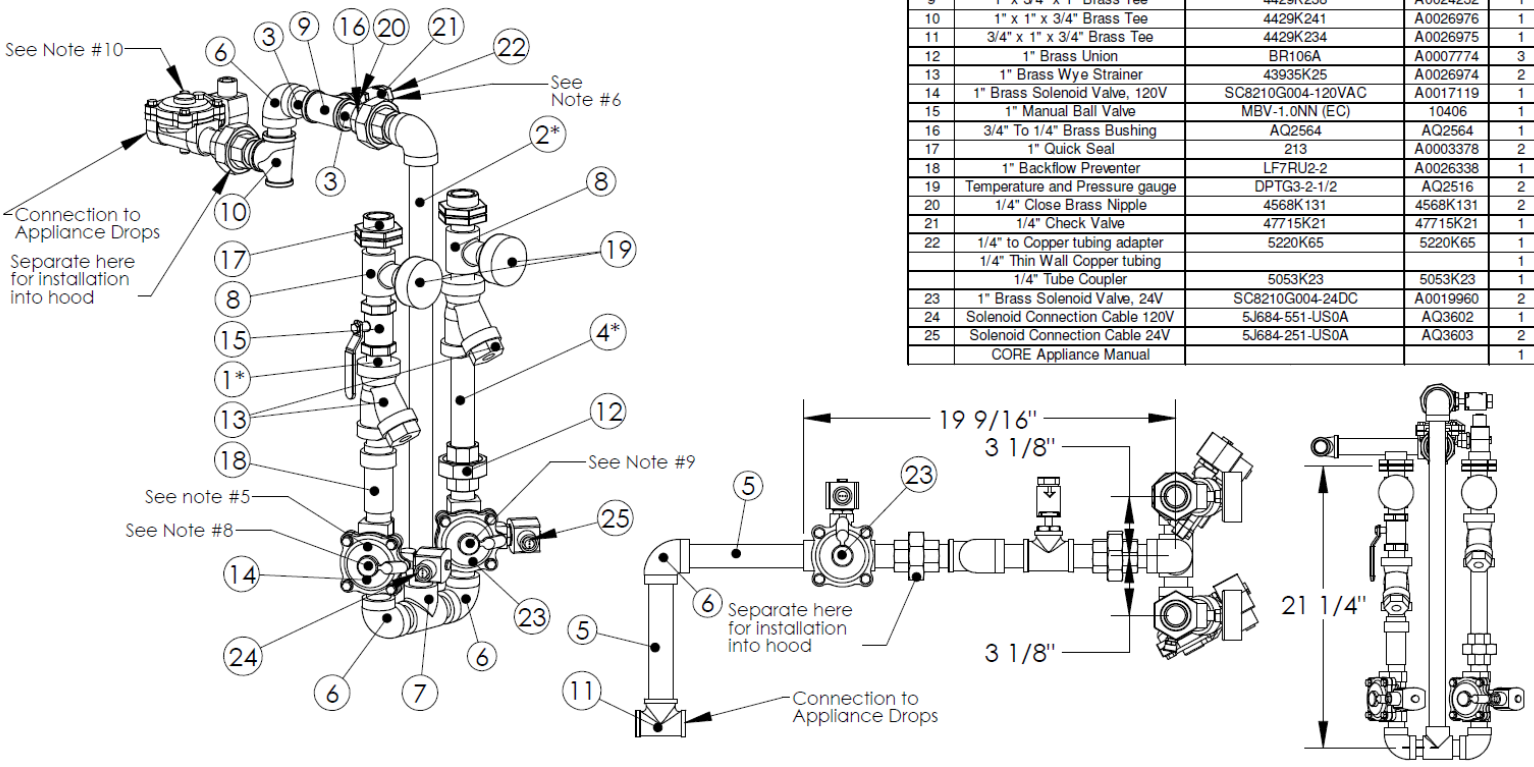


Figure 9

1-1/2” Self Cleaning with CORE Total Flood Protection Manifold Detail

Notes:

1. All fittings and pipe will be Brass. Drain components are Chrome-plated 17 ga. Brass.
2. Length and width of manifold must match measurements listed on this page.
3. All pipe nipples are close unless otherwise noted.
4. Valves can be rotated for best fit inside cabinet
5. Thin wall copper tubing to be run to the coupling near the pump to #22. 1" of plastic tubing is used between coupler and pump.
6. Do not use Pipe Dope on union mating surfaces as this can cause leaks.
7. Optional Slow-Close Solenoid Part # SC8221G011-120VAC may be used an an alternative.
8. Optional Slow-Close Solenoid Part # SC8221G011-24DC may be used an an alternative.
9. Slow-Close Solenoids can NOT be used as an Appliance Solenoid in this location.

Manifold Parts				
#	Description	Part #	Macola #	Quantity Used
1	1-1/2" Close Brass Nipple	AQ2520	A0007003	15
2	1-1/2" x 31" Brass Nipple	4512K71	4512K71	1
3	1-1/2" x 1" Brass Reducing Elbow	4429K175	4429K175	1
4	1-1/2" x 6" Brass Nipple	4568K271	A0021199	1
5	1" x 7" Brass Nipple	4568K376	A0026978	1
6	1-1/2" Brass Elbow	AQ2502	A0006996	4
7	1-1/2" Brass Tee	4429K257	A0021582	1
8	1-1/2" x 1/2" x 1-1/2" Brass Tee	4429K384	4429K384	2
9	1" x 3/4" x 1" Brass Tee	4429K238	A0024232	1
10	1-1/2" x 1-1/2" x 3/4" Brass Tee	4429K386	4429K386	1
11	3/4" x 1" x 3/4" Brass Tee	4429K234	A0026975	1
12	1-1/2" Brass Union	1BR125UJ	A0023262	3
13	1-1/2" Brass Wye Strainer	43935K27	43935K27	2
14	1-1/2" Brass Solenoid Valve, 120V	SC8210G022-120VAC	A0017120	1
15	1-1/2" Gauge Port Ball Valve	4085T25	A0027373	1
16	3/4" To 1/4" Brass Bushing	AQ2564	AQ2564	1
17	1-1/2" Quick Seal	HMU375	376	2
18	1-1/2" Backflow Preventer	LF07S	A0027372	1
19	Temperature and Pressure gauge	DPTG3-2-1/2	AQ2516	2
20	1/4" Close Brass Nipple	4568K131	4568K131	2
21	1/4" Check Valve	47715K21	47715K21	1
22	1/4" to Copper tubing adapter	5220K65	5220K65	1
	1/4" Thin Wall Copper tubing			1
	1/4" Tube Coupler	5053K23	5053K23	1
23	1-1/2" Brass Solenoid Valve, 24V	SC8210G022-24DC	A0019960	2
24	Solenoid Connection Cable 120V	5J684-551-US0A	AQ3602	1
25	Solenoid Connection Cable 24V	5J684-251-US0A	AQ3603	2
	CORE Appliance Manual			1

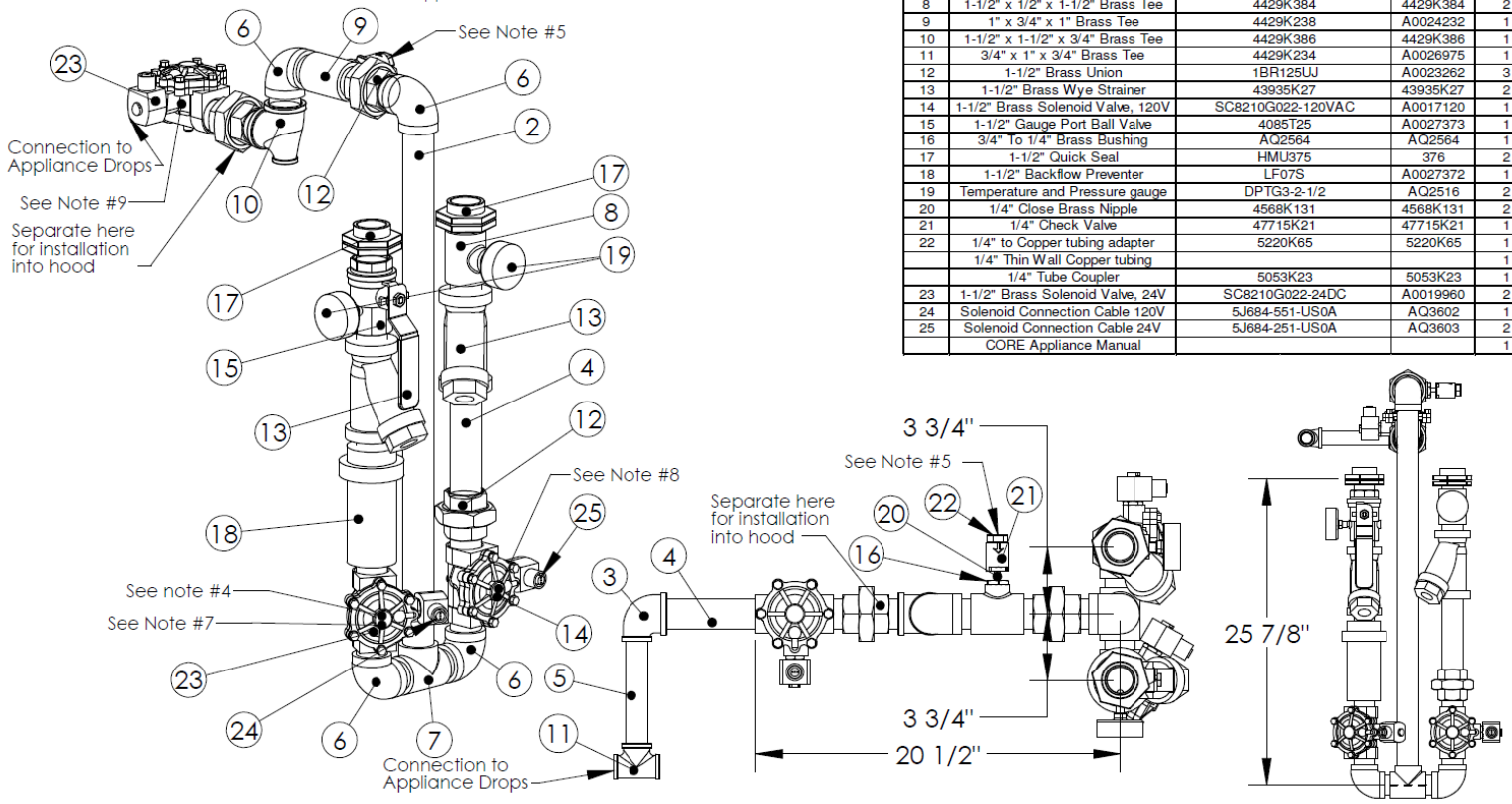


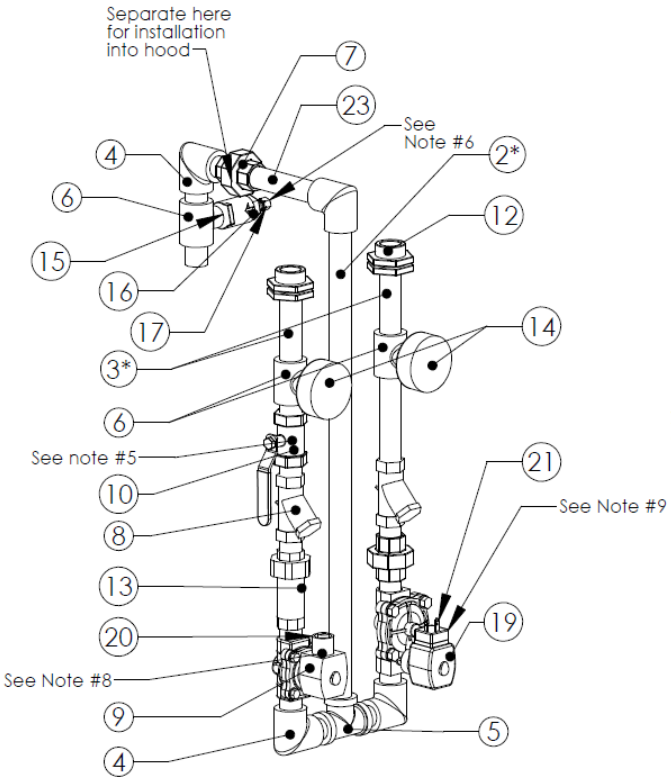
Figure 10

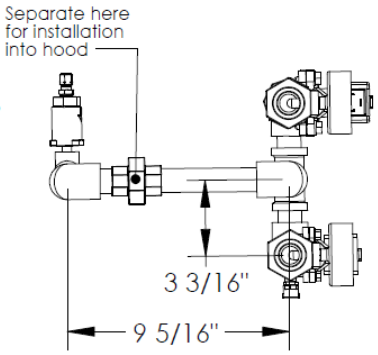
CORE Duct and Plenum Protection Detail

Notes:

1. All fittings and pipe will be Brass. Drain components are Chrome-plated 17 ga. Brass.
2. Length and width of manifold must match measurements listed on this page.
3. All pipe nipples are close unless otherwise noted.
4. For 30" tall hoods, plumbing must be lengthened in three places by 5-1/2". This is noted below with an *.
5. Valves can be rotated for best fit inside cabinet
6. Thin wall copper tubing to be run to the coupling near the pump to #17. 1" of plastic tubing is used between coupler and pump.
7. Do not use Pipe Dope on union mating surfaces as this can cause leaks.
8. Optional Slow-Close Solenoid Part # SC8221G005-120VAC may be used an an alternative.
9. Optional Slow-Close Solenoid Part # SC8221G005-24DC may be used an an alternative

Manifold Parts					
#	Description	Part #		Macola #	Quantity Used
		24" Tall Hoods	30" Tall Hoods		
1	3/4" Close Brass Nipple	4568K191		4568K191	15
2	3/4" x 24" Brass Nipple	4568K56	BRMP-29-1/2	VARIES	1
3	3/4" x 4 1/2" Brass Nipple	4568K335	4568K515	VARIES	2
4	3/4" Brass Elbow	4429K164		4429K164	4
5	3/4" Brass Tee	4429K254		4429K254	1
6	3/4" x 1/2" x 3/4" Brass Tee	BRF205IG		A0007789	3
7	3/4" Brass Union	4429K215		4429K215	4
8	3/4" Brass Wye Strainer	43935K24		43935K24	2
9	3/4" Brass Solenoid Valve, 120V	SC8210G009-120/60,110/50		AQ3105	1
10	3/4" Manual Ball Valve	47865K24		47865K24	1
11	3/4" To 1/4" Brass Bushing	AQ2564		A0007016	1
12	3/4" Quick Seal	172		372	2
13	3/4" Backflow Preventer	LF7RU22		A0025518	1
14	Temperature and Pressure gauge	DPTG3-2-1/2		AQ2516	2
15	1/4" Close Brass Nipple	4568K131		4568K131	2
16	1/4" Check Valve	47715K21		47715K21	1
17	1/4" to Copper tubing adapter	5220K65		5220K65	1
	1/4" Thin Wall Copper tubing				1
	1/4" Tube Coupler	5053K23		5053K23	1
18	3/4" x 5" Brass Nipple	4568K198		A0019014	1
19	3/4" Brass Solenoid Valve, 24V	SC8210G003-24DC		AQ3205	1
20	Solenoid Connection Cable 120V	5J684-551-US0A		AQ3602	1
21	Solenoid Connection Cable 24V	5J684-251-US0A		AQ3603	1
22	1/4" Brass Elbow	AQ2509		AQ2509	1
23	3/4" x 6" Brass Nipple	4568K211		4568K211	1
	CORE Appliance Manual				1





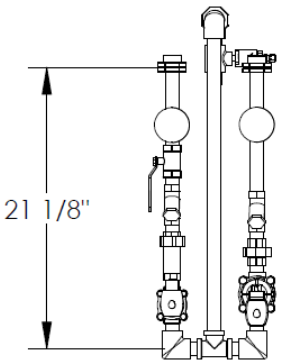
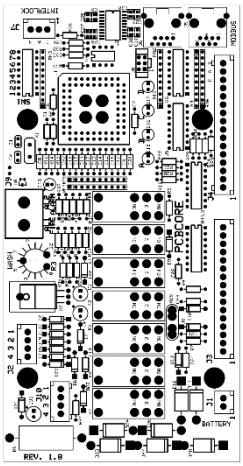


Figure 11

CORE Protection Fire System Printed circuit board



The CORE Fire System printed circuit board is a microprocessor based control that provides all the necessary monitoring, timing and supervision functions required for the reliable operation of the CORE Protection Fire System. Under normal conditions the "Fire System Activated" light is flashing one brief flash every 3 seconds, indicating the CORE system is armed and ready. If a fault is detected anywhere in the CORE system the audible alarm will periodically sound and the "Fire System Activated" light will flash a fault code to indicate the fault that was detected. This fault code consists of a series of flashes followed by a pause. Simply count the number of flashes between the pauses and refer to the chart below to find the cause of the fault. Any fault is extremely important and must be dealt with and rectified immediately to insure continued CORE protection.

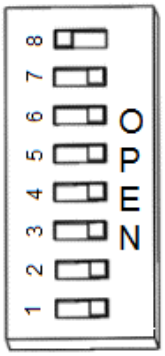
The connections for building fire panels are located at AL1 and AL2 as dry contacts.

For remote mounted Ansul Automans, Use terminals AU1 and AU2. This will provide a dry contact connection point to provide power for activating the Ansul Automan.

Catastrophic faults for CORE Total Flood Protection		
Number of flashes	**Fault condition**	**Corrective Action**
2	Main CORE water solenoid	Check solenoid and wiring to solenoid, replace as needed
3	CORE Appliance solenoid	Check solenoid and wiring to solenoid, replace as needed
4	Auxiliary Fault	Check supervised Pressure Regulating Valves (optional) and Pressure Switches (optional).
5	Microcontroller fault	Replace CORE printed circuit board
Critical faults		
Number of flashes	**Fault condition**	**Corrective Action**
6	CORE surfactant pump	Check surfactant pump motor and wiring to the motor, replace as needed
7	Supervised Loop	Check the wiring to all the manual actuation devices and fire sensors for loose connections, replace as needed
Important faults		
Number of flashes	**Fault condition**	**Corrective Action**
8	Ground Fault	Check the wiring to all the manual actuation devices and fire sensors for shorts to ground, replace as needed
9	Surfactant Low	Add surfactant, check/replace float switch
10	Battery voltage low	Replace batteries, wait for batteries to recharge if there was a power failure
11	AC power failure	Check breakers, call power company
12	Door tamper switch	Close cabinet door
13	CORE Total Flood Test mode	Place switch in armed position when testing is complete.
14	CORE Interlock	Check Dip Switches on all Boards and RS-485 Network Wires connecting boards
15	Fault on hood in network	Check all hoods in CORE network for faults
16	Fault on PCU in network	Check all PCUs in CORE network for faults

DIP switch Settings

The switch diagram shows switches 1 through 7 in there open (OFF) positions. Switch 8 is shown in its closed (ON) position. This is the factory default and should not normally be changed.



The Table below describes each switch and its function.

<table>
<tr><th>DIP SWITCH #</th><th>Description</th></tr>
<tr><td>1 through 4</td><td>
<table>
<tr><th colspan="4">Dip Switch position</th><th></th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>Interlock Network Address of this unit</th></tr>
<tr><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>1</td></tr>
<tr><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>2</td></tr>
<tr><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>3</td></tr>
<tr><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>4</td></tr>
<tr><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>5</td></tr>
<tr><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>6</td></tr>
<tr><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>7</td></tr>
<tr><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>8</td></tr>
<tr><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>9</td></tr>
<tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>10</td></tr>
<tr><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>11</td></tr>
<tr><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>12</td></tr>
<tr><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>13</td></tr>
<tr><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>14</td></tr>
<tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>15</td></tr>
<tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>THIS UNIT IS NOT PART OF AN INTERLOCK NETWORK</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>Set this switch to ON if this unit has the highest address on the interlock network, otherwise this switch must be OFF (open)</td></tr>
<tr><td>6 and 7</td><td>Fire Group
<table>
<tr><th colspan="2">Dip Switch position</th><th></th></tr>
<tr><th>6</th><th>7</th><th>Fire group number</th></tr>
<tr><td>OFF</td><td>OFF</td><td>0</td></tr>
<tr><td>ON</td><td>OFF</td><td>1</td></tr>
<tr><td>OFF</td><td>ON</td><td>2</td></tr>
<tr><td>ON</td><td>ON</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>8</td><td>Setting switch 8 to its closed, ON position. This connects a 120 Ohm terminating resistor to the interlock network. This switch must be ON if this unit is at either physical end of the interlock network cable, otherwise is must be OFF (open).</td></tr>
</table>

- Each unit has a unique address based on the dip switch 1-4 settings, 15 units max on a network.
- If address is 0 (all switches off) the unit will not accept or send any network traffic.
- The unit that has switch 5 on will be the “master” and be in charge of polling all the units below it and waiting for a reply. The lack of 3 replies in a row will cause an “interlock network supervision fault”. All units will be polled in a burst every 3 seconds.
- For all non-master units, the lack of being polled for 10 seconds will cause an “interlock network supervision fault”
- Any unit detecting a fire condition will broadcast the notification once every second for as long as the condition persists
- When the Fire condition is cleared, 10 notifications will be sent, one every second,
- Any unit detecting a supervisory fault will broadcast the notification every 2 seconds until the condition is cleared.

- When the supervisory fault condition is cleared, 10 notifications will be sent, one every 2 seconds

Typical CORE Dip Switch Arrangement

Only One CORE Panel on the network:

CORE Board #	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
1st (Master) Hood	ON	OFF	OFF	OFF	ON	OFF	OFF	ON

Two CORE Panels on the network:

CORE Board #	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
1st (Master) Hood 1	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
2nd (Slave) Hood 2	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

Two CORE Panels on the network:

CORE Board #	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
1st (Master) Hood	OFF	ON	OFF	OFF	ON	OFF	OFF	ON
2nd (Slave) PCU	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

Three CORE Panels on the network

CORE Board #	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
1st (Master) Hood 1	ON	ON	OFF	OFF	ON	OFF	OFF	ON
2nd (Slave) Hood 2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3rd (Slave) PCU	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

Four CORE Panels on the network

CORE Board #	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8
1st (Master) Hood 1	OFF	OFF	ON	OFF	ON	OFF	OFF	ON
2nd (Slave) Hood 2	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
3rd (Slave) PCU 1	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
4th (Slave) PCU 2	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

*For additional configurations please reference CORE Board Dip Switch Table.

**The configurations above are shown with all CORE boards in the same Fire Group, and may be configured differently even if the CORE panels are on the same network. Every panel with matching fire group settings (dip switches 6 and 7) will activate simultaneously in a fire condition.

Appliance Shutdown in Fault Conditions

The Core Fire Protection System is equipped to shut down the appliances if a fault condition is present. The table below shows which fault condition affects the appliances' fuel and power sources, alarm muting, and local trouble relay.

Number Of Flashes	Fault Condition	Gas Valve Shut Down		Shut Down Shunt Trip Breaker and UDS Kill Switch		Mute Local Alarm with 4 Hour Reset	Local Trouble relay
		Local System	Networked System	Local System	Networked System		
Catastrophic Faults							
2	CORE water solenoid	X	X	X	X		X
3	CORE Appliance solenoid	X	X	X	X		X
4	Auxiliary Fault	X	X	X	X		X
5	Microcontroller fault	X	X	X	X		
Critical Faults							
6	CORE surfactant pump					X	X
7	Supervised Loop Fault	X	X	X	X		X
Important Faults							
8	Ground Fault					X	
9	Surfactant Low					X	
10	Battery voltage low					X	X
11	AC power failure	X	X	X**	X**		X
12	Door tamper switch					X	
13	Test mode	X	X	X	X		
14	CORE Interlock					X	
15	Fault on hood in network					X	
16	Fault on PCU in network					X	

Local Alarm Muting

Depressing the fire system reset button can mute the local alarm. This will disable the sounder for 4 hours under specific conditions. The table above shows which errors can be muted. It should be noted that the fault will not clear until the fault condition is corrected.

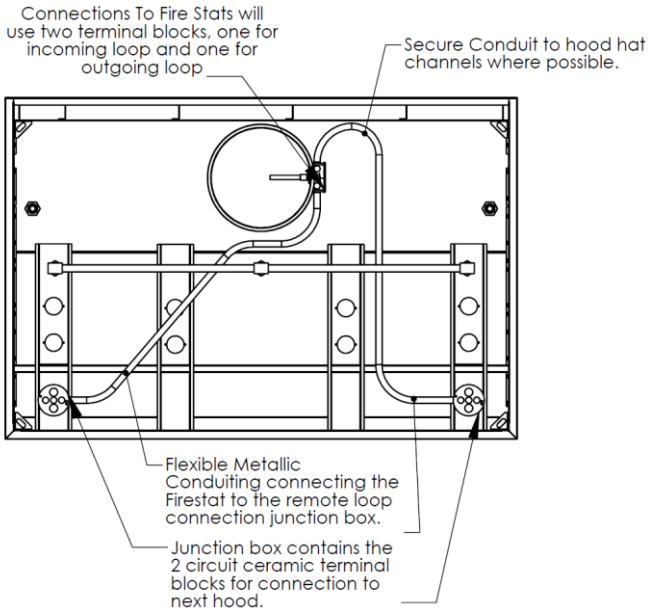
CORE Appliance Test Mode

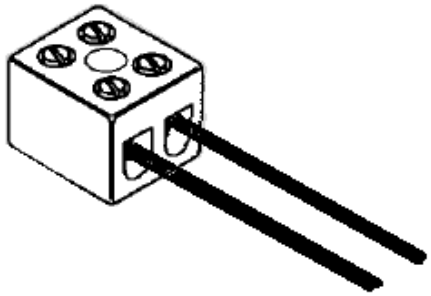
The CORE Appliance Test Mode allows the hood to be tested with operational appliances without discharging the system on the appliances. Once the appliances are started, test mode can be entered without the appliances shutting down for 15 minutes. However once the fire system is activated, the shunt trip (electric appliances) and the gas valve will be locked out until test mode is deactivated.

**During AC power failure, all gas appliances will be shut down. Electrical appliances will shut down on building power loss.

CORE Protection Supervised Loops

The supervised loops are integral to proper operation and activation of the CORE protection system. All CORE protection systems have two supervised loops; each loop consists of two conductors, one positive and one negative. One loop is dedicated to all sensors; while the other is dedicated to all manual actuation devices (push/pull stations). The supervised loop connections are located at the front edge of the hoods for accessibility. Connections beyond the hood, like the connections at the manual actuation device, must be made with a plenum rated wire. It is recommended to use a two conductor Belden 6320UL, 18 AWG, wire or similar for these connections.





For connections on or above the hood, use Type MG or MGT wiring with High Temperature Terminal junction blocks. A Supervised Loop Connection kit is available to connect back to back or end to end hoods. This kit will come with the necessary hardware and wire.

Supervised Loop Connection Kit Part Number	Length	Location Used
SLPCON-03	3 Feet	End to End Hoods
SLPCON-05	5 Feet	End to End Hoods
SLPCON-10	10 Feet	End to End and Back to Back Hoods
SLPCON-15	15 Feet	End to End and Back to Back Hoods
SLPCON-20	20 Feet	End to End and Back to Back Hoods

High Temperature Supervised Loop Components	Part Number
Type MG Wire, White, 16 AWG	441601C6.FE0
Type MG Wire, Black, 16 AWG	441601C6.FE9
Two Conductor High Temp Terminal Block	20M4174

CORE Protection Firestat

The Firestat is a device installed in the hood's duct connection that measures temperature. The standard temperature setting is 360°F. Other temperatures are available. If a temperature higher than the set point is sensed, the Firestat contacts will close and energize the fire system. The fire system will run for a minimum of 30 minutes and then recheck the temperature. If the temperature is still higher than the set point, the process restarts immediately.

The Firestat has 2 black wires and 2 white wires, which must be connected into the supervised loop. Use high temperature wiring when installing Firestat components. High temperature wirenuts or terminal blocks must be used. There must be one sensor installed for every 12 feet of hood. Multiple sensors are wired in parallel in the supervised loop. The firestat may be installed on the opposite side of the quick seal for access in the duct. See Figure 11.1 below for details.

Solid Fuel Appliances produce sparks that can travel into ductwork. These appliances require SOLO filters and an additional Firestat at the duct discharge near the fan if the ductwork exceeds 10 feet in length or contains horizontal duct runs. Indicate on ductwork drawing where Firestat is to be installed with quick seal.

An access door should be available to install, clean, and replace Firestat when needed.

A Firestat must be installed at 50 Feet intervals when the duct length exceeds 50 Feet.

NOTES: One Sensor per Riser
: Multiple Sensors Wired in Parallel
: Wire Both Black Wires to One Lead, Both White Wires to Second Lead
: Sensor may be installed on inside or outside of quick seal. When installed in riser, install as shown for sensor access from hood. When installed in duct, install on opposite side of quick seal, or as shown with access door for cleanability.

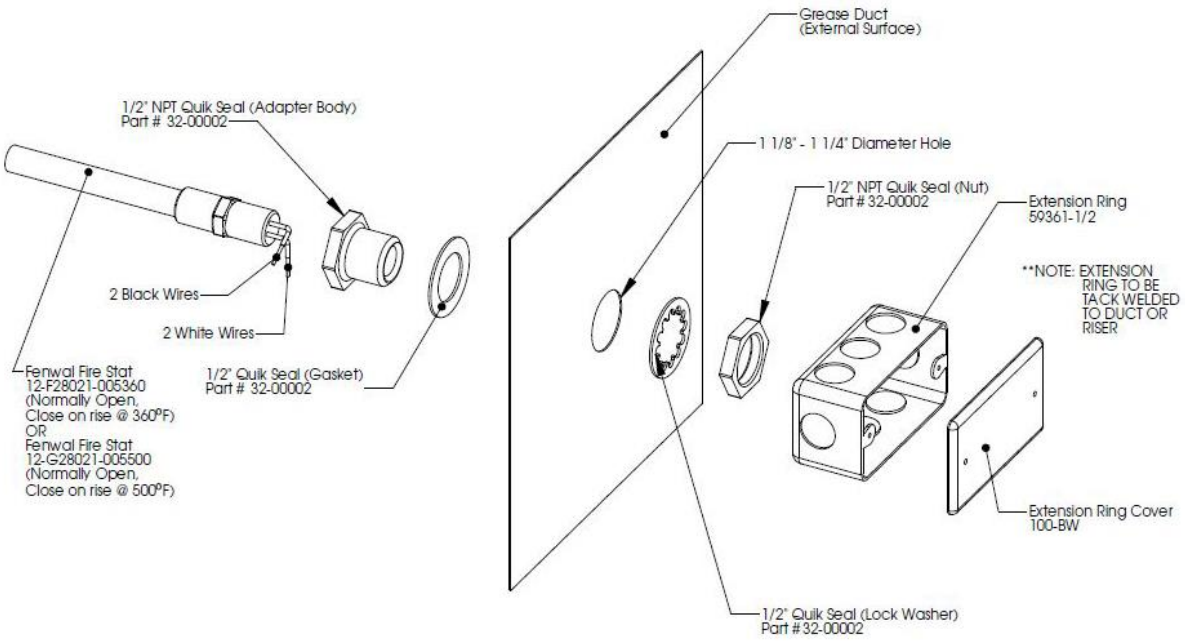
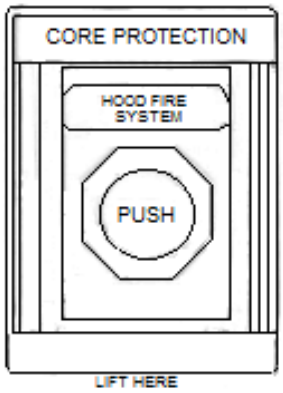


Figure 11.1

CORE Protection Manual Actuation Device

The push/pull station is a remote manual actuation device to activate the fire system. This remote manual actuation device (push/pull station) contains one set of normally open contacts, and mounts to any standard junction box. When the front button is pressed, the electrical connection to the fire system is completed, thus activating the fire system.



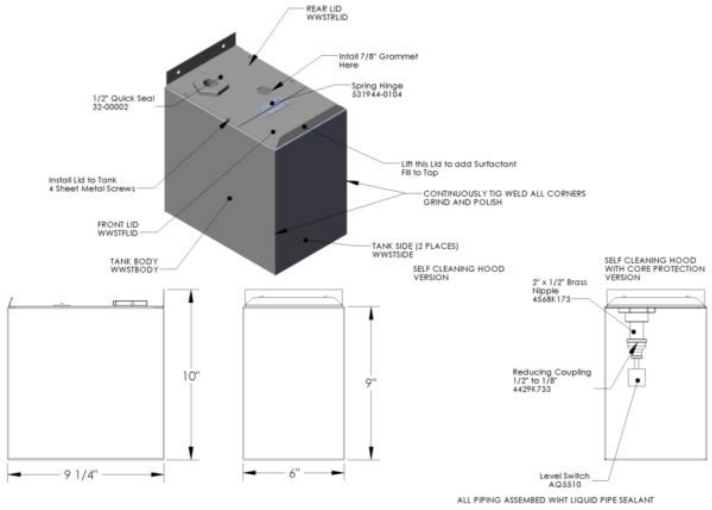
The remote manual actuation device (push/pull station) should be mounted at a point of egress and positioned at a height determined by the authority having jurisdiction (AHJ). This position is usually 10 to 20 feet from hood and 42 to 48 inches above the floor. Multiple remote manual actuation devices (push/pull stations) are acceptable to use in the CORE system and are wired in parallel per the electrical schematic. The remote manual actuation device (push/pull station) is reset by twisting the push button clockwise until the internal latch is released.

The clear protective cover must be installed to protect the device from accidental activations. This cover is provided as part of the manual actuation device. Below are the part numbers for the devices and replacement parts.

Part Description	Part Number
Push Button with Clear Cover	STI-SS2431
Push Button with Clear Cover and Horn	STI-SS2441
Replacement Clear Cover	STI-COVER
Blue Extension for Surface Mounted Push Stations	STI-6531B
Normally Open Contact	STI-10196
Normally Closed Contact	STI-10198
Contact Housing Assembly	SF-10197H

Surfactant Tank

The surfactant tank used on the CORE protection system has a capacity of 2 gallons. The tank contains a low surfactant switch to retain 1 gallon for CORE protection, by disabling injection during the self cleaning cycle. In the event of a fire, surfactant is continuously injected into the water spray to help suppress the fire. One gallon of surfactant will last for approximately 15 minutes of fire protection. In the event that the low level sensor is activated, an “Add Surfactant” light will illuminate on the control panel. To reset light, simply fill the surfactant tank with surfactant. Figure 12 below shows tank details.



NOTE: SC-5 surfactant from 20/10 Products Incorporated must be used.

CORE Protection Waterline Supervision

The CORE Total Flood manifold is listed for use with water pressures up to and including 70psi (operating pressure) and 125psi (static pressure). When the inlet connection to the manifold exceeds the max listed pressures, a pressure reducing valve water pressure regulator must be installed. The pressure reducing valve is capable of reducing the wet pipe sprinkler line supply pressure and flow rate down to the CORE control package requirements. Since the valve is capable of shutting down the water flow, it must be monitored to ensure the valve is open. The pressure reducing valve is an Elkhart Brass UR series and is supervised by a Potter PCVS2 Switch. The valve is available in 1-1/2" NPT (UR-20-Series) and in 2-1/2" NPT (URFA-Series). The pressure reducing valves are rated for use up to and including 400psi.

The Pressure Supervision Switch, part number PL is used to verify incoming water pressure.

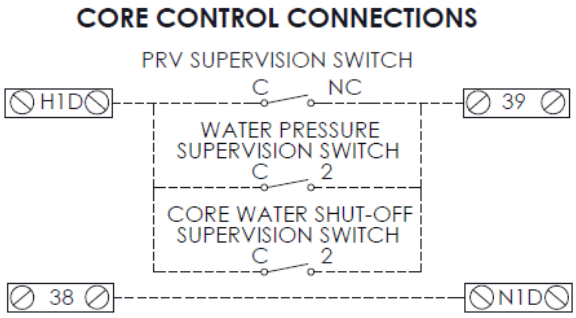
Figure 12

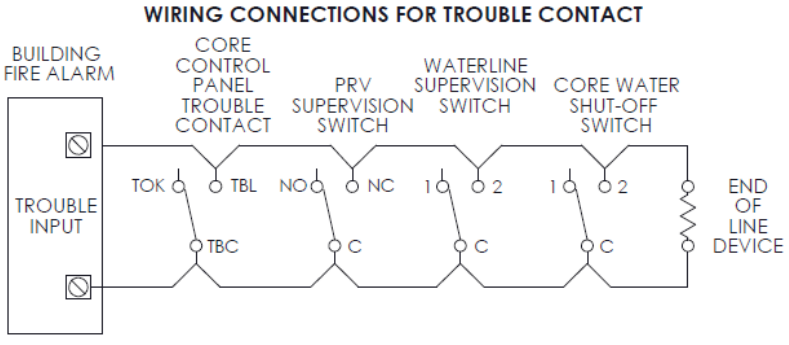
This switch is preset at 40 PSI, but is adjustable, up to 60 PSI, to account for different length hood systems. This switch should not be used if the minimum required pressure is greater than 60 psi.

COMPLETE PARTS KIT	UR-20 VALVE	OUTLET PRESSURE PERCENTAGE	SUPERVISION SWITCH	SWITCH BRACKET
UR-20-W KIT	UR-20-W	28.7%	PL-PCVS2	80574001
UR-20-X KIT	UR-20-X	33.8%	PL-PCVS2	80574001
UR-20-Z KIT	UR-20-Z	56.5%	PL-PCVS2	80574001
URFA-20-S	URFA-20	VARIABLE	INCLUDED	N/A

	UR-20 VALVE	INCOMING PRESSURE (PSI)												
		50	60	70	80	90	100	110	120	130	140	150	160	170
OUTLET PRESSURE (PSI)	UR-20-W	14.35	17.22	20.09	22.96	25.83	28.7	31.57	34.44	37.31	40.18	43.05	45.92	48.79
	UR-20-X	16.9	20.28	23.66	27.04	30.42	33.8	37.18	40.56	43.94	47.32	50.7	54.08	57.46
	UR-20-Z	28.25	33.9	39.55	45.2	50.85	56.5	62.15	67.8	73.45	79.1	84.75	90.4	96.05
	URFA-20-S	VARIABLE												

The CORE panel contains two isolated inputs for auxiliary supervision of pressure reducing valves and pressure switches. Each Supervision device above has two single pole, double throw switches. These switches may be wired in parallel to the CORE panel terminals H1D and 39. When a fault is detected, the CORE board will shut down the gas valve and shunt trip, trigger a local trouble signal, and alert all attached CORE packages. Alternatively, the switches from each device could be connected to the trouble input of the building fire alarm panel to indicate a trouble condition. Both methods are shown below.



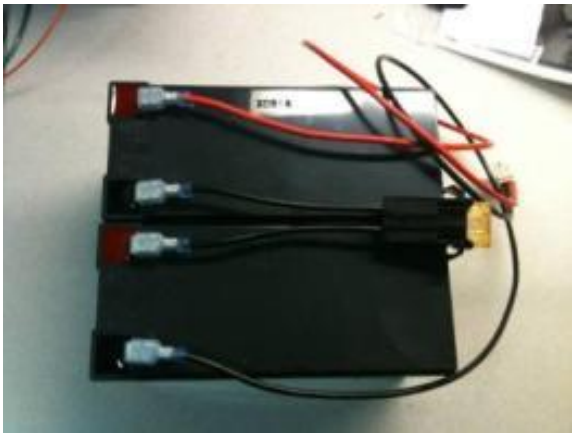


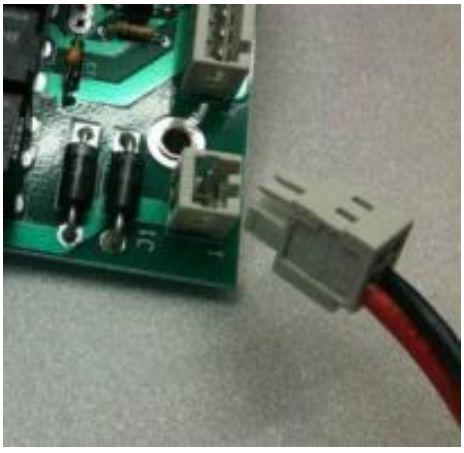
Battery Backup

The CORE system contains a battery backup. During a power loss the "Fire System Activated" light will flash 11 times between pauses indicating the power loss.

The batteries must be replaced every 2 years, from the date of fire system commissioning. Part number BP7-12-T2, two required. Although the batteries are hot swappable, which means they can be replaced while there is input power to the control, for your safety all sources of power must be removed from the control before replacing the batteries. To replace the batteries, unplug the battery cable from the J1 connector on the CORE printed circuit board. Then remove the retaining strap holding the batteries in place. Remove the batteries from the cabinet. Transfer the fuse and cable set from the old batteries to the new batteries being extremely careful to observe the RED and BLACK lead and terminal colors. Reinstall the batteries in the cabinet and reconnect the battery plug to J1. The batteries are lead acid type and are recyclable; please dispose of the old batteries properly.

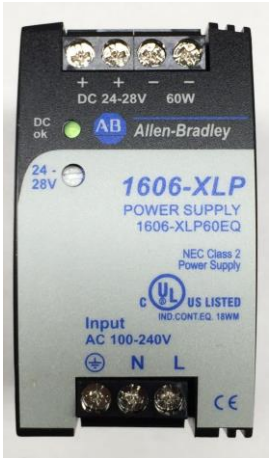
During extended periods of inactivity where the CORE system will be without AC power for more than 2 days, such as a shutdown or natural disaster, it is best to decommission the CORE system by disconnecting the batteries. This will prevent any damage to the batteries through complete discharge. When the system becomes active again, commission the system by reconnecting the batteries and allowing them to charge for 48 Hrs.





Power Supply Adjustment

To properly charge the batteries, the power supply must be adjusted to output 27.5Vdc. This can be checked with an accurate digital volt meter placed across Terminals H1D and N1D. To adjust the output voltage, place a small flat bladed screwdriver into the yellow dial. By turning this clockwise, you will increase the voltage.



IMPORTANT!!

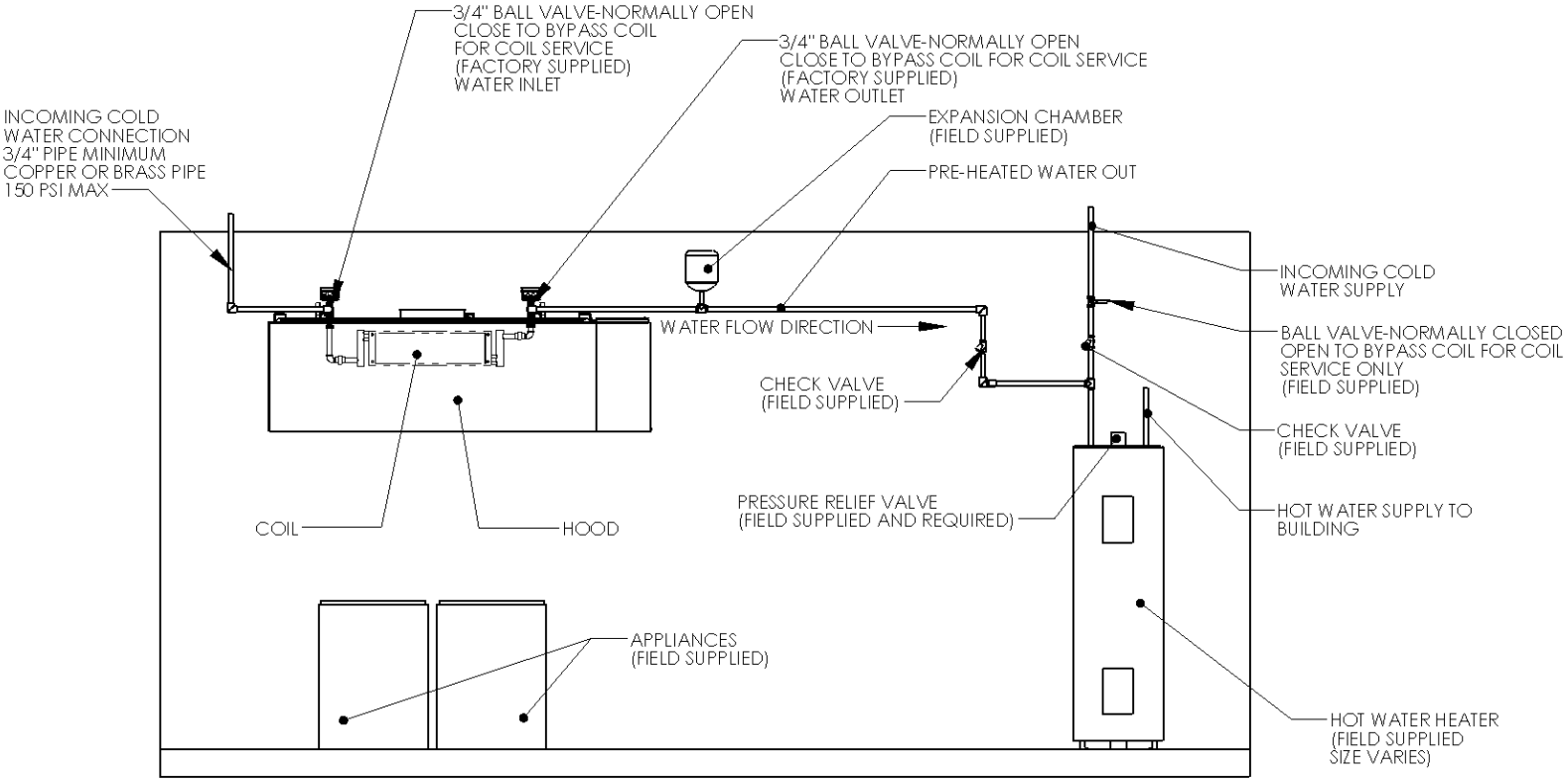
CORE Protection battery backup system requires that the batteries be changed every 2 years, from the date of fire system commissioning, maximum. Failure to do this will result in a void in product reliability and may cause severe damage to facility due to loss of fire protection.

Heat Recovery Coil (Optional)
An optional heat recovery coil is available with CORE hoods. The coils are factory installed under each hood duct (riser) connection. Warm exhaust air passes through the coils and heats the water running through the coils. The water is used as pre-heated water supply to the hot water heaters for the facility. The self-cleaning function of the hood continually cleans the surface of the coil to ensure proper heat transfer. It is very important to ensure that the high efficiency hood filters remain in use in the hood.

Each hood equipped with a coil system has a **¾ inch NPT inlet and outlet connection**. If multiple hoods are on the same system, they should be piped in series, prior to the water heater, to maximize energy recovery. If the coil pressure drop is excessive for an "in series" configuration, the coils may be piped in parallel to reduce water pressure drop. It is important to keep the piping runs similar when piping in parallel to keep flow rates through all coils similar. Field pipe size must be sized to provide adequate hot water for the building appliance usage, including the self-cleaning operation of the hood. If the hood covers multiple appliances, the coil performance will be best if the water enters the end of the hood that covers the lower temp appliance first. **The max static water pressure in the system should be 150 PSI**.

It is recommended that an expansion chamber, check valves, ball valves, and pressure relief valves be field installed in the system as shown in the diagram below. As the water heats up in the system, the water volume can increase therefore causing the pressure to increase.

The diagram below illustrates a typical installation:



Each coil is factory installed and is equipped with manual shut off valves on both the inlet and outlet for service. With these valves in the off position, no water will flow through the coils. The coils are also constructed with brass union connections so the coil can be removed for further cleaning or service. When removing a coil, break the unions loose and allow the water to drain into the hood trough to empty the coil. It is recommended that a second water supply be piped directly to the hot water heater, as shown in the

diagram above so that the facility will have hot water during coil service. Check valves and ball valves should be field installed as illustrated to allow for proper service.

Inlet and outlet pressure/temperature gauges are installed to monitor the performance of the coil. With water flowing and the hoods operating over hot appliances, there should be a 5-30 degree F temperature rise noticed from the coil inlet to the outlet. Air pressure drop through the coil is negligible but can be estimated with the formula below. Water pressure drop is more significant and can be estimated with the formula below or from the lookup table below:

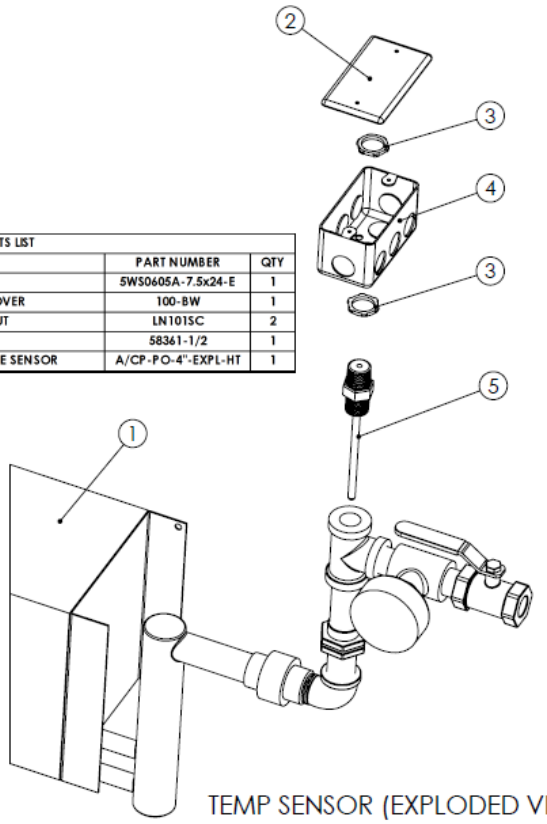
$$\text{Coil Air Pressure Drop (in. w.c.)} = 1.25E\text{-}8 \times CFM^2$$
$$\text{Coil Water Pressure Drop (PSI)} = 0.054 \times GPM^2$$
$$\text{Coil Water Pressure Drop (FT. H2O)} = 0.125 \times GPM^2$$

Water temperature can also be remotely monitored. Thermistors are installed on both the entering and leaving side of each coil for temperature monitoring. Thermistors are rated at 10Kohm and have a 2 wire connection. These get connected to the packaged prewire controller or building monitoring system. Reference the CASLink manual for more information regarding sensor wiring.

Water Pressure Drop Through A Single Coil
(Add multiple coils together)

WATER FLOW RATE (GPM)	COIL WATER PRESSURE DROP (FT. H2O)	COIL WATER PRESSURE DROP (PSI)
0.5	0.03	0.01
1.0	0.13	0.05
1.5	0.28	0.12
2.0	0.50	0.22
2.5	0.78	0.34
3.0	1.13	0.49
3.5	1.53	0.66
4.0	2.00	0.87
4.5	2.53	1.10
5.0	3.13	1.35
7.5	7.03	3.04
10.0	12.50	5.41
15.0	28.13	12.18
20.0	50.00	21.65

PARTS LIST			
NUMBER	DESCRIPTION	PART NUMBER	QTY
1	COIL	5WS0605A-7.5x24-E	1
2	EXTENSION RING COVER	100-BW	1
3	CONDUIT LOCKNUT	LN101SC	2
4	JUNCTION BOX	58361-1/2	1
5	THERMISTOR TEMPERATURE SENSOR	A/CP-PO-4"-EXPL-HT	1



TEMP SENSOR (EXPLODED VIEW)

Troubleshooting

The following table lists causes and corrective actions for possible problems with Self Cleaning hoods. Review this list prior to consulting manufacturer.

Self Cleaning Hood Troubleshooting Chart

Problem	Potential Cause	Corrective Action
Plenum not being cleaned	No Water Pressure	Verify Hot Water Pressure >30 PSI Open Manual Valve if closed
	Clogged nozzles	Clean or replace nozzles
	Timer Settings improperly set	Wash timer should be set for approximately 3 minutes
	No water pressure	Turn main building water valve on
	Nozzle spray pattern incorrect	Nozzles must be pointed toward back of plenum
	No Surfactant	Add Surfactant
Leaking Manifold Pipes	Pipes not tight or sealed	Reseal and tighten pipes
Water Leaking from Vacuum Breaker	Riser nozzle installed too high	Verify that vacuum breaker is installed higher than all downstream piping components
Add Surfactant Light On	Low Surfactant Level	Add Surfactant
Water leaks out of Filters	Filters have gaps between them	Add Filter Drip Blanks or reorient filters
Water Overflows Grease Trough	Clogged Drain	Clean Drain or grease trap
	Wrong Filters Installed	Install Proper Filters per Manufacturer
	Water Pressure Too High	Water Pressure should be 70 PSI max
	Wash Timer Set Too Long	Reduce Wash Time
	Nozzles are Loose	Tighten Nozzles
	Filters are Clogged with Grease	Clean Filters

CORE Protection Fire System Troubleshooting Chart

NOTE: Every panel with matching fire group settings (dip switches 6 and 7) will activate simultaneously in a fire condition.

Problem	Potential Cause	Corrective Action
Exhaust Fan On and Supply Fan will not Start	Broken supply fan belt	Replace fan belt
	Fire system not armed	Fire system distributor must arm fire system
Add Surfactant Light On	Low Surfactant Level	Add Surfactant
Fire System Activated Light On	Fire System is Activated	Make Sure Fire is Out and Reset Fire System
Audible Alarm is On	Fire System is Activated	Make Sure Fire is Out and Reset Fire System
A fault code is flashing on the "Fire System Activated" light	A fault has been detected in the CORE Protection Fire system	Count the flashes and lookup the fault cause in section "CORE Protection Fire System Printed circuit board" of this manual.
Fire System will not turn off	Duct Sensor is Hot	Heat has activated the duct sensor. Remove heat source or let system extinguish fire. Once Heat source or problem is resolved, press reset button on the face of the electrical control package.
	Remote Manual Actuation Device has been push	Reset Remote push station once fire is out and press reset button on the face of the electrical control package. Reset Remote push station by twisting clockwise until reset.
	Fire system is running on timer	Make sure duct sensor is cool and push station is reset, than press reset button on the face of the electrical control package.
Gas Valve does not close	Debris on gas valve seal	Fully clean Gas Valve and strainer

MAINTENANCE

To guarantee trouble free operation of this system, the manufacturer suggests following these guidelines. Most problems associated with unit failures are directly related to poor service and maintenance. Record any maintenance or service performed on this equipment in the documentation section located at the end of this manual.

General Maintenance

1. Hood filters must be maintained on a daily basis to ensure proper airflow and grease extraction.
2. All water connections must be verified for tightness and leak-free operation.
3. The "Add Surfactant" indicating light will illuminate when the surfactant tank is ½ empty. Surfactant must be added immediately to guarantee proper cleaning of the hood duct and plenum and proper fire protection.

ATTENTION!!
When servicing or cleaning ductwork, all Hood CORE, PCU CORE, and interlocked fire systems must be placed in test mode to prevent accidental discharge.

Every 6 months

1. Clean all duct sensors in hood duct connections (if equipped), inspect the hood duct and plenum areas for excess buildup of grease/creosote.
2. The main line strainers in the manifold must be cleaned.
3. Verify proper system activation via one of the supervised loops, as well as surfactant injection, and battery backup.
4. Check all nozzles for proper and evenly distributed water flow. If nozzles are clogged, clean or replace.
5. Check drain(s) on hood to verify there is no blockage. Improper drainage could cause hood leaks or water to back up into trough and overflow onto appliances.
6. Inspect the surfactant pump for proper operation and ensure liquid level sensor in surfactant tank is operational. Test by manually lowering the sensor to verify if the "Add Surfactant" light illuminates.
7. Verify that system has proper water pressure and temperature per the labels on the unit.
8. Check gas valve operation to ensure gas valve fully shuts during system activation. Also, clean strainer up stream of gas valve.
9. Fill surfactant tank with surfactant.

Every 2 Years

1. Replace batteries for the CORE Protection Systems. The replacement battery part number is BP7-12-T2; two are required. Once the battery is disconnected, the connected equipment is not protected from power outages. The new battery must be installed immediately. Refer to the replacement battery installation guide for more details.
2. Inspect condition of all wires and plumbing. Plumbing should be free of corrosion and wire insulation must be in good condition.

Decommissioning

1. If it should become necessary to disconnect the CORE system from AC power for an extended period of time (more than 2 days), the batteries should be disconnected to prevent them from being damaged due to complete discharge.

After A Fire

1. Inspect and/or Replace all nozzles.
2. Inspect all piping connections for tightness.
3. Inspect all hood lights for proper seals and security.
4. Inspect all wiring and Hood insulation to ensure all are in good condition.

Start-Up and Maintenance Documentation

START-UP AND MEASUREMENTS SHOULD BE PERFORMED AFTER THE SYSTEM HAS BEEN INSTALLED (Warranty will be void without completion of this form)

Job Information

Job Name	
Address	
City	
State	
Zip	
Phone Number	
Fax Number	
Contact	
Purchase Date	

Service Company	
Address	
City	
State	
Zip	
Phone Number	
Fax Number	
Contact	
Start-Up Date	

CORE System Verification

Hood Information – Plumbing, Self Cleaning

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Hood Model Number	
Serial Number	
Volts	
Hertz	
Phase	

Field Measured Information	
Input Voltage	
Check All Nozzles for Tightness	
Open all Valves to Hood	
Fill Surfactant Tank	
Set All Timers	
Check Fan Operation	
Operate Wash Cycle	
Verify Surfactant Pump Operation	
Verify Surfactant line connection	
Verify Hot Water Connection	
Verify Hot Water Pipe Size ¾" or Larger	
Verify Hot Water Pipes are Insulated	
Verify Operating Water Pressure (Table 1) 70 MAX	
Verify Max Static Water Pressure (125 PSI)	
Verify Water Temperature	
Measured End-to-End Connection Pipe	
Measured Back-to-Back Connection Pipe	
All Plenum connections made (if multiple hoods)	
All Appliance connections made (if multiple hoods)	
Check For Leaks in Manifold	
Check For Leaks through Filters	
Verify that Water is Draining Properly	
Verify all drains are piped to Floor Drain or Grease Trap	

Hood Information - Electrical

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Hood Model Number	
Serial Number	
Volts	
Hertz	
Phase	

Field Measured Information	
CORE Control Panel Wired	
All Fans are wired into the CAS Control Panel and are properly operating	
Shunt Trip Breaker wired (if required)	
UDS Appliance Kill Switch (if equipped) wired	
Gas Valve Wired (if 120V required)	
Control Panel power wired (Wall Mounted Control cabinet only)	
CORE Appliance solenoid valve wired (Wall Mounted Control cabinet only)	

Fire System Water Inlet - Sprinkler

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Hood Model Number	
Serial Number	

Field Measured Information	
CORE water line connected to Building Wet Sprinkler System or Dedicated Water supply	
No unsupervised shut offs in CORE water line	
Verify connection pipe size	
Verify Operating PSI (Table 1) 70 MAX	
Verify Static Pressure (125 PSI MAX)	
Monitored Pressure Reducing Valve installed	
Verify Field Pipe Material	

Fire System Information (When Supplied)

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Hood Model Number	
Serial Number	
Volts	
Hertz	

Field Measured Information	
Gas Valve Wired	
Gas Valve is Functioning Properly	
Main Water Line from Supervised Supply	
Batteries plugged in and light flashes ready	
Remote Pull Station wired in Supervised Loop	
Test Remote Push Station System Activation	
Verify Push Station Cover Installed	
Test Firestat System Activation	
Verify Firestats are wired in Supervised Loop	
Verify all Firestat wiring is high temperature wire	
CAS Service supervised, assisted or wired all Supervised Loop connecitons	
Verify Operating Water Pressure (Table 1) 70 MAX	
Verify Max Static Water Pressure (125 PSI)	
Verify Constant Surfactant Injection	
Verify Appliance System Activates	
All Gas and Electric Appliances Shut Down	
Fire System Activated Light Illuminates	
Audible Alarm Sounds	
Verify Reset Button Works Correctly	
System Activates on Battery Backup	
Verify Surfactant Tank is Full	
Verify Appliance System Test Switch is in Armed Mode	
All Nozzles are 30-55” from Cooking Surface	
Nozzles within 18” from Front/Back of Hazard Zone	
Interior Nozzle facing back opposite end of appliance (required for Upright Broiler or Salamander)	
Back shelf has overhand of 12” or less	
Back shelf is 18” from cooking surface	
Building Alarm tied in (where applicable)	
Trouble Relay tied in (where applicable)	

CAS Service

Refer to the start-up procedure in this manual to complete this section.

Name Plate and Unit Information	
Hood Model Number	
Serial Number	

Field Measured Information	
Flush lines after all supply lines are connected	
Verify all plenum nozzles have strainers REMOVED	
Document CORE Board Version, not chip version	
Reset Button works	
Fire System activates on Battery backup	
Fire System activate on 120V power	
Audible Alarm Sounds	
Constant surfactant injection during activation	
System reverse interlocked	
Tamper sticker installed on Manual Actuation Device (Push Station)	
Comm module connected to the internet	
CAS-Link Setup	
Battery Date Code (Date of SDV on batteries)	

Maintenance Record

Date	Service Performed

Factory Service Department

Phone: 1-866-784-6900
Fax: 1-919-554-9374