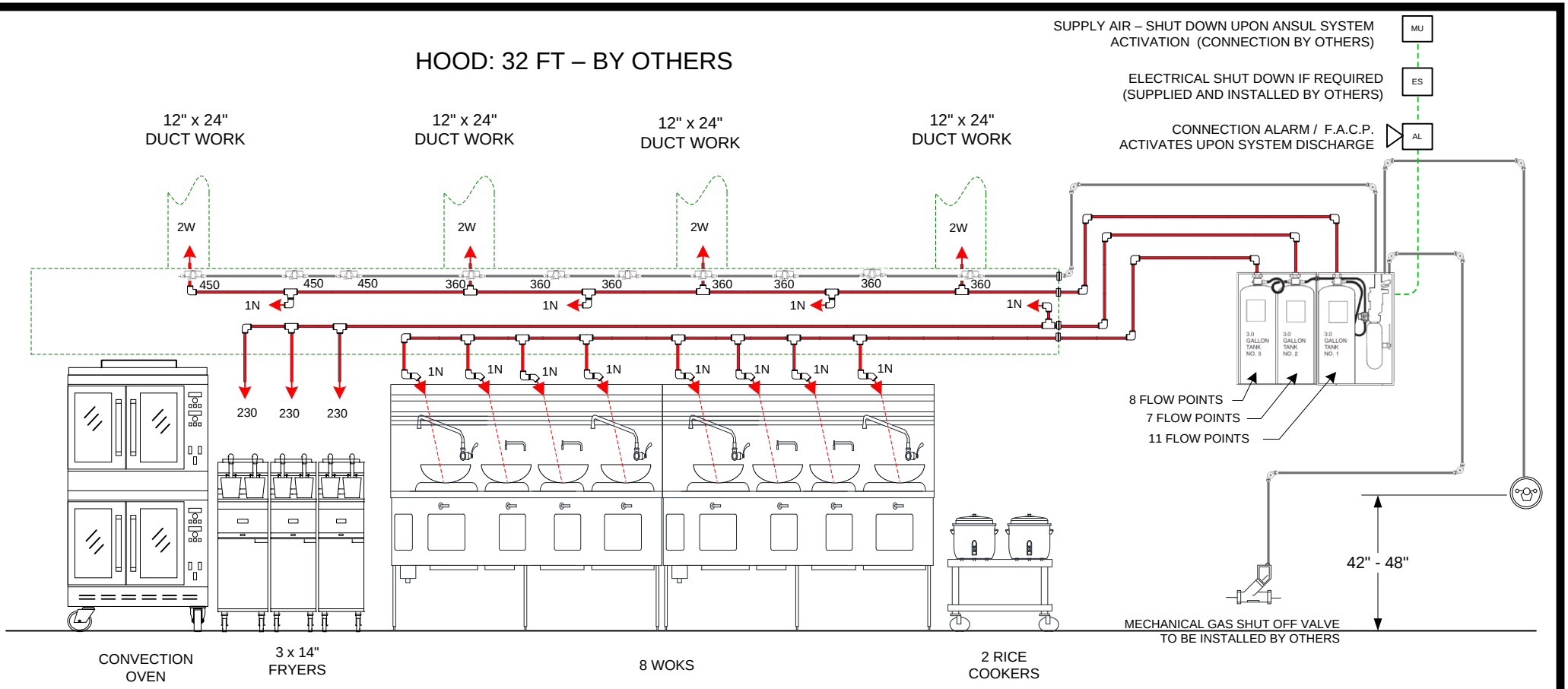

SEE NOZZLE DETAILS AND HEIGHTS ON PAGES 3 - 5

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

ANSUL R102 – 9 GALLON SYSTEM
11 FLOW POINTS MAX PER TANK

SYSTEM PIPING LIMITATIONS

3 GALLON SYSTEM PER TANK				
Requirments	Supply	Duct Branch	Plenum Branch	Appliance Branch
Pipe Size	3/8"	3/8"	3/8"	3/8"
Maximum Length	40 FT	8 FT	4 FT	12 FT
Maximum Rise	6 FT	4 FT	2 FT	2 FT
Max 90 Elbow	9	4	4	6
Max Tees	1	2	2	4
Max Flow Points	11	4	2	4

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

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SOME RESTAURANT
123 MAIN STREET
BREMERTON, WA 98337

SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 1 OF 5

GENERAL NOTES:

1.System shall be Pre-Engineered

2.System shall be manufactured by ANSUL INC.

3.ANSUL R102 systems have the following Listings and Approvals:

Underwriters Laboratories Inc, UL 300 / UL 1254, UL EX 3470

4.System Temperature Limitations – 32F min / 120F Max

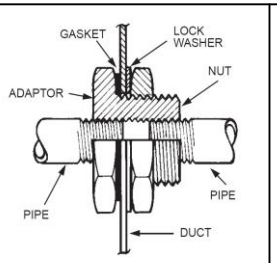
5.Installation requirements, nozzle limitations and design criteria shall comply with the ANSUL R102 Manual and all addendums as published by ANSUL

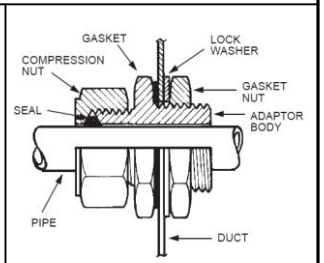
6.Pipe and fittings shall be Schedule 40 Black, Chrome Plated or Stainless. Galvanized Pipe Shall Not Be Used.

7.All required electrical work shall be performed by others and is not included on this shop drawing.

8.All required plumbing work 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





General Piping Requirements

1. All R-102 system piping is straight line. Therefore, the need for critical lengths and balancing is minimized.
2. Two 45° elbows count as one 90° elbow.
3. Each branch line includes the tee or elbow leading to it, and all fittings within the branch line itself.
4. The minimum piping length of Schedule 40, 3/8 in. pipe from the tank outlet to any nozzle protecting a range, fryer, or wok must be 6 ft. (1.8 m).
5. Pipe lengths are measured from center of fitting to center of fitting. See Figure 85.

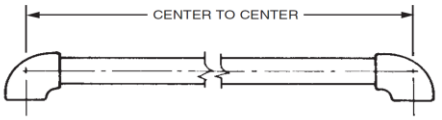


FIGURE 85
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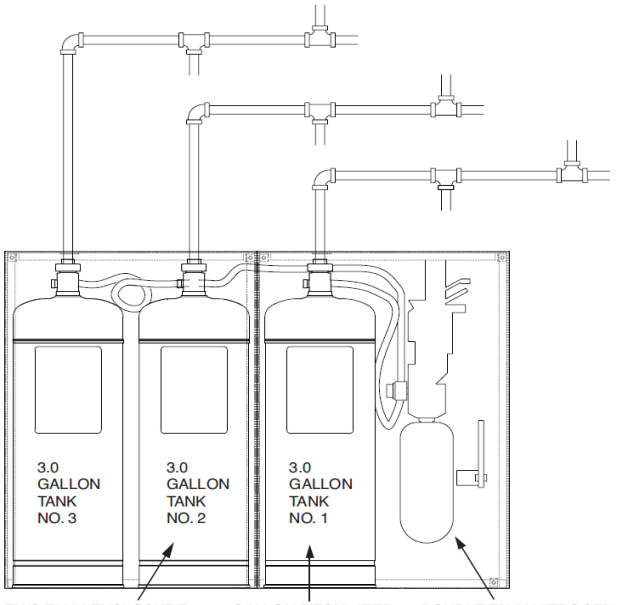
6. All distribution piping must be 3/8 in. Schedule 40 black iron, chrome-plated, or stainless steel. **Do not use hot dipped galvanized pipe on the distribution piping.**
7. All threaded connections located in and above the protected area must be sealed with pipe tape. Tape should be applied to male threads only. Make certain tape does not extend over the end of the thread, as this could cause possible blockage of the agent distribution.
8. Before installing blow-off caps on nozzles, apply a small amount of Dow Corning No. 111 silicone grease across the opeing in the nozzle tip and also a small amount coating the exterior of the blow-off cap. This will help keep cooking grease from building up on the cap.
9. Tees used in the distribution piping can be used as thru tees, side outlet tees, or bull tees.



NOTE: WHEN THREE (3) 3.0 GALLON TANKS ARE CONNECTED TO ONE (1) AUTOMAN REGULATED RELEASE ASSEMBLY, NO ADDITIONAL REGULATED ACTUATOR(S) ASSEMBLIES CAN BE USED.

TANK AND CARTRIDGE REQUIREMENTS

Once the hazard analysis is completed and the total nozzle flow numbers are established, the quantity and size of agent tanks and cartridges needed to supply the nozzles with the proper volumes of agent at the proper flow rates can be determined. For cartridges used in the regulated release mechanism, flow capacities, tank quantities and sizes, and regulated release cartridge options are given in the table below.

Total Flow Numbers*	Quantity and Size of Tank(s)	Regulated Release Cartridge Options	
		Nitrogen	Carbon Dioxide
1 – 5	(1) 1.5 Gallon	LT-20-R	101-10
6 – 11	(1) 3.0 Gallon	LT-30-R	101-20
11 – 16	(1) 1.5 Gallon (1) 3.0 Gallon	Double	101-30
16 – 22	(2) 3.0 Gallon	Double	101-30**

When one or more regulated actuators are used, the following tank and cartridge combinations apply for each regulated actuator:

Regulated Actuator Tank(s)	Regulated Actuator Cartridge
(1) 1.5 Gallon	LT-20-R or 101-10
(1) 3.0 Gallon	LT-30-R or 101-20
(1) 1.5 Gallon and (1) 3.0 Gallon	LT-A-101-30 or 101-30** or double tank
(2) 3.0 Gallon	LT-A-101-30 or 101-30** or double tank

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SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 2 OF 5

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

Duct Protection – Single Nozzle

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.

Nozzles must be located 2-8 in. (51-203 mm) into the center of the duct opening, discharging up. See Figure 4-1.

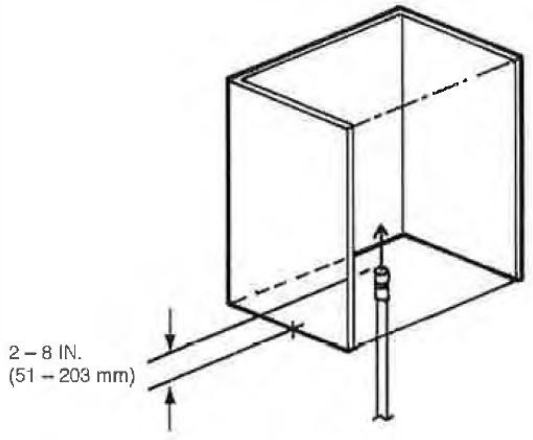

FIGURE 4-1
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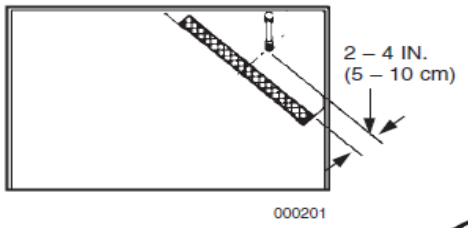
The chart below shows the maximum protection available from each duct nozzle.

Description	3.0 Gallon System	1.5 Gallon System
2W Nozzle	Maximum 100 in. (2540 mm) Perimeter	Maximum 100 in. (2540 mm) Perimeter
1W Nozzle	Maximum 50 in. (1270 mm) Perimeter	Maximum 50 in. (1270 mm) Perimeter

HORIZONTAL PROTECTION – OPTION 1

1N NOZZLE – PART NO. 419335 – SINGLE BANK PROTECTION

One 1N nozzle will protect 10 linear feet (3.1 m) of single filter bank plenum. The nozzle(s) must be mounted in the plenum, 2 to 4 in. (5 to 10 cm) from the face of the filter, centered between the filter height dimension, and aimed down the length. The nozzle must be positioned 0-6 in. (0-15 cm) from the end of the hood to the tip of the nozzle. See Figure 9.



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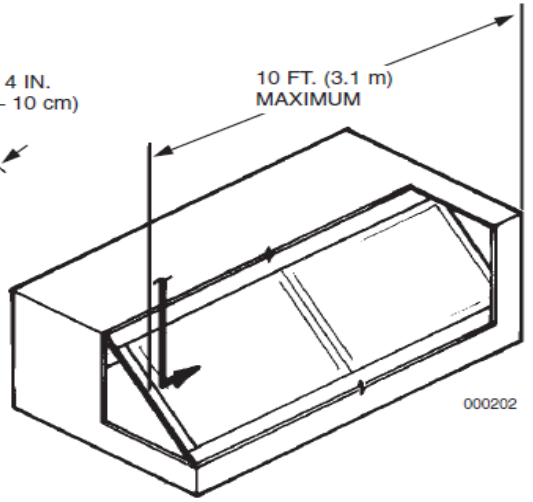

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SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 3 OF 5

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

FRYER PROTECTION

Fryer – Single Nozzle Protection

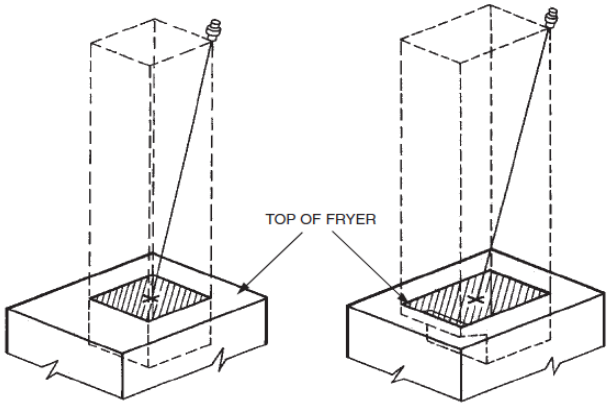
1. Design requirements for fryers are broken down into two types.

   A. FRYERS WITHOUT DRIPBOARDS

   If the fryer does not include a dripboard, measure the internal depth (horizontal dimension from front to back) and length of the frypot.

   B. FRYERS WITH DRIPBOARDS

   If the fryer includes any dripboard areas, measure both the internal depth (horizontal dimension from front to back) and length of the frypot portion, and then measure the internal depth and length of the overall hazard area including any dripboard areas.



NOZZLE TIP POSITIONED ANYWHERE ALONG OR WITHIN PERIMETER OF COOKING SURFACE AND AIMED TO THE CENTER OF THE COOKING AREA.

Max. Size Frypot Only	Max. Size Overall With Dripboard	Type of Nozzle	Nozzle Height Above Top of Fryer
Full or Split Vat 14 in. x 15 in. (36 cm x 38 cm)	Full or Split Vat 14 in. x 21 in. (36 cm x 53 cm)	230	27 in. to 47 in. (69 cm to 119 cm)

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SIZE	FSCM NO	DWG	REV
		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 4 OF 5

WOK PROTECTION

A 1N nozzle will protect a wok 11 in. (279 mm) minimum diameter up to 24 in. (609 mm) maximum diameter. The wok depth must be no less than 3 in. (76 mm) and no greater than 6 in. (152 mm). The nozzle is stamped with 1N indicating that this a one-flow nozzle and must be counted as one flow number. When using this nozzle, the nozzle must be positioned anywhere along or within the perimeter of the wok, aimed at the center, 30 in. to 40 in. (762 mm to 1016 mm) above the hazard surface, as shown in Figure 4-65.

NOTICE

When using this type of wok protection, only five flow numbers are allowed on a 1.5 gal (5.7 L) system, and only eleven flow numbers are allowed on a 3 gal (11.4 L) system.

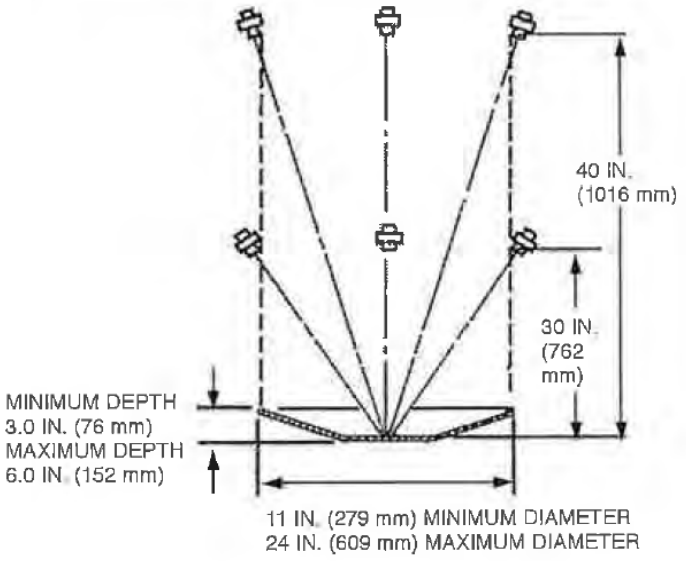

FIGURE 4-65

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		KITCHEN FIRE SYSTEM	

SCALE N/A SHEET 5 OF 5