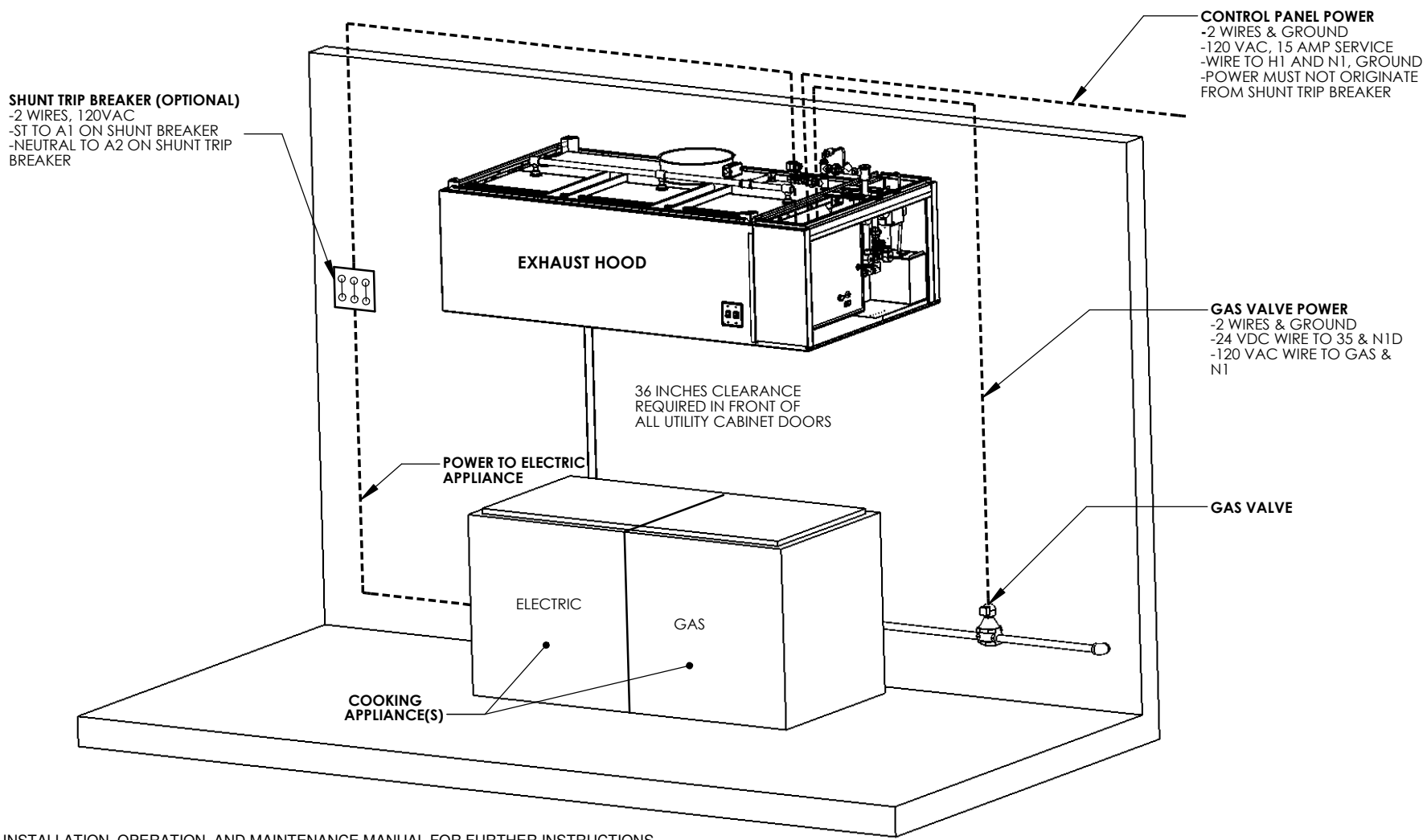


# CORE TOTAL FLOOD PROTECTION ELECTRICAL DETAIL

- ELECTRICIAN:**  
 1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC  
 2. WIRE ALL FANS PER INCLUDED SCHEMATIC  
 3. WIRE SHUNT TRIP BREAKER (OPTIONAL)  
 4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)  
 5. WIRE GAS VALVE

## ELECTRICAL CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	35 & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, 35 TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# CORE TOTAL FLOOD PROTECTION LOW-VOLTAGE DETAIL

## ALARM CONTRACTOR:

1. WIRE REMOTE PULL STATIONS, REMOTE FIRESTATS, CORE INTERLOCKS, FIRE SENSORS AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. PERFORM FINAL FIRE SYSTEM TEST
4. FILL SURFACTANT TANK

## ALARM CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
REMOTE PULL STATION(S)	22 AND 25 21 AND 26	1 & 2	24 VDC	< 1.0 AMPS	WIRE PULL STATION TERMINAL 1 BETWEEN HOOD CORE PANEL TERMINALS 22 AND 25 WIRE PULL STATION TERMINAL 2 BETWEEN HOOD CORE PANEL TERMINALS 21 AND 26; USE BELDEN #6320UL OR SIMILAR WIRE
PULL STATION COVER	N/A	N/A	N/A	N/A	PULL STATION COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	25 AND 23 26 AND 24	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR BLACK WIRES BETWEEN HOOD CORE PANEL TERMINALS 25 AND 23 WIRE FIRE SENSOR WHITE WIRE BETWEEN HOOD CORE PANEL TERMINALS 26 AND 24 HIGH TEMP (842°F) #CW04427 (WHT) & #CW04427B (BLK) WIRE OR SIMILAR ONLY IF RAN OVER TOP OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	MAX 50 VAC	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	ILA, ILB, ILC	ILA, ILB, ILC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) ILA, TO CORE SYSTEM (2) ILA, CORE SYSTEM (1) ILB, TO CORE SYSTEM (2) ILB, CORE SYSTEM (1) ILC, TO CORE SYSTEM (2) ILC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION

### FIRE ALARM CONTACT

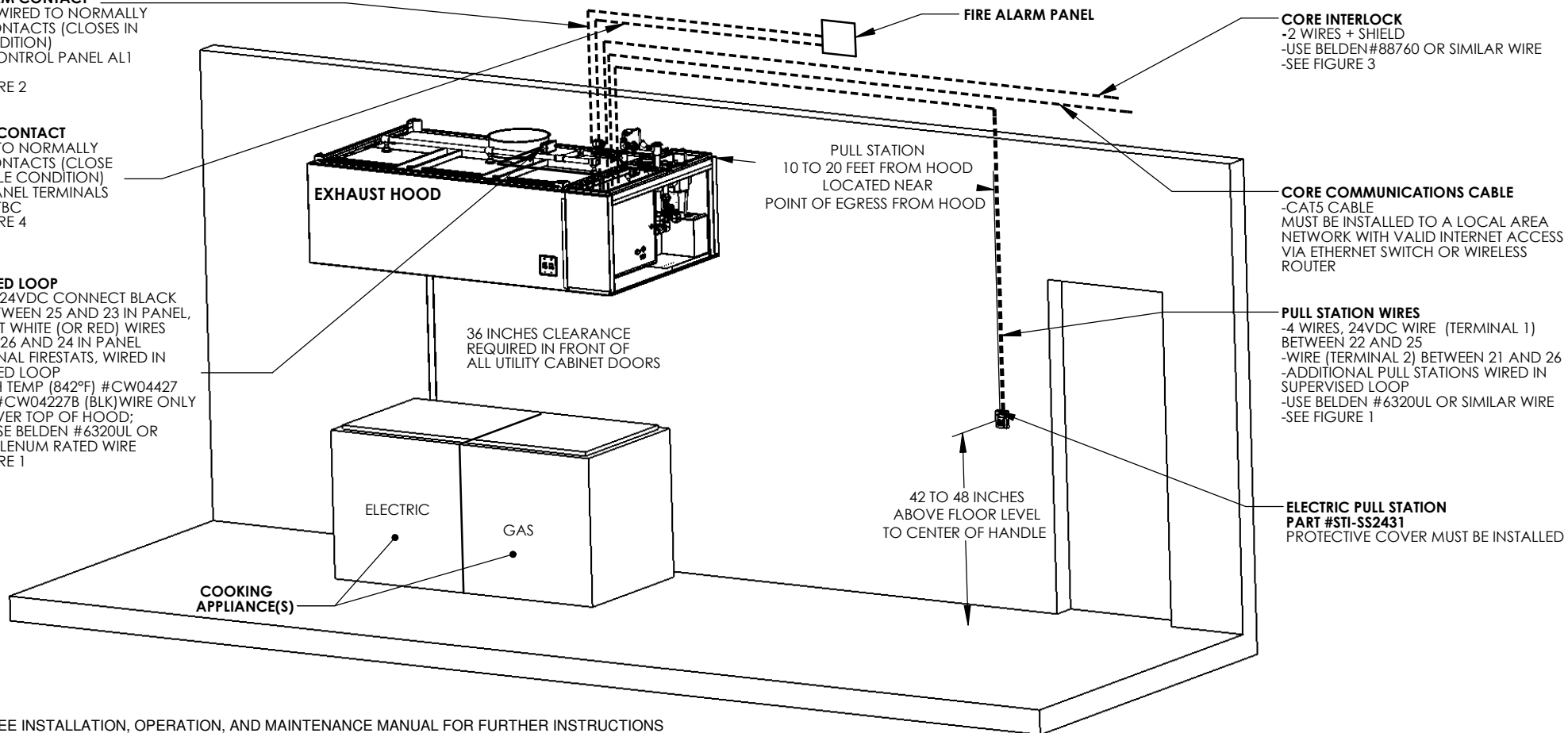
- 2 WIRES WIRED TO NORMALLY OPEN CONTACTS (CLOSES IN FIRE CONDITION)
- CORE CONTROL PANEL AL1 AND AL2
- SEE FIGURE 2

### TROUBLE CONTACT

- 2 WIRES TO NORMALLY OPEN CONTACTS (CLOSES IN TROUBLE CONDITION)
- CORE PANEL TERMINALS TBL AND TBC
- SEE FIGURE 4

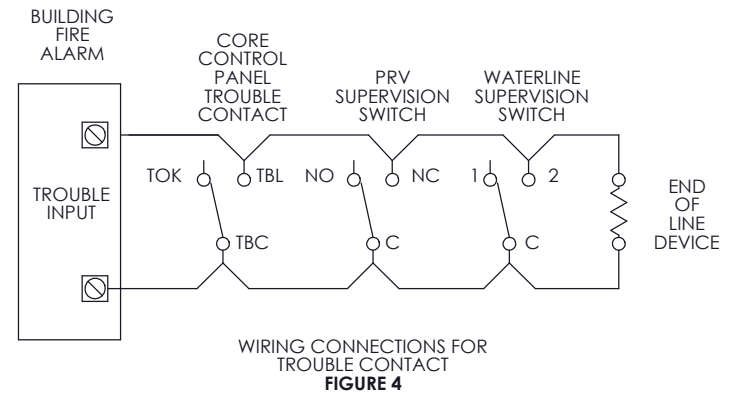
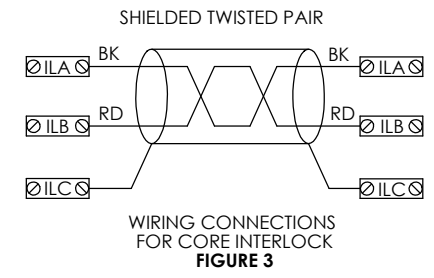
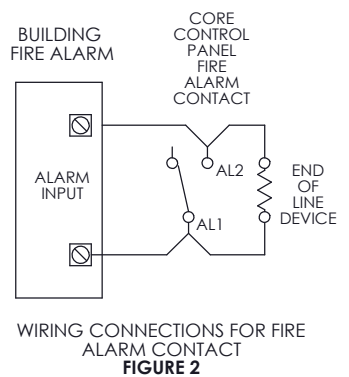
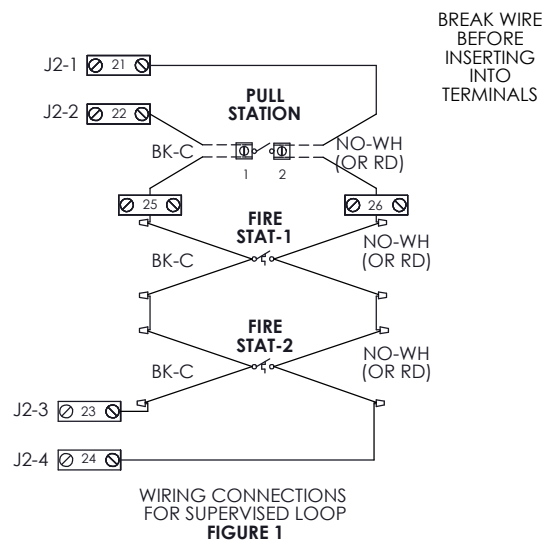
### SUPERVISED LOOP

- 4 WIRES, 24VDC CONNECT BLACK WIRES BETWEEN 25 AND 23 IN PANEL, CONNECT WHITE (OR RED) WIRES BETWEEN 26 AND 24 IN PANEL
- ADDITIONAL FIRESTATS, WIRED IN SUPERVISED LOOP
- USE HIGH TEMP (842°F) #CW04427 (WHT) & #CW04427B (BLK) WIRE ONLY IF RAN OVER TOP OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE
- SEE FIGURE 1



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# CORE TOTAL FLOOD PROTECTION LOW-VOLTAGE FIGURES



# CORE TOTAL FLOOD PROTECTION PLUMBING DETAIL

**PLUMBER:**

1. CONNECT HOT WATER LINE; PVC, COPPER OR STAINLESS STEEL PIPE ONLY
2. CONNECT HOOD DRAIN(S) STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY
3. CONNECT ALL END-TO-END AND BACK-TO-BACK HOOD WATER LINE CONNECTIONS (PLUMBING IS FIELD SUPPLIED FOR THIS) FIELD PLUMBING MUST NOT EXCEED HEIGHT OF VACUUM BREAKER IN MAIN UTILITY CABINET
- REMOVE PLUG FROM MAIN HOOD SPRAY BAR AND CONNECT TO NEXT HOOD STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY
4. PLUMB GAS VALVE
5. INSTALL FLOOR DRAIN
6. INSTALL BACKFLOW PREVENTER IF CODE REQUIRES

PLUMBING CONTRACTOR REQUIREMENT					
ITEM	CONNECTION	TEMPERATURE	PRESSURE	FLOW RATE	COMMENTS
HOT WATER LINE	3/4 INCH NPT	140 to 170°F	30 TO 70 PSI	0.7 GPM PER FOOT OF HOOD	INSULATE HOT WATER PIPE, MINIMUM PRESSURE DEPENDANT ON LENGTH OF HOOD SYSTEM
HOOD DRAIN(S)	1-1/2 INCH NPT	N/A	GRAVITY DRAIN	0.7 GPM PER FOOT OF HOOD	2 DRAINS ON 24 INCH TALL HOODS WITH 20 INCH TALL FILTERS AND HOODS 10 FEET AND LONGER
END-TO-END CORE CONNECTION	3/4 INCH NPT	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS, HOOD CONNECTION PROVIDED, FIELD PIPING MUST REMAIN BELOW HEIGHT OF VACCUUM BREAKER
BACK-TO-BACK CORE CONNECTION	3/4 INCH NPT	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS, HOOD CONNECTION PROVIDED
GAS VALVE	VARIES	N/A	SEE CHART	N/A	UP TO 2 INCHES NPT WITH 24V CONTROLS, 2-1/2 AND 3 INCH USE 120V CONTROL
FLOOR DRAIN(S)	1-1/2 INCH	N/A	GRAVITY DRAIN	N/A	USED TO HELP CLEAN UP FIRE SYSTEM DISCHARGE, GREASE INTERCEPTOR MAY BE REQUIRED
BACKFLOW PREVENTER DRAIN LINE (OPTIONAL)	INLET/OUTLET DRAIN	N/A	VARIES	N/A	INSTALLED WHEN PACKAGE HAS A BACKFLOW PREVENTER VALVE, SEE BACKFLOW PREVENTER VALVE MANUAL FOR DETAILS

**HOT WATER LINE**

- PVC, COPPER, OR STAINLESS STEEL PIPE ONLY
- 140-170°F OPERATING TEMPERATURE
- 30 TO 70 PSI OPERATING PRESSURE
- 125 PSI MAX STATIC PRESSURE
- 0.7 GPM PER FOOT OF HOOD
- 3/4 INCH NPT FITTING, INSULATED

**END-TO-END OR BACK-TO-BACK CONNECTION**

- INSTALLED AND PROVIDED BY PLUMBER
- STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY
- FIELD PIPING MUST REMAIN BELOW HEIGHT OF VACCUUM BREAKER

**HOOD DRAIN(S)**

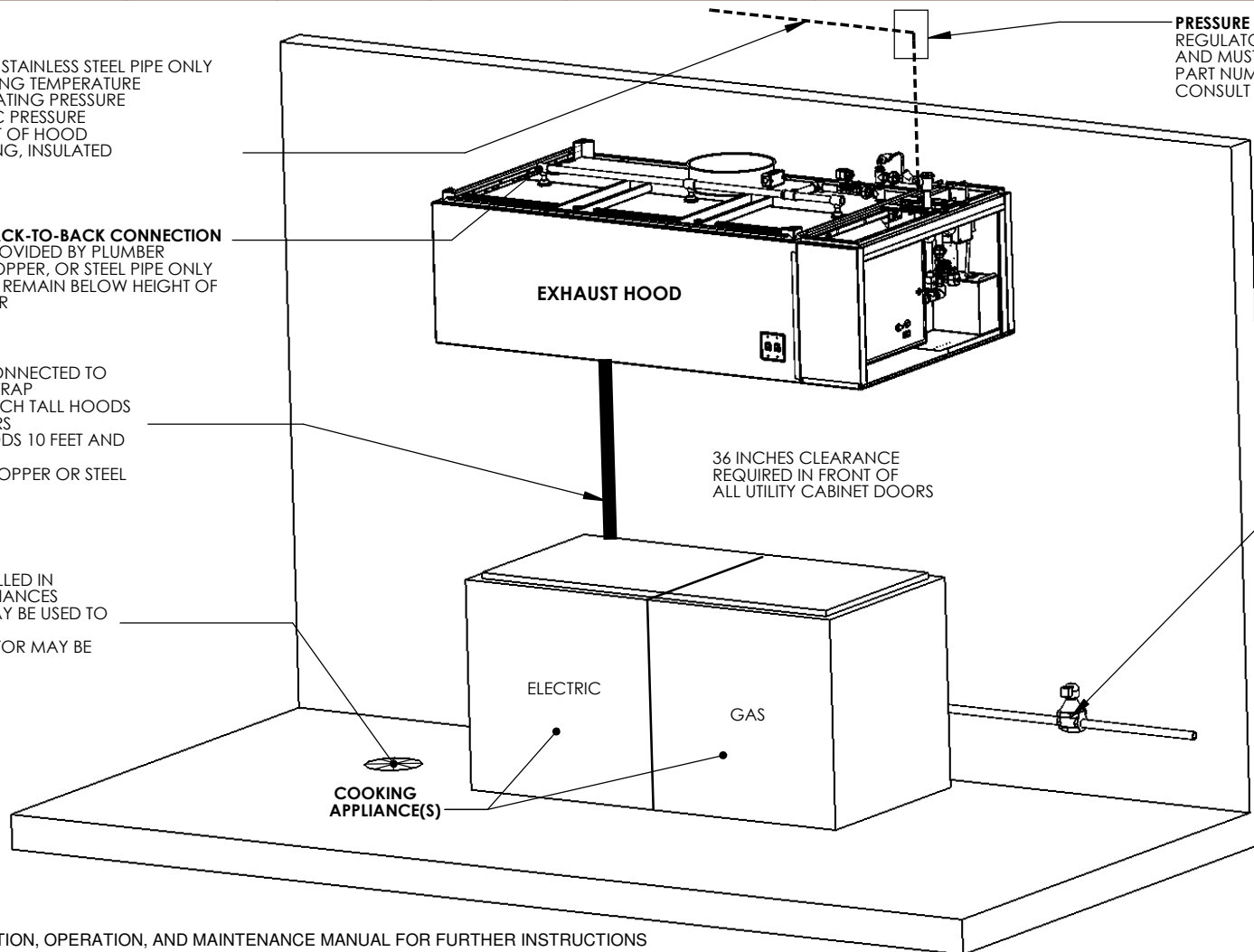
- 1-1/2 INCH NPT CONNECTED TO BUILDING GREASE TRAP
- 2 DRAINS ON 24 INCH TALL HOODS WITH 20 INCH FILTERS
- 2 DRAINS ON HOODS 10 FEET AND LONGER
- STAINLESS STEEL, COPPER OR STEEL PIPE ONLY

**FLOOR DRAIN**

- 1-1/2 DRAIN INSTALLED IN FLOOR, NEAR APPLIANCES
- FLOOR DRAINS MAY BE USED TO DRAIN HOOD
- GREASE INTERCEPTOR MAY BE REQUIRED

**PRESSURE REGULATOR VALVE**

REGULATORS ARE NOT INCLUDED TO MEET REQUIRED PRESSURE AND MUST BE ORDERED SEPARATELY  
PART NUMBERS: X65BU(3/4"), X65BU(1"), OR X65BU(1-1/2")  
CONSULT FACTORY FOR SIZING



**GAS VALVE**

-THREADED NPT CONNECTION  
-SEE TABLE BELOW MAX PRESSURE

SIZE	MAX INLET PRESSURE	VOLTAGE	BTU/HR
3/4"	25	24VDC	247,500
1"	25	24VDC	1,119,000
1-1/4"	25	24VDC	1,730,000
1-1/2"	25	24VDC	1,900,000
2"	15	24VDC	3,251,000
2-1/2"	5	120VAC	5,821,000
3"	5	120VAC	7,430,000

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# CORE TOTAL FLOOD PROTECTION SPRINKLER DETAIL

BUILDING SPRINKLER CONTRACTOR:

1. CONNECT CORE WATER LINE TO BUILDING WET SPRINKLER SYSTEM. STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY

## SPRINKLER CONTRACTOR REQUIREMENT

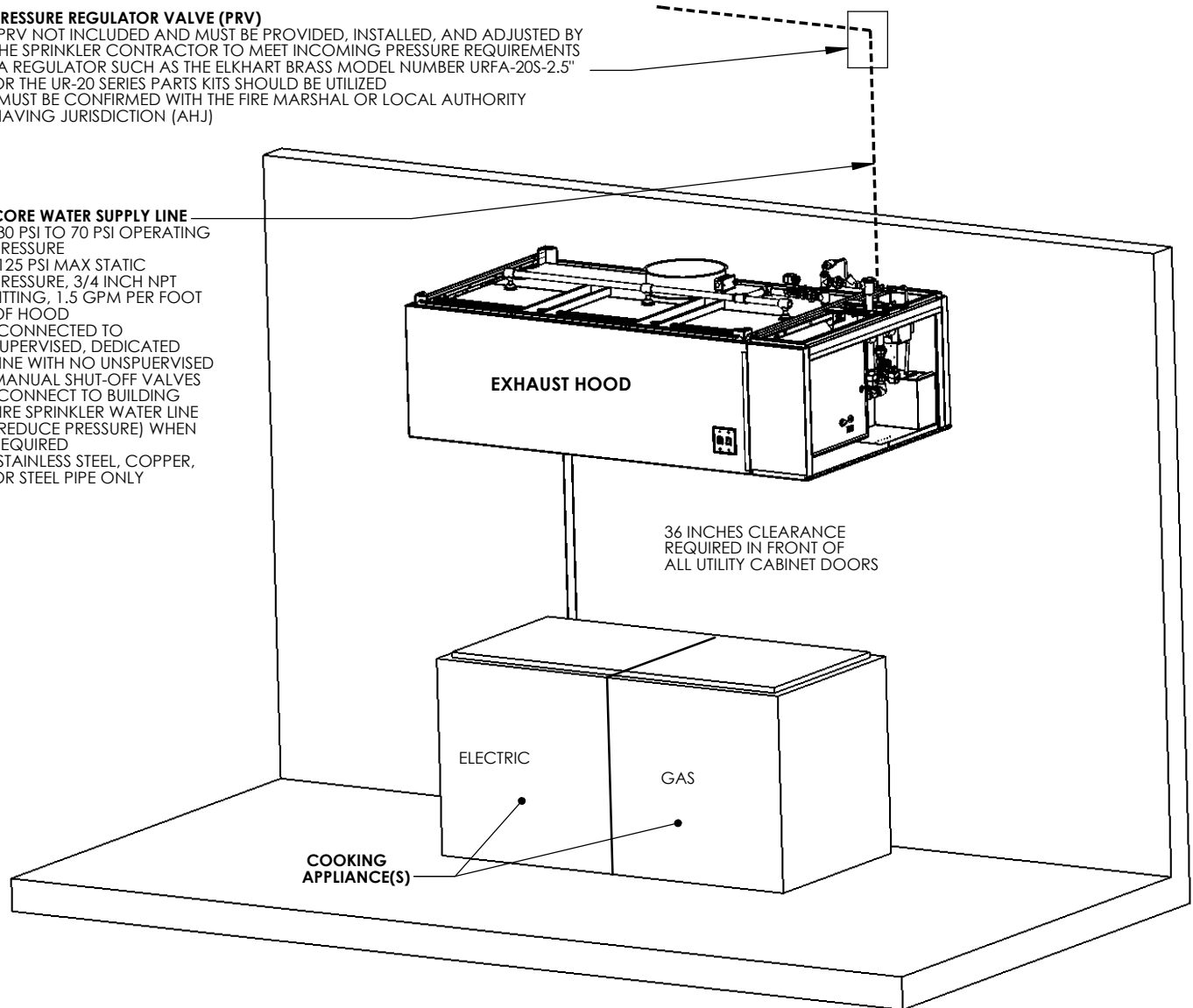
ITEM	CONNECTION	OPERATING PRESSURE	K-FACTOR	FLOW RATE	COMMENTS
CORE WATER SUPPLY LINE	3/4 INCH NPT	30 PSI TO 70 PSI	SEE TABLE	1.5 GPM PER FOOT OF HOOD	WATER LINE MUST BE SUPERVISED AND HAVE NO UNSUPERVISED MANUAL SHUT-OFF VALVES MINIMUM PRESSURE AND FLOWRATE DEPENDENT ON LENGTH OF HOOD SYSTEM

**PRESSURE REGULATOR VALVE (PRV)**

- PRV NOT INCLUDED AND MUST BE PROVIDED, INSTALLED, AND ADJUSTED BY THE SPRINKLER CONTRACTOR TO MEET INCOMING PRESSURE REQUIREMENTS
- A REGULATOR SUCH AS THE ELKHART BRASS MODEL NUMBER URFA-20S-2.5" OR THE UR-20 SERIES PARTS KITS SHOULD BE UTILIZED
- MUST BE CONFIRMED WITH THE FIRE MARSHAL OR LOCAL AUTHORITY HAVING JURISDICTION (AHJ)

**CORE WATER SUPPLY LINE**

- 30 PSI TO 70 PSI OPERATING PRESSURE
- 125 PSI MAX STATIC PRESSURE, 3/4 INCH NPT FITTING, 1.5 GPM PER FOOT OF HOOD
- CONNECTED TO SUPERVISED, DEDICATED LINE WITH NO UNSUPERVISED MANUAL SHUT-OFF VALVES
- CONNECT TO BUILDING FIRE SPRINKLER WATER LINE (REDUCE PRESSURE) WHEN REQUIRED
- STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY



### MINIMUM OPERATING PRESSURE REQUIREMENTS

LENGHT OF HOOD (FT)	MINIMUM INLET WATER PRESSURE FOR SELF CLEANING (PSI)	MINIMUM INLET WATER PRESSURE FOR CORE PROTECTION (PSI)	DISCHARGE COEFFICIENTS (K-FACTOR)
4	30	30	1.3
8	30	30	2.6
12	30	30	4.0
16	30	30	5.3
20	31	33	6.4
24	32	36	7.4
28	34	39	8.3
32	37	44	9.0
36	39	49	9.7
40	42	56	10.2
44	46	63	10.6
48	50	70	11.1

TOTAL FLOWRATE = K FACTOR x PRESSURE<sup>0.44</sup>

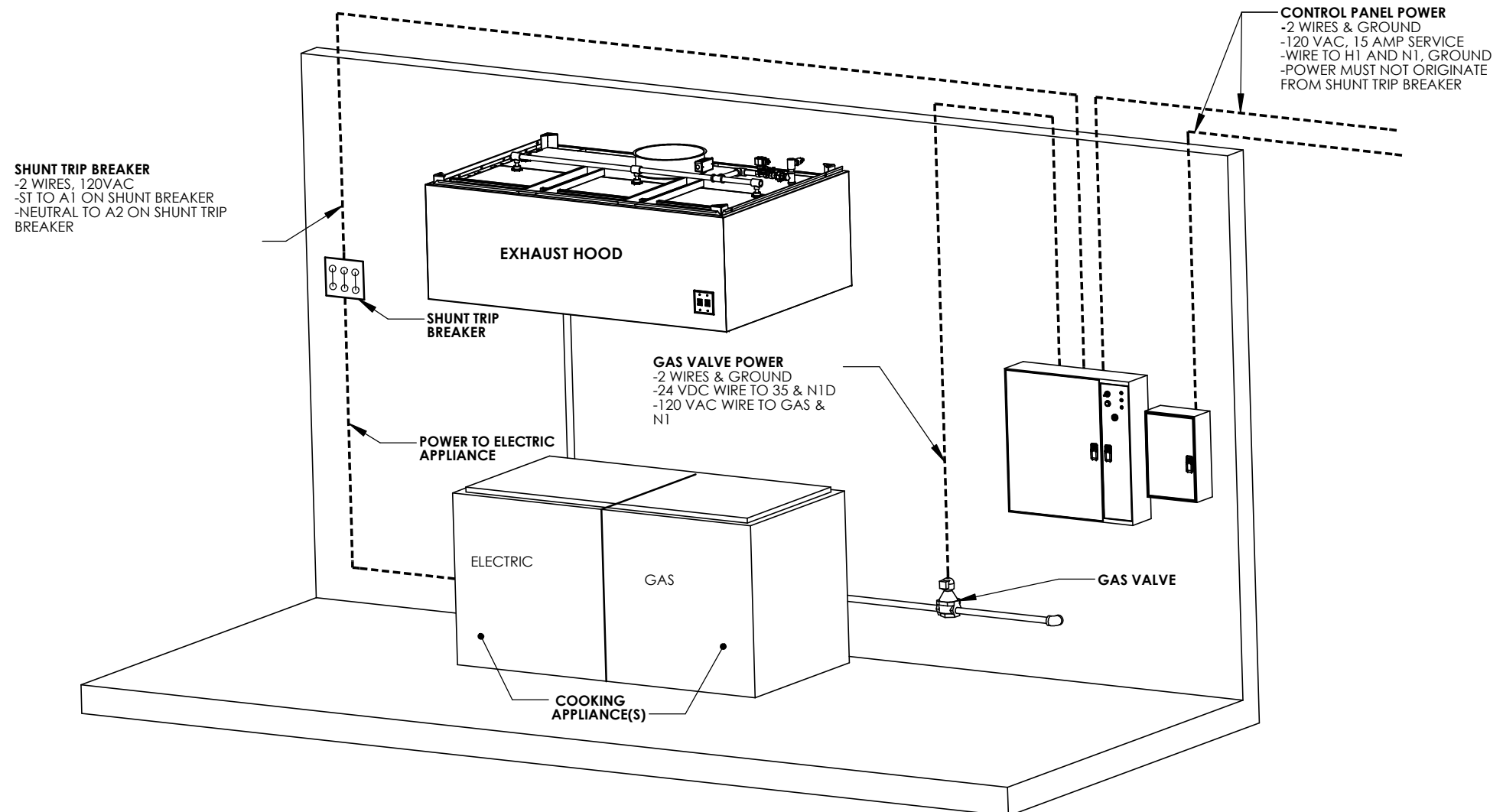
NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# WALL MOUNTED CORE TOTAL FLOOD PROTECTION ELECTRICAL DETAIL

- ELECTRICIAN:**
1. WIRE MAIN CONTROL PANELS PER INCLUDED SCHEMATICS
  2. WIRE ALL FANS PER INCLUDED SCHEMATIC
  3. WIRE SHUNT TRIP BREAKER
  4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
  5. WIRE GAS VALVE

**ELECTRICAL CONTRACTOR REQUIREMENT**

ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
FIRE INTERLOCK	C1, AR1, TR1	C1, AR1, TR1	MAX 120 VAC	UP TO 6 AMPS	FIRE SYSTEM SIGNAL, WIRE TO LIKE TERMINALS IN ELECTRICAL CONTROL PACKAGE
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	35 & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, 35 TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# WALL MOUNTED CORE TOTAL FLOOD PROTECTION LOW-VOLTAGE DETAIL

**ALARM CONTRACTOR:**

1. WIRE REMOTE PULL STATIONS, REMOTE FIRESTATS, CORE INTERLOCKS, FIRE SENSORS AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. PERFORM FINAL FIRE SYSTEM TEST
4. FILL SURFACTANT TANK

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
REMOTE PULL STATION(S)	22 AND 25 21 AND 26	1 & 2	24 VDC	< 1.0 AMPS	WIRE PULL STATION TERMINAL 1 BETWEEN HOOD CORE PANEL TERMINALS 22 AND 25 WIRE PULL STATION TERMINAL 2 BETWEEN HOOD CORE PANEL TERMINALS 21 AND 26; USE BELDEN #6320UL OR SIMILAR WIRE
PULL STATION COVER	N/A	N/A	N/A	N/A	PULL STATION COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	25 AND 23 26 AND 24	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR BLACK WIRES BETWEEN HOOD CORE PANEL TERMINALS 25 AND 23 WIRE FIRE SENSOR WHITE WIRE BETWEEN HOOD CORE PANEL TERMINALS 26 AND 24 HIGH TEMP (842°F) WIRE ONLY PART #CW04427 (WHT) #CW04427B (BLK) OR SIMILAR
FIRE ALARM CONTACT	AL1, AL2	VARIES	MAX 50 VAC	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	ILA, ILB, ILC	ILA, ILB, ILC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) ILA, TO CORE SYSTEM (2) ILA. CORE SYSTEM (1) ILB, TO CORE SYSTEM (2) ILB. CORE SYSTEM (1) ILC, TO CORE SYSTEM (2) ILC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	CONNECT CAT5 CABLE TO LOCAL AREA NETWORK WITH VALID INTERNET CONNECTION
CORE TOTAL FLOOD SOLENOID	WS2 & N1D	BLACK AND WHITE	24 VDC	<1.0 AMPS	2 WIRES AND GROUND, BLACK TO WS2, WHITE TO N1D AND GREEN TO GROUND CABLE SECURED TO WATER LINE TO AVOID CONTACT WITH HOOD SURFACE
FIRE INTERLOCK	C1, AR1, TR1	C1, AR1, TR1	MAX 120 VAC	UP TO 6 AMPS	FIRE SYSTEM SIGNAL, WIRE TO LIKE TERMINALS IN ELECTRICAL CONTROL PACKAGE C1 AND AR1 (NOT REQUIRED FOR ECPM03)
EMSPLUS CONTROL PACKAGE OR ECPM03 CONTROL PACKAGE	MBA, MBB, MBC (EMSPLUS) J5 ON CORE BOARD (ECPM03)	MBA, MBB, MBC (EMSPLUS) J3 ON ECPM03 (ECPM03)	RS-485 COMMUNICATIONS SIGNAL		NETWORK CONNECTIONS BETWEEN WALL MOUNT CORE AND WALL MOUNT EMSPLUS OR CONNECTION BETWEEN CORE BOARD AND ECPM03 BOARD

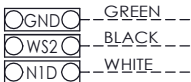
**SUPERVISED LOOP**

- 4 WIRES, 24VDC CONNECT BLACK WIRES BETWEEN 25 AND 23 IN PANEL, CONNECT WHITE (OR RED) WIRES BETWEEN 26 AND 24 IN PANEL
- ADDITIONAL FIRESTATS, WIRED IN SUPERVISED LOOP
- USE HIGH TEMP (842°F) PART #CW04427 (WHT) #CW04427B (BLK) OR SIMILAR WIRE ONLY
- SEE FIGURE 1

**APPLIANCE PROTECTION SOLENOID**

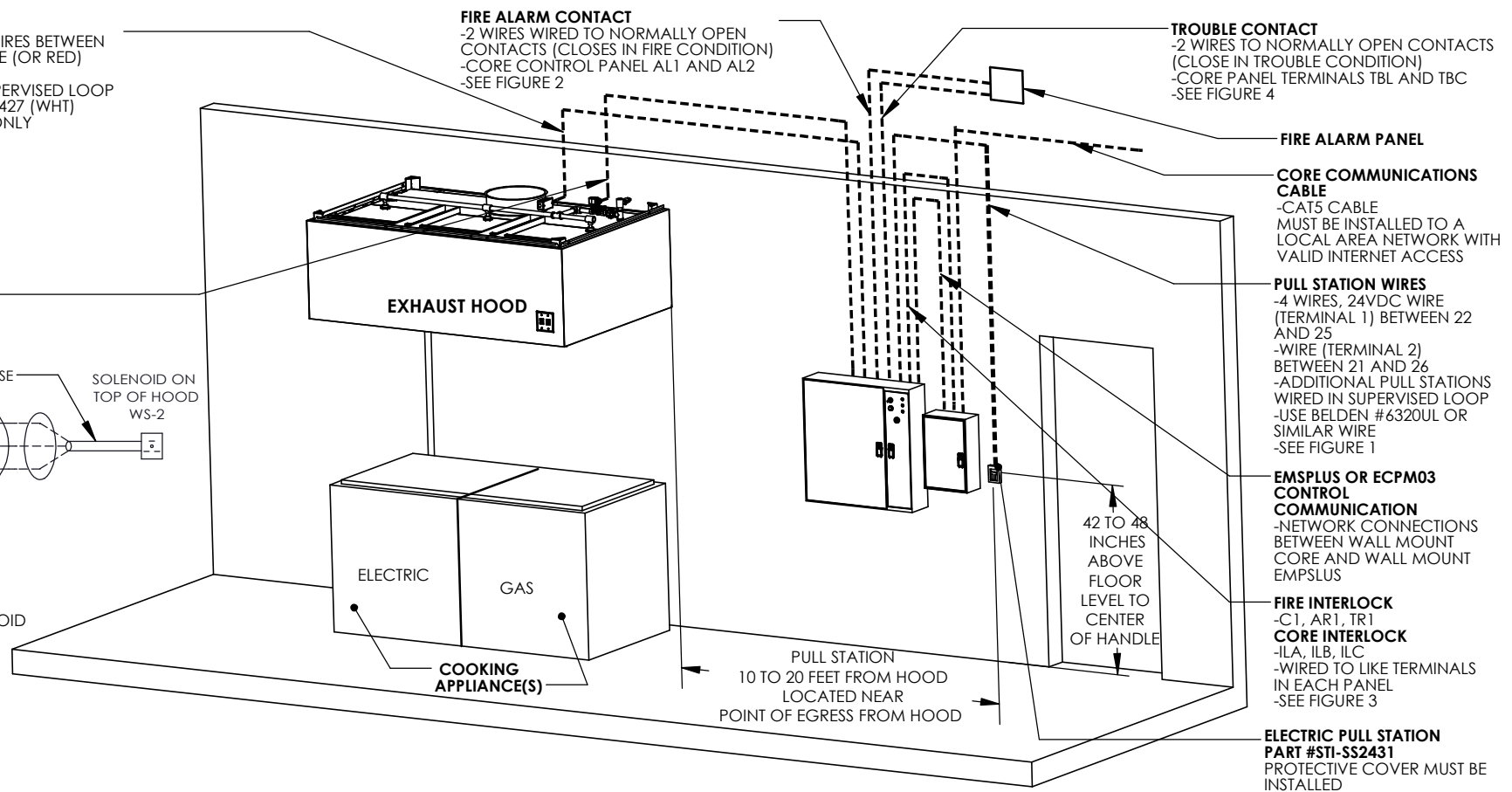
- 2 WIRES AND GROUND. BLACK TO WS2, WHITE TO N1D
- WIRE SECURED TO WATER LINE TO AVOID CONTACT WITH HOOD
- SEE FIGURE A

WALL MOUNT CORE PANEL TO HOOD MOUNTED APPLIANCE SOLENOID



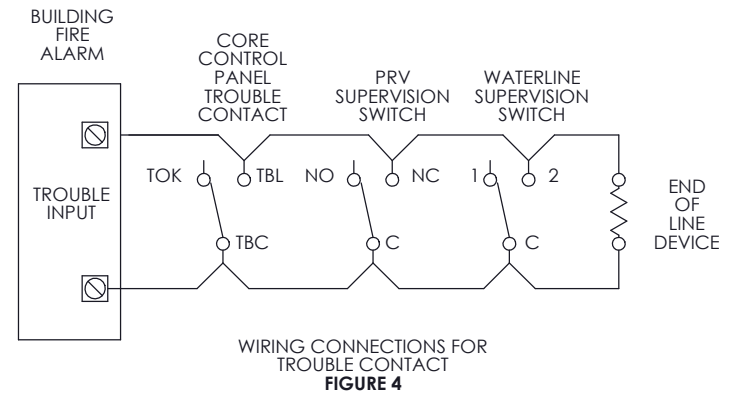
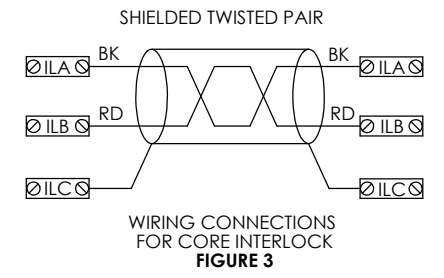
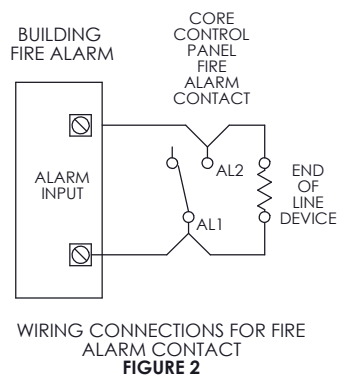
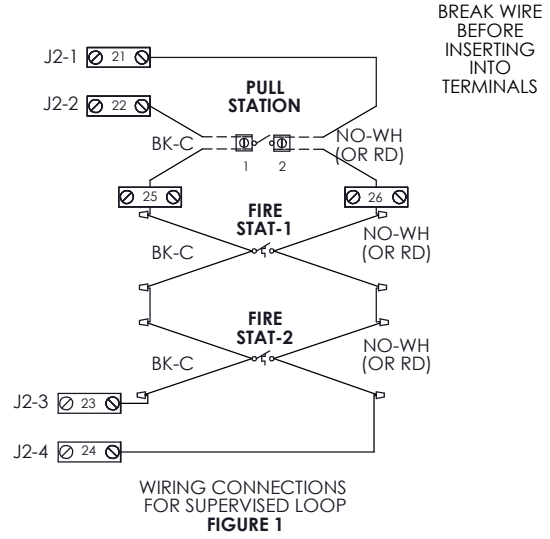
- FIELD SUPPLIED JUNCTION BOX NOT ON TOP OF HOOD
- USE PROVIDED CABLE ONLY
- SECURE CABLE TO WATER LINE
- WIRE CABLE TO FIELD SUPPLIED JUNCTION BOX
- WIRE FROM BOX TO REMOTE PANEL

APPLIANCE PROTECTION SOLENOID FIGURE A



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# WALL MOUNTED CORE TOTAL FLOOD PROTECTION LOW-VOLTAGE FIGURES





# WALL MOUNTED CORE TOTAL FLOOD PROTECTION PLUMBING DETAIL

**PLUMBER:**

1. CONNECT HOT WATER LINE; PVC, COPPER OR STAINLESS STEEL PIPE ONLY
2. CONNECT HOOD DRAIN(S) STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY
3. CONNECT ALL END-TO-END AND BACK-TO-BACK HOOD WATER LINE CONNECTIONS (PLUMBING IS FIELD SUPPLIED FOR THIS) FIELD PLUMBING MUST NOT EXCEED HEIGHT OF FIELD INSTALLED VACUUM BREAKER  
REMOVE PLUG FROM MAIN HOOD SPRAY BAR AND CONNECT TO NEXT HOOD STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY
4. PLUMB GAS VALVE
5. INSTALL FLOOR DRAIN
6. INSTALL BACKFLOW PREVENTER IF CODE REQUIRES

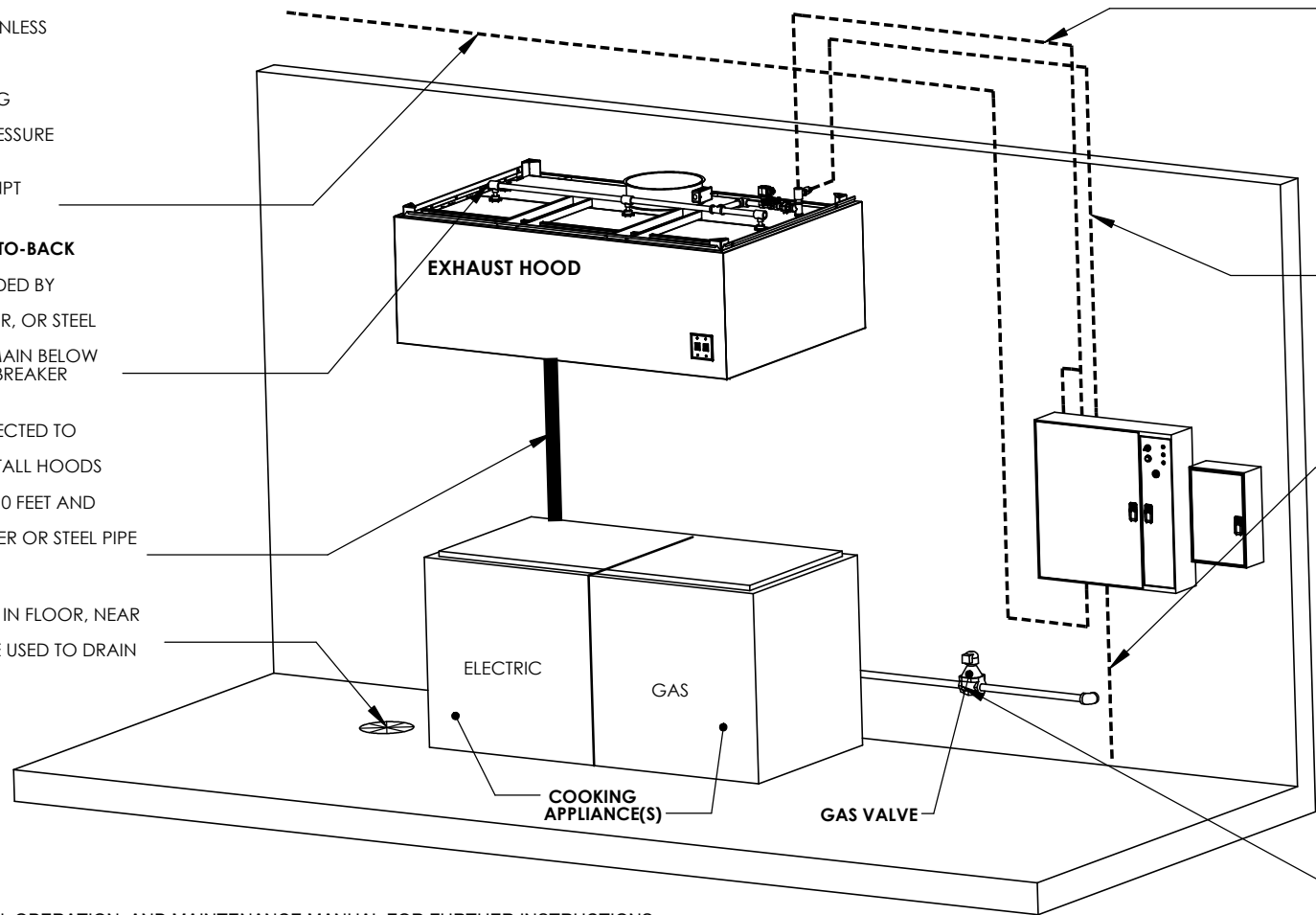
PLUMBING CONTRACTOR REQUIREMENT					
ITEM	CONNECTION	TEMPERATURE	PRESSURE	FLOW RATE	COMMENTS
HOT WATER LINE	3/4, 1, OR 1-1/2 INCH NPT	140 to 170°F	30 TO 70 PSI	0.7 GPM PER FOOT OF HOOD	INSULATE HOT WATER PIPE, MINIMUM PRESSURE DEPENDANT ON LENGTH OF HOOD SYSTEM
HOOD DRAIN(S)	1-1/2 INCH NPT	N/A	GRAVITY DRAIN	0.7 GPM PER FOOT OF HOOD	2 DRAINS ON 24 INCH TALL HOODS WITH 20 INCH TALL FILTERS AND HOODS 10 FEET AND LONGER
END-TO-END CORE CONNECTION	3/4 INCH NPT	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS, HOOD CONNECTION PROVIDED, FIELD PIPING MUST REMAIN BELOW HEIGHT OF VACCUUM BREAKER
BACK-TO-BACK CORE CONNECTION	3/4 INCH NPT	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS, HOOD CONNECTION PROVIDED
GAS VALVE	VARIES	N/A	SEE CHART	N/A	UP TO 2 INCHES NPT WITH 24V CONTROLS, 2-1/2 AND 3 INCH USE 120V CONTROL
FLOOR DRAIN(S)	1-1/2 INCH	N/A	GRAVITY DRAIN	N/A	USED TO HELP CLEAN UP FIRE SYSTEM DISCHARGE
SURFACTANT LINE	1/4 INCH OD TUBING	N/A	70 PSI	N/A	SURFACTANT LINE MUST NOT BE IN CONTACT WITH THE HOOD SURFACE
BACKFLOW PREVENTER DRAIN LINE (OPTIONAL)	INLET + DRAIN	N/A	VARIES	N/A	INSTALLED WHEN PACKAGE HAS A BACKFLOW PREVENTER VALVE, SEE BACKFLOW PREVENTER VALVE MANUAL FOR DETAILS

**HOT WATER LINE**  
 -PVC, COPPER, OR STAINLESS STEEL PIPE ONLY  
 -140-170°F OPERATING TEMPERATURE  
 -30 TO 70 PSI OPERATING PRESSURE  
 -125 PSI MAX STATIC PRESSURE  
 -0.7 GPM PER FOOT OF HOOD  
 -3/4, 1, OR 1-1/2 INCH NPT FITTING, INSULATED

**END-TO-END OR BACK-TO-BACK CONNECTION**  
 -INSTALLED AND PROVIDED BY PLUMBER  
 STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY  
 -FIELD PIPING MUST REMAIN BELOW HEIGHT OF VACCUUM BREAKER

**HOOD DRAIN(S)**  
 -1-1/2 INCH NPT CONNECTED TO BUILDING GREASE TRAP  
 -2 DRAINS ON 24 INCH TALL HOODS WITH 20 INCH FILTERS  
 -2 DRAINS ON HOODS 10 FEET AND LONGER  
 -STAINLESS STEEL, COPPER OR STEEL PIPE ONLY

**FLOOR DRAIN**  
 -1-1/2 DRAIN INSTALLED IN FLOOR, NEAR APPLIANCES  
 -FLOOR DRAINS MAY BE USED TO DRAIN HOOD



**HOOD WATER LINE**  
 -30 TO 70 PSI OPERATING PRESSURE, SIZED TO MATCH PRESSURE DROP BETWEEN WALL MOUNT PACKAGE AND HOOD  
 -DEDICATED LINE WITH NO MANUAL UNSUPERVISED SHUT-OFF VALVE  
 -SURFACTANT INJECTION INSTALLED AFTER FIELD INSTALLED VACUUM BREAKER  
 -VACUUM BREAKER INSTALLED AT HIGHEST POINT BETWEEN PACKAGE AND HOOD  
 -STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY

**SURFACTANT LINE**  
 -1/4" OD TUBING CONNECTING SURFACTANT PUMP WITH INJECTION POINT ON HOOD  
 -LINE MUST NOT COME IN CONTACT WITH THE HOOD SURFACE

**BACKFLOW PREVENTER DRAIN**  
 -IF BFP IS INSTALLED, ADDITIONAL DRAIN MUST BE INSTALLED BY PLUMBER  
 -SEE BFP MANUAL FOR DETAILS

SIZE	MAX INLET PRESSURE	VOLTAGE	BTU/HR
3/4"	25	24VDC	247,500
1"	25	24VDC	1,119,000
1-1/4"	25	24VDC	1,730,000
1-1/2"	25	24VDC	1,900,000
2"	15	24VDC	3,251,000
2-1/2"	5	120VAC	5,821,000
3"	5	120VAC	7,430,000

**GAS VALVE**  
 -THREADED NPT CONNECTION  
 -SEE TABLE ABOVE MAX PRESSURE

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# WALL MOUNTED CORE TOTAL FLOOD PROTECTION SPRINKLER DETAIL

BUILDING SPRINKLER CONTRACTOR:  
 1. CONNECT CORE WATER LINE TO BUILDING WET SPRINKLER SYSTEM. STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY

SPRINKLER CONTRACTOR REQUIREMENT

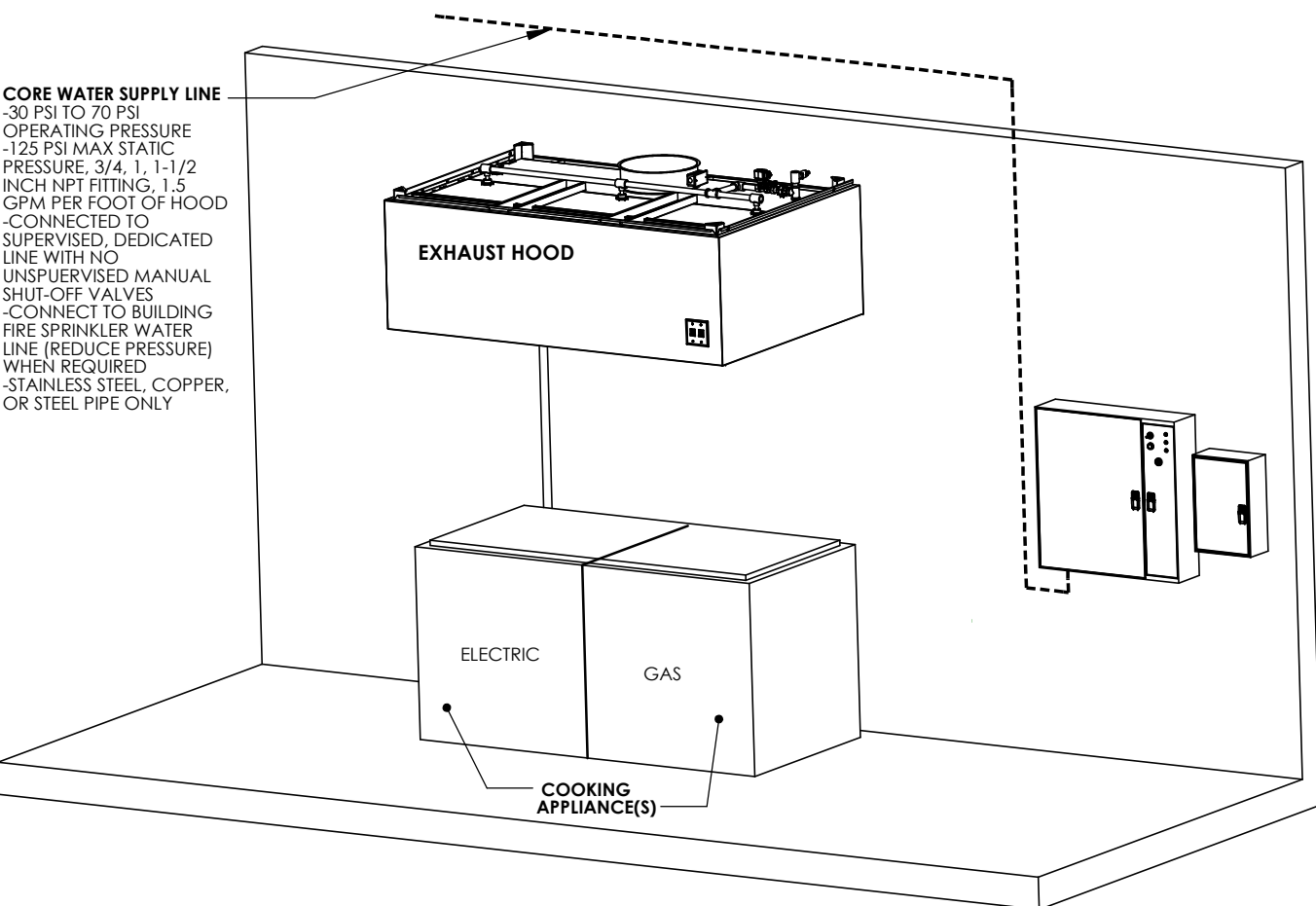
ITEM	CONNECTION	OPERATING PRESSURE	K-FACTOR	FLOW RATE	COMMENTS
CORE WATER SUPPLY LINE	3/4, 1, OR 1-1/2 INCH NPT	30 PSI TO 70 PSI	SEE TABLE	1.5 GPM PER FOOT OF HOOD	WATER LINE MUST BE SUPERVISED AND HAVE NO UNSUPERVISED MANUAL SHUT-OFF VALVES MINIMUM PRESSURE AND FLOWRATE DEPENDENT ON LENGTH OF HOOD SYSTEM

MINIMUM OPERATING PRESSURE REQUIREMENTS

LENGHT OF HOOD (FT)	MINIMUM INLET WATER PRESSURE FOR SELF CLEANING (PSI)	MINIMUM INLET WATER PRESSURE FOR CORE PROTECTION (PSI)	DISCHARGE COEFFICIENTS (K-FACTOR)
4	30	30	1.3
8	30	30	2.6
12	30	30	4.0
16	30	30	5.3
20	31	33	6.4
24	32	36	7.4
28	34	39	8.3
32	37	44	9.0
36	39	49	9.7
40	42	56	10.2
44	46	63	10.6
48	50	70	11.1

TOTAL FLOWRATE = K FACTOR x PRESSURE<sup>0.44</sup>

**CORE WATER SUPPLY LINE**  
 -30 PSI TO 70 PSI OPERATING PRESSURE  
 -125 PSI MAX STATIC PRESSURE, 3/4, 1, 1-1/2 INCH NPT FITTING, 1.5 GPM PER FOOT OF HOOD  
 -CONNECTED TO SUPERVISED, DEDICATED LINE WITH NO UNSUPERVISED MANUAL SHUT-OFF VALVES  
 -CONNECT TO BUILDING FIRE SPRINKLER WATER LINE (REDUCE PRESSURE) WHEN REQUIRED  
 -STAINLESS STEEL, COPPER, OR STEEL PIPE ONLY



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

# 24V CORE BASIC OPERATING INSTRUCTIONS

## CORE PROTECTION FIRE SYSTEM

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 THEN ITS INTERNAL SET POINT OR IF THE REMOTE MANUAL PULL STATION IS PULLED THE FIRE SYSTEM IS ACTIVATED. AN ELECTRIC WATER SOLENOID IS ENERGIZED ALLOWING THE FLOW OF WATER TO THE HOOD DUCT AND PLENUM THROUGH THE SELF CLEANING HOOD SPRAY BAR. AT THE SAME TIME A SECOND WATER SOLENOID IS ENERGIZED AND ALLOWS THE FLOW OF WATER TO THE APPLIANCES. 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. A TIMER IS ALSO ENERGIZED UPON FIRE SYSTEM ACTIVATION. THE TIMER IS SET FOR 30 MINUTES AND KEEPS THE WATER SPRAY SYSTEM RUNNING FOR A MINIMUM OF 30 MINUTES. THIS IS NECESSARY TO HELP EXTINGUISH ALL REMAINING DUCT FIRE POTENTIAL.

THE FIRE SYSTEM IS ELECTRICALLY OPERATED AND THUS REQUIRES A BATTERY BACKUP SYSTEM. IN THE EVENT OF A LOSS OF 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 ONE DAY 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 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 PULL STATION MUST BE RESET USING A STANDARD ALLEN WRENCH KEY. 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 THE CORE CONTROL CABINET. THIS WILL DE-ENERGIZE THE TIMER AND RESET THE SYSTEM. NOTE: THE FIRESTAT MUST BE COOL AND THE REMOTE PULL STATION MUST BE RESET FOR THIS BUTTON TO WORK.

THE FIRE SYSTEM MUST BE FILLED WITH SURFACTANT AND NOZZLE CAPS MUST BE REINSTALLED.

AFTER A FIRE, FULL INSPECTION BY A CERTIFIED PROFESSIONAL MUST BE CONDUCTED PRIOR TO RESTARTING THE FIRE SYSTEM.

## CORE APPLICATION SPECIFIC DETAILS

### SELF CLEANING HOODS

SELF CLEANING HOOD OPTION IS REQUIRED TO APPLY CORE PROTECTION. HIGH EFFICIENCY, HIGH VELOCITY CARTRIDGE, SOLO, OR COMBO FILTERS ARE REQUIRED. IF SUBSTITUTE FILTERS ARE UTILIZED, PRODUCT WARRANTY IS VOID AND THERE IS NO GUARANTEE IN PERFORMANCE.

### SOLID FUEL APPLIANCES

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. ALL ADDITIONAL FIRESTATS ARE WIRED INTO THE SUPERVISED LOOP WITH THE FIRST FIRESTAT. DUCT SHOULD BE INSULATED PER CODE REQUIREMENTS. IF SUBSTITUTE FILTERS ARE UTILIZED, PRODUCT WARRANTY IS VOID AND THERE IS NO GUARANTEE IN PERFORMANCE. SELF CLEANING HOODS AND ETL LISTED DUCTWORK ARE ALSO REQUIRED.

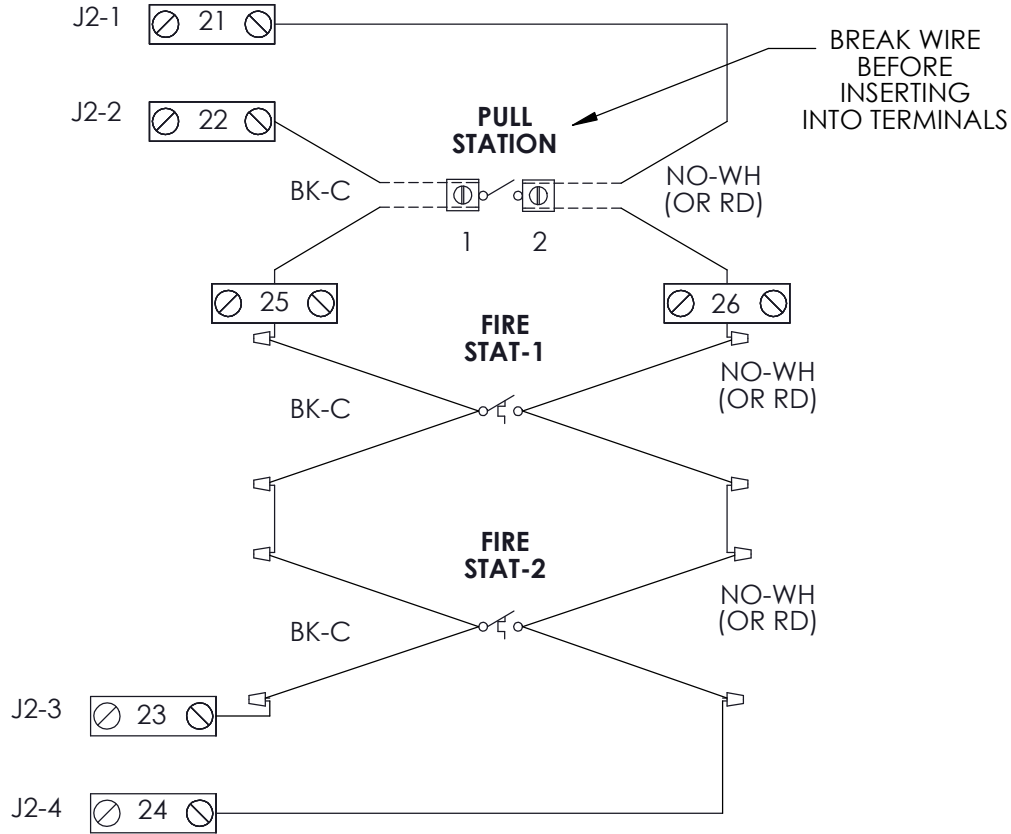
### DUCT FIRESTATS

A FIRESTAT MUST BE INSTALLED AT 50 FEET INTERVALS WHEN THE DUCT LENGTH EXCEEDS 50 FEET.

### **IMPORTANT:**

ANY DEVIATION FROM ANY OF THE MANUFACTURER'S RECOMMENDATIONS IN THIS DOCUMENT OR THE OPERATION AND INSTALLATION MANUAL MUST BE APPROVED BY THE OWNER OF THIS EQUIPMENT AND VOIDS THE WARRANTY AND PERFORMANCE GUARANTEE OF THIS PRODUCT.

# 24V SUPERVISED LOOP INSTRUCTIONS

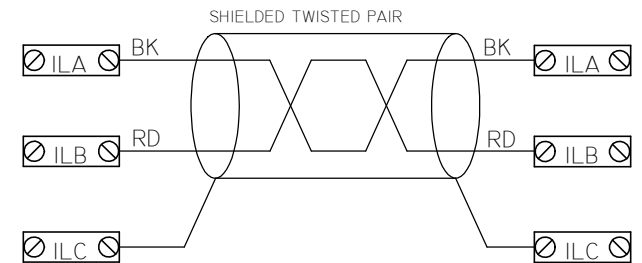


## SUPERVISED LOOP INSTALLATION

- LOOP MUST BE CONTINUOUS BETWEEN THE FIRESTATS AND PULL STATIONS, QUANTITY OF EACH COMPONENTS MAY VARY,
- POLLUTION CONTROL UNIT MAY NOT HAVE A PULL STATION INSTALLED; IN THIS CASE, INSTALL A JUMPER BETWEEN TERMINALS 21 AND 26, AS WELL AS TERMINALS 22 AND 25
- MULTIPLE PULL STATIONS AND FIRE SENSORS CAN BE USED ON EACH PANEL, WHEN INSTALLED, THEY ARE WIRED IN A DAISY-CHAIN STYLE AS SHOWN

## CONNECTION BETWEEN MULTIPLE CORE SYSTEMS

- THERE IS AN RS-485 CONNECTION IN EACH CORE PANEL; TO CONNECT MULTIPLE CORE PANELS, SIMPLY CONNECT MATCHING TERMINALS FROM ONE PANEL TO THE NEXT IN SERIES
- USE BELDEN #88760 OR SIMILAR WIRE, SHIELDED, SINGLE TWISTED PAIR



RS-485 INTERLOCK NETWORK

# PRESSURE REDUCING VALVE WITH SUPERVISION SWITCH AND PRESSURE MONITORING SWITCH



### VALVE SUPERVISION SWITCH

- THE PRESSURE REDUCING VALVE MUST BE INSTALLED WITH AN APPROVED SUPERVISION SWITCH
- SWITCH PART NUMBERS AND SUPPORT BRACKETS ARE LISTED IN THE TABLE
- SWITCH COMES WITH TWO SINGLE POLE, DOUBLE THROW SWITCHES
- SWITCH MUST BE ATTACHED PER PRESSURE REDUCTION VALVE BRACKET INSTRUCTIONS

### VALVE SUPERVISION SWITCH BRACKET

- VALVE BRACKET CONTAINS NECESSARY PARTS AND INSTRUCTIONS TO ADAPT THE SUPERVISION SWITCH TO THE VALVE.

### PRESSURE REDUCING VALVE

- VALVE IS AVAILABLE IN 1-1/2" NPT CONNECTIONS
- PRESSURE REDUCING VALVE MUST BE INSTALLED BEFORE THE CORE PROTECTION PACKAGE TO REDUCE SPRINKLER LINE INCOMING PRESSURE AND VOLUME
- PRESSURE REDUCTION IS BASED UPON THE INCOMING PRESSURE AND VOLUME
- SEE TABLE FOR OUTLET PRESSURE



### PRESSURE MONITORING SWITCH

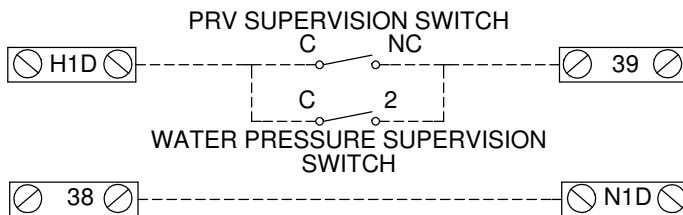
- SWITCH IS AVAILABLE WITH A 1/2" NPT CONNECTION
- PRESSURE MONITORING VALVE COMES WITH TWO SINGLE POLE, DOUBLE THROW SWITCHES, EACH WITH AN ADJUSTABLE SETPOINT
- SETPOINT CAN BE BETWEEN 10 AND 60 PSI
- PART NUMBER PL-PS402

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

OUTLET PRESSURE (PSI)	UR-20 VALVE	INCOMING PRESSURE (PSI)												
		50	60	70	80	90	100	110	120	130	140	150	160	170
	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

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.

### CORE CONTROL CONNECTIONS



### WIRING CONNECTIONS FOR TROUBLE CONTACT

