



# FLAME GARD— TYPE I

## TWO MODELS AVAILABLE...

1. Standard Fixed Baffles
2. Spark Arrestor Frame

## 94% EFFICIENT AT GREASE EXTRACTION

As tested by Underwriters Laboratories of Canada it has been proven that Flame Gard 1 grease filters have the highest rate of grease extraction of any filter on the market today while still maintaining extremely low static pressures. Quoting U.L.C. File #CR1157 it was stated that the quantity of grease passing through the filter to the exhaust duct did not exceed 6% of the amount generated. (Please refer to the U.L.C. Report contained in the technical section of our full line catalog.)

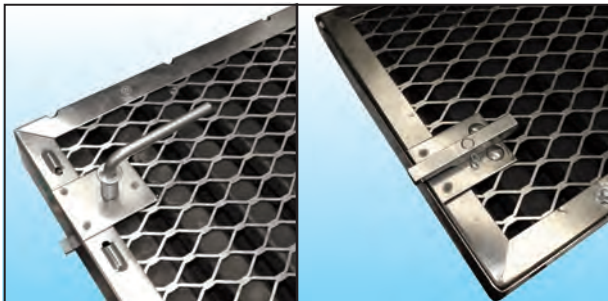
## SIMPLE BUT EFFECTIVE BAFFLE DESIGN

Flame Gard's "U" shaped baffles were arrived at after extensive testing. The smooth, deep baffles cause the grease to drain off the filter quickly, and they resist flame penetration without disturbing the movement of air. Flame Gards have more baffles per inch of filter which is a key factor in our high rate of grease extraction and out low static pressure. More baffles mean more grease impingement area and more paths for the air to flow smoothly and quickly through filter. These combined features make Flame Gard I's the most energy efficient filters available.

## TEFLON® COATED BAFFLES

Flame Gard's high rate of grease extraction is aided by our TEFLON® coated baffle. In the same manner that grease rolls off a TEFLON coated pan, it rolls down our baffles, out of the filter and into the hood's remote collection cup. Because Flame Gard's filters retain only insignificant amounts of surface grease and do not load, you will have constancy of air flow throughout your operating day. In addition, Flame Gard's filters can be easily cleaned in a pot sink or dishwasher with simple detergent and hot water.

## MARYLAND LOCKING HANDLES AVAILABLE



## METHOD

Two sample steel filters were weighed and then mounted side by side in the hood. The damper was adjusted to provide a stack velocity of approximately 1800 f.p.m. The distance from the broiler surface to the bottom of the unit was approximately 36 in. The grease generator was weighed, partially filled with cooking oil, reweighed and the weighed recorded.

The grease generator was placed on the electric broiler and heated until the temperature of the cooking oil was 400° F. The sizing of the spray nozzle was such that grease was discharged at approximately one pound per hour per foot width of the test hood.

The test continued for 2 hours...

At the end of the test, the grease laden filters were weighed. The grease collected from the filter run off was collected and weighed. The grease



File No. R10173  
NFPA #96

**CLASSIFIED BAFFLE GREASE FILTER MEETS NFPA 96 REQUIREMENT FOR COOKING WITH SOLID FUEL**

## SPARK ARRESTOR FRAME

THE 3/8" X 1/2" SPARK ARRESTOR FRAME MEETS NFPA 211 REQUIREMENT FOR SOLID FUEL BURNING APPLIANCES

- ALL STEEL CONSTRUCTION
- ALL SIZES AVAILABLE
- NON-LOADING TEFLON COATED BAFFLES
- LOW STATIC PRESSURE

**NATIONAL FIRE PROTECTION ASSOCIATION NFPA 96, CHAPTER 11-5.1 STATES**

If airborne sparks and embers can be generated by the solid fuel cooking operation, spark arrestor devices shall be used prior to the grease removal device to minimize the entrance of these sparks and embers into the grease removal device and into the hood and duct system.

## NFPA 211 CHAPTER 1.11.2 (B) STATES:

(b) The arrestor screen shall have heat and corrosion resistance equivalent to 19 gauge (0.011 in.) galvanized steel or 24 gauge (0.024 in.) stainless steel.

(c) Opening shall not permit the passage of spheres having a diameter larger than 1/2 in. (12.7mm) nor block the passage of spheres having a diameter of less than 3/8 in. (9.5mm).

## 94% EFFICIENT AT GREASE EXTRACTION!

*"The quantity of grease passing through the filter to the exhaust duct did not exceed 6% of the amount generated!"*

## RESULTS

THE FOLLOWING DATA WAS RECORDED ON THE UNITS TESTED. 20 IN. BY 20 IN. STEEL TEFLON COATED FILTERS

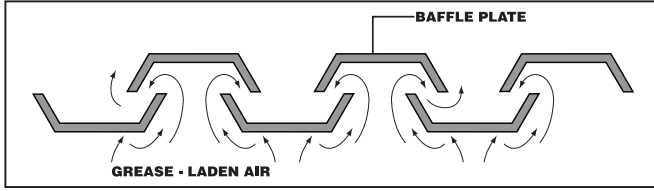
### WEIGHT OF GREASE GENERATED

Before Test 95 lb.  
After Test 87.5 lb.  
Cooking Oil Used 7.5 lb.

	Weight Before Test	Weight After Test	Weight of Grease On Filter
Filter #1	15 lb. 6 oz.	15 lb. 6 oz.	0 oz.
Filter #2	15 lb. 5 oz.	15 lb. 5 oz.	0 oz.

Weight of oil collected from the grease filter run off 7 lb. 4 oz. Amount of oil not retained or collected 1 oz. The quantity of grease passing through the filter to the exhaust duct did not exceed 6 percent of the amount generated.

# FLAME GARD—TYPE I



## HOW FLAME GARD® WORKS

The affluent from cooking processes contains aerosols of water vapor mixed with evaporated fat or oil. These are carried from the cooking surface by the moving air being drawn into the exhaust hood.

Although small, each aerosol is much heavier than the air molecules surrounding it.

Thus, when the air stream containing these aerosols strikes the Flame Gard® Baffle System, the inertial force of the moisture-grease aerosol is considerably greater than that of the air molecule. While the air molecule changes direction easily, the aerosol strikes the baffle with considerable force, causing it to "splatter" on the surface. Because the surface is coated with a Teflon®, the grease slides down to the trough and then to the collecting container.

Whereas the heaviest aerosols, because of their greater inertial force, impinge on the surfaces of the baffles facing and perpendicular to the air flow, the lighter ones remain in the air stream. As the air stream is drawn through the baffle system, the restrictions in area created by the baffles cause the air to increase in velocity while changing direction by 180 degrees. Since the inertial force is a product of the mass and the square of the velocity, this increase in velocity serves to increase the inertial force of the remaining smaller aerosols, causing them to impinge on the inner surfaces of the baffles in the same manner in which the heavier aerosols impinged on the entering surfaces. The design of the baffle system provides several impingement surfaces and two rapid 180-degree direction changes.

Because Flame Gard® removes grease aerosols from the air stream and drain them away instead of retaining them. There is no build-up of grease in the path of the air Flame Gard® therefore, insures a constancy of air never before achievable with mesh-type filters.

## WARRANTY

Flame Gard® I has a one-year warranty against defective material or workmanship.

## RECOMMENDED WORDING FOR GREASE FILTER SPECIFICATION LONG FORM

Grease filters shall be as manufactured by Flame Gard®. They shall consist of two offsetting baffle assemblies held in position by metal screws, all contained in a metal frame with expanded metal trim on the face and back.

Baffle assemblies shall consist of "U"-shaped channels of 20-gauge steel, coated by no less than one mil of DuPont Teflon® 22. Channels shall be separated and held in parallel alignment by 14-gauge steel cross members. Baffle assemblies shall be mounted in their frames reserved one to the other and staggered so that the side of each channel is aligned with, and spaced evenly from, the side of an opposing channel.

Frames shall be constructed of nickel-plated 18-gauge cold-rolled steel with 3/8 inch diameter openings for drainage of grease. Frames shall consist of two parts permanently held together by metal screws.

Protective trim shall be made of 16-gauge nickel-plated, diamond-shaped, expanded cold-rolled steel.

Stainless steel handles shall be provided on each side of the front frame for ease of removal and replacement in exhaust hoods.

## SHORT FORM

Grease Filters shall be as manufactured by Flame Gard®. Filter shall consist of an outside rear and front frame of nickel-plated steel welded to a front face of expanded steel. With two opposing Teflon-coated baffles inside.

## SELECTION CHART

### ENGINEERING DATA

### CFM - STATIC PRESSURE

### STATIC PRESSURE - INCHES OF H2O

Size	10x16	10x20	12x20	16x20	16x25	20x20	20x25
350	.350	.185	.160	.075	.045	.045	.030
400	.495	.240	.205	.095	.055	.055	.040
450	.695	.310	.260	.120	.065	.065	.045
500		.390	.325	.145	.080	.080	.055
550		.485	.395	.175	.100	.100	.065
600		.595	.475	.215	.120	.120	.080
650		.720	.570	.255	.150	.150	.090
700			.670	.300	.180	.180	.105
750				.305	.210	.210	.120
800				.400	.250	.230	.140
850				.460	.290	.290	.165
900				.530	.330	.330	.185
950				.600	.380	.380	.210
1000				.670	.430	.430	.240
1050					.480	.480	.275
1100					.540	.540	.320
1150					.610	.610	.365

CFM PER FILTER - (75 AIR)

\*Measured 6" behind Flame Gard Static pressure per filter, as included in this chart, represents the total static pressure for the system regardless of the number of filters used in the hood.

## STANDARDS

The NATIONAL EVALUATION SERVICES COMMITTEE of the Council of American Building Officials, a co-operative consisting of a consolidation of these former organizations: Building Officials and Code Administrators International, Inc.; International Conference of Building Officials; and Southern Building Code Congress International, Inc.; and which now provides uniform standards for the entire United States, recognizes Flame Gard® when installed with the manufacturer's recommendation and the following table:

TABLE 1 HEIGHT OF GREASE FILTERS

Type of Cooking Equipment	Height Above Cooking Surface(ft.)
Without Exposed Flame	0.5
Exposed Flame	2.0
Charcoal Burning	2.0

A complete list of governmental and industry approvals is available on request. See National Evaluation Service report No. NER-255 for allowable values and or conditions of use concerning material presented in this document. It is subject to re-examination, revisions, and possible cancellation. NER-255, "Condition of Use" - filters to be used in a kitchen exhaust system that is protected with an automatic fire suppression system.

UNDERWRITERS' LABORATORIES, INC., Flame Gard® Grease Filters are classified by Underwriters' Laboratories, Inc., as to flammability after exposure to grease-laden air only. Guide AKUS, File #R10173 see Underwriters' Laboratories Classified Building Materials Index.

Accepted for use, CITY OF NEW YORK DEPARTMENT OF BUILDINGS NO. MEA481-7.1-SM.

Meets the requirements of NATIONAL FIRE PROTECTION ASSOCIATION, Standard No. 96.

## SIZES/INSTALLATION

Flame Gard® should always be installed with the baffles in a vertical position, in order to allow the grease particles to be drawn into the collection system by gravity.

Standard sizes are ordered with the vertical (top to bottom) dimension stated first, followed by the horizontal (left to right) dimension. For information on sizes not listed, contact the factory, your representative, or your foodservice equipment dealer.

TRADE SIZE	ACTUAL DIMENSIONS
H x W	H x W x D
10 x 16	9-1/2 x 15-1/2 x 1-3/4
10 x 20	9-1/2 x 19-1/2 x 1-3/4
12 x 16	11-1/2 x 15-1/2 x 1-3/4
12 x 20	11-1/2 x 19-1/2 x 1-3/4
16 x 16	15-1/2 x 15-1/2 x 1-3/4
16 x 20	15-1/2 x 19-1/2 x 1-3/4
16 x 25	15-1/2 x 24-1/2 x 1-3/4
20 x 16	19-1/2 x 15-1/2 x 1-3/4
20 x 20	19-1/2 x 19-1/2 x 1-3/4
20 x 25	19-1/2 x 24-1/2 x 1-3/4
25 x 16	24-1/2 x 15-1/2 x 1-3/4
25 x 20	24-1/2 x 19-1/2 x 1-3/4