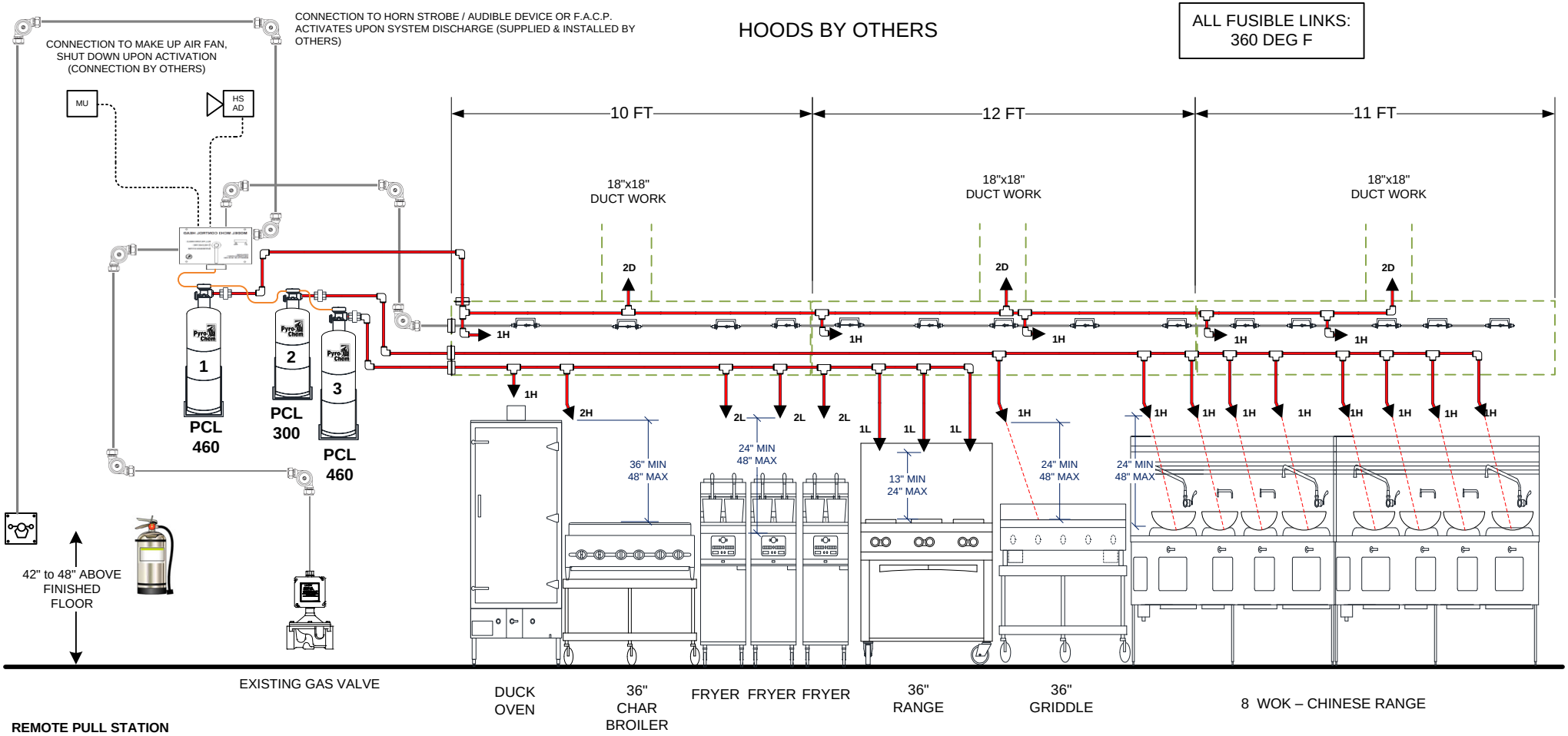


REMOTE PULL STATION

SHALL BE INSTALLED 42" - 48" ABOVE THE FINISHED FLOOR AND A DISTANCE OF AT LEAST 10FT FROM THE HAZARD BUT NOT MORE THAN 20FT. IT SHALL BE INSTALLED IN THE PATH OF EXIT AND REQUIRE A MAXIMUM FORCE OF 40 LBS AND A MAXIMUM MOVEMENT OF 14" FOR ACTUATION

CLASS K WET CHEMICAL EXTINGUISHER

SHALL BE INSTALLED 42" - 48" ABOVE THE FINISHED FLOOR

PYRO CHEM SYSTEMS ARE DESIGNED TO MEET NFPA 17A & UL300

PRE-ENGINEERED SYSTEM SHOP DRAWING ONLY – NOT TO SCALE

TANK 1 – PCL 460 – 11 of 14 POINTS USED
TANK 2 – PCL 300 – 9 of 10 POINTS USED
TANK 3 – PCL 460 – 12 of 14 POINTS USED

EXAMPLE DRAWINGS PROVIDED BY: http://www.fire

FIRE EQUIPMENT CONTRACTOR
345 6TH STREET, SUITE 600 BREMERTON, WA 98337
360-473-5290

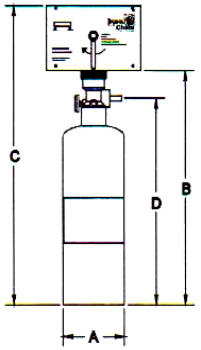
SOME RESTAURANT
123 MAIN STREET
BREMERTON, WA 98337

SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE	N/A		SHEET	1 OF 7

General Piping Requirements

1. Split piping and straight piping are both allowed on a PCL-300 and PCL-460 system.
2. PCL-600 systems must use split piping only, with no nozzle located before the split, and with a maximum of 14 flow points per side. 1/2 in. minimum piping must be used up to the first split.
3. Maximum volume for 1/4 in. pipe between a nozzle and the preceding tee is 410 mls.
4. Maximum flow numbers for 1/4 in. pipe is 6.
5. Maximum number of elbows between a nozzle and the preceding tee is 5.
6. Maximum of 25 elbows are allowed in the total piping system.
7. Maximum difference in elevation between the tank outlet and any nozzle, or the tank outlet and the highest or lowest horizontal pipe run, is 10 ft. (3.1 m).
8. No traps are allowed in the piping network.
9. Pipe lengths are measured from center to center of fittings.
10. The internal equivalent length volume of fittings does not have to be considered as part of the total pipe volume.
11. When utilizing different size pipe in the system, the largest size must start first and the additional pipe must decrease as it approaches the nozzle.
12. Elbow(s) or swivel adaptors located at the nozzles do not have to be counted in the 25 elbow maximum requirement.
13. Reducing bushings are allowed when reducing to a smaller pipe size.
14. Additional piping requirements when protecting a range, wok, or a fryer:
    - PCL-300 - Minimum of 300 ml and four (4) flow numbers required in total system. Of that minimum, 239 ml and two (2) flow numbers must be utilized at or before the range, wok, or fryer.
    - PCL-460 – Minimum of 660 ml and ten (10) flow numbers required in total system. Of that minimum, 180 ml and two (2) flow numbers must be utilized at or before the range, wok, or fryer.
    - PCL-600 – Minimum of 960 ml and fourteen (14) flow numbers required in total system. Of that minimum, 120 ml and 2 flow numbers must be utilized at or before the range, wok, or fryer.



Model No.	A in. (cm)	B in. (cm)	C in. (cm)	D in. (cm)	Max. Flow Point Capacity	Weight lbs. (kg)	Mounting Bracket Used
PCL-160	7.00 (17.8)	19.62 (49.8)	25.37 (64.4)	17.31 (43.9)	5	33 (15)	MB-15
PCL-300	8.00 (20.3)	25.06 (63.7)	30.81 (78.3)	22.75 (57.8)	10	53 (24)	MB-15
PCL-460	10.00 (25.4)	25.06 (63.7)	30.81 (78.3)	22.75 (57.8)	15	83 (37.7)	MB-15
PCL-600	10.00 (25.4)	35.81 (91)	41.56 (105.4)	33.50 (85.1)	20	108 (48.9)	MB-1

UL Listing

The PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System has been tested to the UL Standard for Fire Extinguishing Systems For Protection of Restaurant Cooking Areas, UL300 and Listed by Underwriters Laboratories, Inc.

The PYRO-CHEM® KITCHEN KNIGHT® II Restaurant Fire Suppression System is of the pre-engineered type as defined by NFPA-17A Standard for Wet Chemical Extinguishing Systems and NFPA-96 Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment. The system is designed to provide fire protection for restaurant cooking appliances, hoods, and ducts.

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

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360-473-5290

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123 MAIN STREET
BREMERTON, WA 98337

SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A | SHEET 2 OF 7

Tank Chart

Tank Size	Maximum Flow Numbers	Maximum Pipe Volume (milliliters)	Maximum Volume Allowed Between First Nozzle and Last Nozzle (milliliters)
1.6 Gallon PCL-160	5	1500	600
3.0 Gallon PCL-300	10	1910	1125
4.6 Gallon PCL-460	14	3400	3000
4.6 Gallon PCL-460	15	2600	2000
6.0 Gallon PCL-600	19	4215	1688 per side
6.0 Gallon PCL-600	20	3465	1313 per side

Volume Chart

1/4 in. pipe = 20.5 mls./ft.
3/8 in. pipe = 37.5 mls./ft.
1/2 in. pipe = 59.8 mls./ft.
3/4 in. pipe = 105.0 mls./ft.

NOTE

Pneumatic tubing (copper) used for remote cylinder actuation shall have an outside diameter of 1/4 in. with a minimum wall thickness of 1/32 in. This is commonly known as refrigeration-type copper tubing. All tubing fittings shall be of the 1/4 in., 45° flare type conforming to SAE J513c.

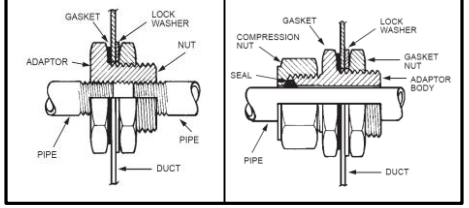
Compression type fittings are not acceptable.

GENERAL NOTES:

1. SYSTEM SHALL BE PRE-ENGINEERED
2. SYSTEM SHALL BE MANUFACTURED BY PYRO CHEM
3. PYROCHEM SYSTEMS HAVE THE FOLLOWING LISTINGS AND APPROVALS:

   UNDERWRITERS LABORATORIES INC, UL 300 , UL EX 3830
4. SYSTEM TEMPERATURE LIMITATIONS – 32F MIN / 120F MAX
5. INSTALLATION REQUIREMENTS, NOZZLE LIMITATIONS AND DESIGN CRITERIA SHALL COMPLY WITH THE PYRO CHEM TECHNICAL MANUAL AND ALL ADDENDUMS AS PUBLISHED BY PYRO CHEM.
6. PIPE AND FITTINGS SHALL BE SCHEDULE 40 BLACK, CHROME PLATED OR STAINLESS. GALVANIZED PIPE SHALL NOT BE USED.
7. ALL REQUIRED ELECTRICAL WORK SHALL BE PERFORMED BY OTHERS AND IS NOT INCLUDED ON THIS SHOP DRAWING.
8. ALL REQUIRED PLUMBING WORK SHALL BE PERFORMED BY OTHERS AND IS NOT INCLUDED ON THIS SHOP DRAWING

ALL PENETRATIONS TO THE HOOD SHALL BE SEALED WITH AN APPROVED QUICK SEAL DEVICE



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SOME RESTAURANT
123 MAIN STREET
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SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 3 OF 7

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

Duct Protection

It is not required that the fan be shut down or the exhaust duct be dampered for the system to operate properly.

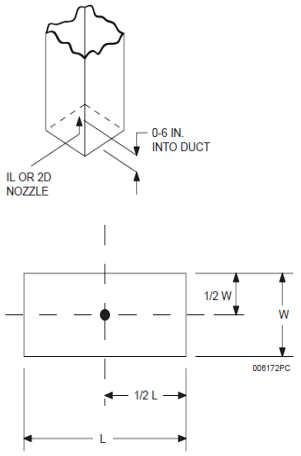
All duct protection is UL listed without limitation of maximum duct length (unlimited length). This includes all varieties of ductworks both horizontal and vertical including ducts that run at angles to the horizontal and ducts with directional bends.

Duct protection requires that a nozzle be positioned to discharge into the duct. Two nozzles are available for duct protection.

The Model IL Nozzle, Part No. 551026, is a one (1) flow nozzle. A single IL nozzle is capable of protecting square or rectangular ducts with a maximum perimeter of 50 in. (127 cm), with the diagonal being a maximum of 18 3/4 in. (47.6 cm). It can also protect a round duct with a maximum diameter of 16 in. (40.6 cm).

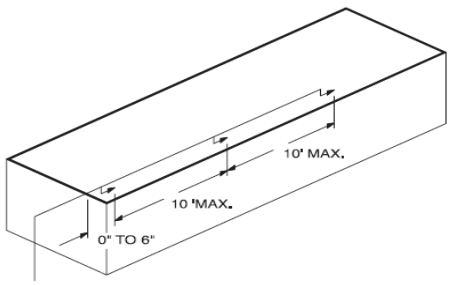
The Model 2D duct nozzle, Part No. 551038, is a two (2) flow nozzle. A single 2D nozzle is capable of protecting square or rectangular ducts with a maximum perimeter of 100 in. (254 cm), with the diagonal being a maximum of 37 3/8 in. (94.9 cm). It can also protect a round duct with a maximum diameter of 31 7/8 in. (81 cm).

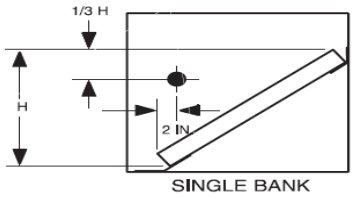
When two (2) 2D duct nozzles are used to protect a single duct, the cross sectional area of the duct must be divided into two equal symmetrical areas. The nozzle must then be installed on the centerline of the area it protects and aimed directly into the duct opening.



PLENUM PROTECTION

The NL1H nozzle is a one (1) flow nozzle used for plenum protection. A single NL1H nozzle can protect a plenum (with single or V-bank filters) 10 ft. long by 4 ft. wide. Dividing the length into sections equal to or less than 10 ft. in length and positioning a nozzle at the start of each section can be done to protect longer plenums.





4. **Small Wok** (24 in. (61 cm) diameter x 6 in. (15 cm) depth maximum)

Two nozzles are available for small wok protection: High proximity and low proximity.

The 1H nozzle, Part No. 551029, is used for high proximity wok protection. This nozzle is a one (1) flow nozzle. The nozzle must be located **anywhere on the perimeter** of the appliance, 24 in. to 48 in. (61 to 122 cm) above the top edge of the wok and aimed at the center of the wok. See **Figure 3-6.**

The 1L nozzle, Part No. 551026, is used for low proximity wok protection. This nozzle is a one (1) flow nozzle. The nozzle must be located **anywhere on the perimeter** of the appliance, 13 in. to 24 in. (33 to 61 cm) above the top edge of the wok and aimed at the center of the wok. See **Figure 3-6.**

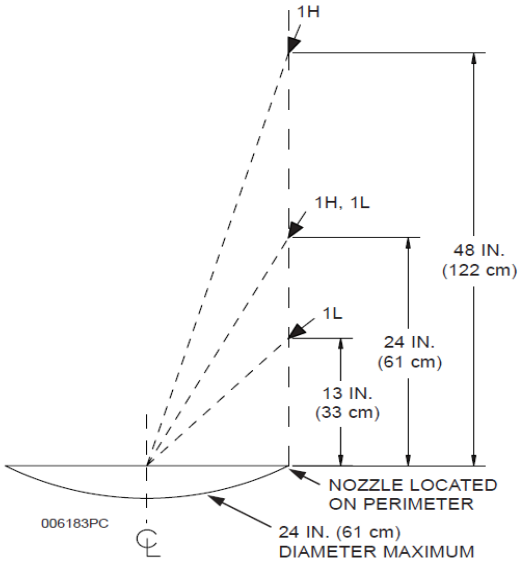


Figure 3-6.

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SOME RESTAURANT
123 MAIN STREET
BREMERTON, WA 98337

SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 4 OF 7

RANGE PROTECTION – 1L NOZZLE

- The Model 1L nozzle, Part No. 551026, is used for low proximity small range protection. This nozzle is a one (1) flow nozzle. **The range can be equipped either with or without a backshelf.** Either type requires the same nozzle requirements. The nozzle must be located 22 in. (56 cm) from either end of the hazard area centered from left to right. It must be 13 in. to 24 in. (33 to 61 cm) above cooking surface, and aimed at a point one half the distance of whatever the height dimension of the nozzle is. When determining nozzle and aim point locations, both measurements are to be taken from the **same** end of the hazard area. Example: The nozzle is mounted 20 in. (51 cm) above the cooking surface. The aim point from the edge of the hazard would then be 10 in. (25 cm) which is one half the
- nozzle mounting height dimension. See **Figure 3-4a. Note:** Nozzles must be placed at or below the shelf, within the nozzle height limitations.

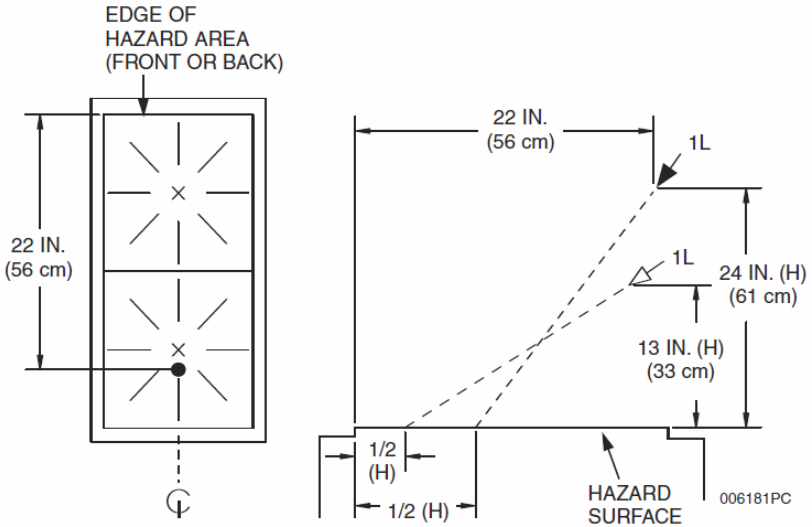

Figure 3-4a.

- **9. Radiant/Electric Char-Broiler** (864 sq in. (2195 sq cm) x 36 in. (91 cm) longest side maximum)

  Two nozzles are available for radiant char-broiler protection: High proximity and low proximity.

  The 2H nozzle, Part No. 551028, is used for high proximity radiant char-broiler protection. This nozzle is a two (2) flow nozzle. The nozzle must be located **above any corner** of the hazard surface, 36 in. to 48 in. (91 to 122 cm) above the cooking surface of the appliance and aimed at the
- center of the broiler surface. See **Figure 3-11.**

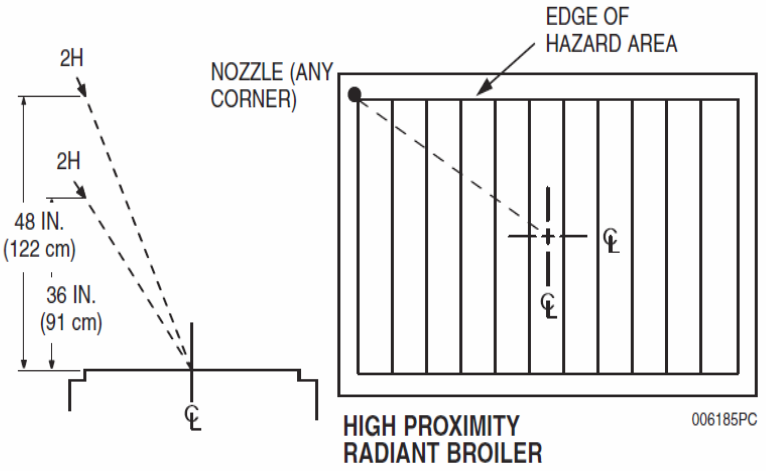

Figure 3-11.

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

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	SOME RESTAURANT 123 MAIN STREET BREMERTON, WA 98337			
	SIZE	FSCM NO	DWG KITCHEN FIRE SYSTEM	REV
	SCALE N/A		SHEET 5 OF 7	

Fryers with Drip Board

The maximum single nozzle protection dimensions depend on the dimensions of the fry pot only.

For fry pots with maximum dimensions of 18 in. (45.7 cm) on the longest side and 324 sq. in. (2090 sq. cm) max. area, use **overall** dimensions of 27 3/4 in. (70.5 cm) on the longest side and 500 sq. in. (3226 sq. cm) max. area.

For fry pots with maximum dimensions exceeding 18 in. x 324 sq. in. (2090 sq. cm), but no greater than 19 1/2 in. (49.5 cm) on the longest side and 371 sq. in. (2394 sq. cm) max area, use **overall** dimensions of 25 3/8 in. (64.5 cm) on the longest side and 495 sq. in. (3194 sq. cm) area.

Two nozzles are available for fryer protection: High proximity and low proximity.

The Model 2H nozzle, Part No. 551028, is used for high proximity fryer protection. This nozzle is a two (2) flow nozzle. The nozzle must be located **anywhere within the perimeter** of the hazard area, 24 in. to 48 in. (61 to 122 cm) above the cooking surface of the appliance and aimed at the center of the cooking area. See **Figure 3-3b.**

The Model 2L nozzle is used for low proximity fryer protection. This nozzle is a two (2) flow nozzle. The nozzle must be located **anywhere on the perimeter** of the hazard area, 13 in. to 24 in. (33 to 61 cm) above the cooking surface of the appliance and aimed at the center of the cooking area. See **Figure 3-3b.**

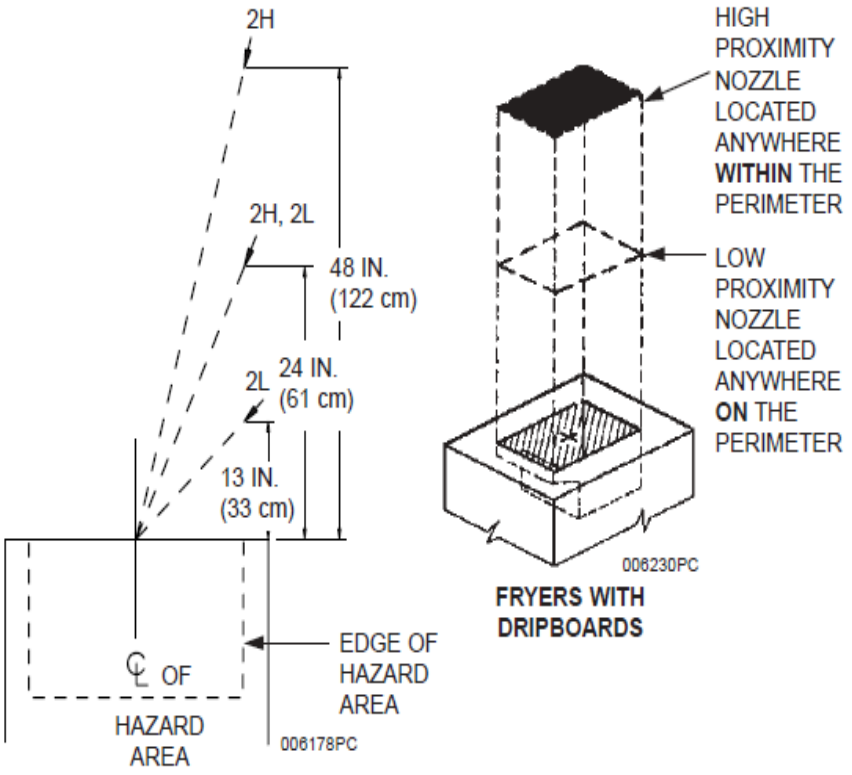

Figure 3-3b

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	SOME RESTAURANT 123 MAIN STREET BREMERTON, WA 98337			
	SIZE	FSCM NO	DWG KITCHEN FIRE SYSTEM	REV
	SCALE N/A		SHEET 6 OF 7	

EXAMPLE DRAWINGS PROVIDED BY: http://www.firesystemdrawings.com

Small Griddle (1080 sq in. (6968 sq cm) x 36 in. (91 cm) longest side maximum)

Two nozzles are available for small griddle protection: High proximity and low proximity.

The 1H nozzle, Part No. 551029, is used for high proximity griddle protection. This nozzle is a one (1) flow nozzle. The nozzle must be located **above any corner** of the hazard surface, 24 in. to 48 in. (61 to 122 cm) above the cooking surface of the appliance and aimed at a point 12 in. (31 cm) over and 12 in. (31 cm) in from the corner below the nozzle. See **Figure 3-8.**

The 1L nozzle, Part No. 551026, is used for low proximity griddle protection. This nozzle is a one (1) flow nozzle. The nozzle must be located **above any corner** of the hazard surface, 10 in. to 24 in. (25 to 61 cm) above the cooking surface of the appliance and aimed at a point 12 in. (31 cm) over and 12 in. (31 cm) in from the corner below the nozzle. See **Figure 3-8.**

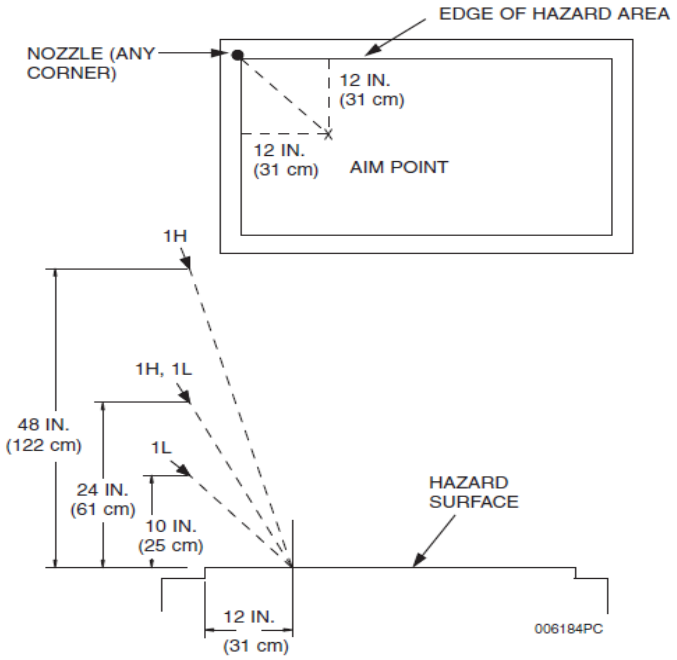

Figure 3-8.

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SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 7 OF 7