EXHIBIT 13

CLEVELAND PUBLIC LIBRARY

Finance Committee
June 17, 2014

RESOLUTION TO PURCHASE FILTERS FOR MAIN AND AND LOUIS STOKES WING BUILDINGS HVAC EQUIPMENT FROM KETCHUM & WALTON CO.

WHEREAS, To continue with the maintenance of the Library's HVAC Equipment, Property Management is requesting approval to replace the prefilters, secondary filters and final carbon filters in the air handling units in the Main and Louis Stokes Wings buildings in order to preserve the quality of air for the protection of the patrons, staff and the library materials; and

WHEREAS, The Property Management department requested quotes from (3) vendors and received the following:

First Filter	$111,163.46
Ketchum & Walton Co.	$130,325.48
Air Rite Service Supply	$131,336.21

WHEREAS, All vendors were asked to match a provided list of filters and specifications; the quote received from First Filter did not meet the specifications; and

WHEREAS, Property Management recommends the purchase of the filters from Ketchum & Walton Co., as they are the lowest quote meeting the specifications and they have supplied the filters since the Louis Stokes Wing opened; now therefore be it

RESOLVED, That the Board of Trustees authorizes the Executive Director, CEO, or his designee, to enter into a purchase agreement, subject to the Chief Legal Officer's approval, to purchase prefilters, secondary filters and final carbon filters from Ketchum & Walton Co, for a total cost not to exceed $130,325.48 with the expenditure being charged to the General fund account 12100052-52230 (Maintenance Supplies).

KETCHUM WALTON co.

MANUFACTURERS' REPRESENTATIVES

Date: March 31, 2014

To: **CLEVELAND PUBLIC LIBRARY**
325 Superior Avenue
Cleveland, Ohio 44114

Terms: Net 30 Days
F.O.B.: Shipping Point
Freight: Prepaid & Add

Attn: TIM MURDOCH, Facilities Engineering

All Filters - Current Configuration

Quantity	Description	Unit Price	Extended Price
	LOUIS STOKES WING		
	Replacement Filter Pricing		
	AHU-1		
	PREFILTERS:		
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.03	$ 121.20
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.04	$ 10.20
	SECONDARY FILTERS:		
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$ 36.88	$ 1,475.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$ 33.05	$ 165.25
	FINAL CARBON FILTERS:		
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$ 389.00	$ 15,560.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$ 277.00	$ 1,385.00
	TOTAL AIR FILTER MATERIAL COST AHU-1:		**$ 18,716.85**

	AHU -2				
	PREFILTERS:				
36	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	109.08
9	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$	18.36
	SECONDARY FILTERS:				
36	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$	36.88	$	1,327.68
9	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$	33.05	$	297.45
	FINAL CARBON FILTERS:				
36	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$	389.00	$	14,004.00
9	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$	277.00	$	2,493.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:			$	18,249.57
	AHU -3				
	PREFILTERS:				
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	121.20
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$	10.20
	SECONDARY FILTERS:				
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$	36.88	$	1,475.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$	33.05	$	165.25
	FINAL CARBON FILTERS:				
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$	389.00	$	15,560.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$	277.00	$	1,385.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:			$	18,716.85

	AHU -4				
	PREFILTERS:				
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	121.20
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$	10.20
	SECONDARY FILTERS:				
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$	36.88	$	1,475.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$	33.05	$	165.25
	FINAL CARBON FILTERS:				
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$	389.00	$	15,560.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$	277.00	$	1,385.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:			**$**	**18,716.85**
	AHU - 5				
	PREFILTERS:				
12	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$	2.60	$	31.20
8	25 x 25 x 2 Flanders VP-8 Pleated Filter #80085.022525	$	3.81	$	30.48
	SECONDARY FILTERS:				
8	24 x 24 x 12 Flanders Rigid Air/PH MERV 14 #PRP95S4412H	$	45.98	$	367.84
	TOTAL AIR FILTER MATERIAL COST AHU-5:			**$**	**429.52**
	AHU - 6				
	PREFILTERS:				
2	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$	2.63	$	5.26
4	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$	2.60	$	10.40
	TOTAL AIR FILTER MATERIAL COST AHU-6:			**$**	**15.66**

AHU - 7

PREFILTERS:

3	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$	2.02	$	6.06
	TOTAL AIR FILTER MATERIAL COST AHU-7:			**$**	**6.06**

AHU - 8

PREFILTERS:

4	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$	2.02	$	8.08
5	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$	2.60	$	13.00
	TOTAL AIR FILTER MATERIAL COST AHU-8:			**$**	**21.08**

AHU - 9

PREFILTERS:

3	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$	2.02	$	6.06
	TOTAL AIR FILTER MATERIAL COST AHU-9:			**$**	**6.06**

AHU - 10

PREFILTERS:

3	20 x 25 x 2 Flanders VP-8 Pleated Filter #80085.022025	$	2.65	$	7.95
3	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$	2.60	$	7.80
	TOTAL AIR FILTER MATERIAL COST AHU-10:			**$**	**15.75**

MAIN LIBRARY WING

Replacement Filter Pricing

	AHU -20				
	PREFILTERS:				
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	60.60
	SECONDARY FILTERS:				
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$	50.05	$	1,001.00
	FINAL CARBON FILTERS:				
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$	389.00	$	7,780.00
	TOTAL AIR FILTER MATERIAL COST AHU-20:			$	8,841.60
	AHU -21				
	PREFILTERS:				
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	60.60
	SECONDARY FILTERS:				
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$	50.05	$	1,001.00
	FINAL CARBON FILTERS:				
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$	389.00	$	7,780.00
	TOTAL AIR FILTER MATERIAL COST AHU-21:			$	8,841.60
	AHU -22				
	PREFILTERS:				
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	3.03	$	60.60
	SECONDARY FILTERS:				
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$	50.05	$	1,001.00
	FINAL CARBON FILTERS:				
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$	389.00	$	7,780.00
	TOTAL AIR FILTER MATERIAL COST AHU-22:			$	8,841.60

	AHU -23			
	PREFILTERS:			
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.03	$	60.60
	SECONDARY FILTERS:			
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 50.05	$	1,001.00
	FINAL CARBON FILTERS:			
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$ 389.00	$	7,780.00
	TOTAL AIR FILTER MATERIAL COST AHU-23:		**$**	**8,841.60**
	AHU -24			
	PREFILTERS:			
4	20 x 20 x 2 Flanders VP-8 Pleated Filter 80085.022020	$ 2.39	$	9.56
4	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 2.63	$	10.52
	SECONDARY FILTERS:			
4	20 x 20 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP850012H	$ 43.68	$	174.72
4	20 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP850412H	$ 49.10	$	196.40
	FINAL CARBON FILTERS:			
4	20 x 20 x 12 Purafil Purafilter CPS #05-70608-C3C0 **(HEADER STYLE)**	$ 372.00	$	1,488.00
4	20 x 24 x 12 Purafil Purafilter CPS #05-70608-C380 **(HEADER STYLE)**	$ 379.00	$	1,516.00
	TOTAL AIR FILTER MATERIAL COST AHU-24:		**$**	**3,395.20**
	AHU -25			
	PREFILTERS:			
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.03	$	60.60
	SECONDARY FILTERS:			
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 50.05	$	1,001.00
	FINAL CARBON FILTERS:			
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)** (This unit has two stages of carbon filters)	$ 389.00	$	15,560.00
	TOTAL AIR FILTER MATERIAL COST AHU-25:		**$**	**16,621.60**

AHU -26				
	PREFILTERS:			
3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$	2.63	$ 7.89
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$ 4.08
	TOTAL AIR FILTER MATERIAL COST AHU-26:			$ 11.97
AHU -27				
	PREFILTERS:			
3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$	2.63	$ 7.89
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$ 4.08
	TOTAL AIR FILTER MATERIAL COST AHU-27:			$ 11.97
AHU -28				
	PREFILTERS:			
6	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$	2.02	$ 12.12
	TOTAL AIR FILTER MATERIAL COST AHU-28:			$ 12.12
AHU -29				
	PREFILTERS:			
3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$	2.63	$ 7.89
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$	2.04	$ 4.08
	TOTAL AIR FILTER MATERIAL COST AHU-29:			$ 11.97

TOTAL $130,325.48

SEE ATTACHED NEXT PAGE

Ketchum	Walton Co
AHU	Cost
1	$ 18,716.85
2	$ 18,249.57
3	$ 18,716.85
4	$ 18,716.85
5	$ 429.52
6	$ 15.66
7	$ 6.06
8	$ 21.08
9	$ 6.06
10	$ 15.75
20	$ 8,841.60
21	$ 8,841.60
22	$ 8,841.60
23	$ 8,841.60
24	$ 3,395.20
25	$ 16,621.60
26	$ 11.97
27	$ 11.97
28	$ 12.12
29	$ 11.97
Total	$ 130,325.48

Will Remove More Gases, Last Longer

www.purafil.com

PRODUCT SPECIFICATION 4

PURAFIL® SP BLEND MEDIA

PURAFIL SP BLEND MEDIA (a blend of Purafil® SP Media and Purakol® Media) demonstrate a higher working capacity for broad-spectrum oxidation of contaminants in actual field conditions where multiple gas challenges are present. The Purafil SP Series has been specially engineered to contain more permanganate (the active ingredient) for increased removal capacity, allowing the media to remain more available for removal of target gases.

PURAFIL SP BLEND MEDIA

MEDIA SPECIFICATION

Purafil® SP Blend Media (patent-pending) shall consist of an equal mix (by volume) of Purafil® SP Media and Purakol® activated carbon media. The Purafil® SP Media shall be manufactured, generally spherical, porous pellets formed from a combination of powdered activated alumina and other binders, suitably impregnated with sodium permanganate to provide optimum adsorption, absorption and oxidation of a wide variety of gaseous contaminants. The sodium permanganate shall be applied during pellet formation, such that the impregnant is uniformly distributed throughout the pellet volume and is totally available for reaction.

The Purakol® Media shall be an activated carbon for the control of hydrocarbons with a high surface area available for adsorption.

THE CHEMISORPTIVE PROCESS

The Purafil chemisorptive process shall remove contaminant gases by means of adsorption, absorption, and chemical reaction. Gases shall be trapped within the pellet where oxidation changes the gases into harmless solids, eliminating the possibility of desorption.

REMOVAL CAPACITY

Purafil® SP Blend has been specially engineered to contain more permanganate (the active ingredient) for increased removal capacity, allowing the media to remain more available for removal of target gases.

Purakol® media is a premium-grade activated carbon and is proven to be highly effective at removing hydrocarbons and other high molecular weight contaminants.

PHYSICAL PROPERTIES

All Purafil media are submitted to quality control tests before shipping to ensure uniformity of the following attributes.

PURAFIL® SP BLEND MEDIA

- **BULK DENSITY:** 40 lbs/ft³ (0.64 g/cc) ±5%

PURAFIL® SP MEDIA

- **MOISTURE CONTENT:** 35% Maximum
- **CRUSH STRENGTH:** 35% - 70%
- **ABRASION:** 4.5% Maximum
- **BULK DENSITY:** 50 lbs/ft³ (0.8 g/cc) ±5%
- **NOMINAL PELLET DIAMETER:** 1/8" (3.175mm)
- **SODIUM PERMANGANATE CONTENT:** 12% Min. More Carbon

PURAKOL® MEDIA

- **MOISTURE CONTENT:** 2%
- **CTC:** 60%
- **BASE MATERIAL:** Activated Carbon
- **BULK DENSITY:** 30 lbs/ft³ (0.48 g/cc) ±5%
- **NOMINAL PELLET DIAMETER:** 4mm

APPLICATION GUIDELINES

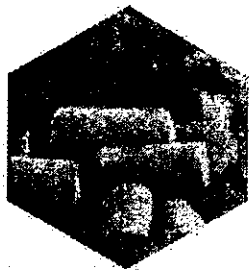
Purafil® SP Blend Media shall perform effectively under the following conditions and guidelines:

- **TEMPERATURE:** -4° F to 125° F
  -20° C to 51° C
- **HUMIDITY:** 10 - 95% RH
- **AIRFLOW:** Purafil® SP Blend Media shall be effective in industrial systems with airflows ranging from less than 25 CFM (42.5 m³/hr) to over 100,000 CFM (169,920 m³/hr) and with velocities from 60 FPM to 500 FPM (0.30 to 2.54 m/s).
- **MEDIA PERFORMANCE:** Purafil® SP Blend Media shall be designed for 99.5% min. removal efficiency in Purafil systems.
- **MEDIA LIFE:** Regular media samples of Purafil® SP Blend Media shall be taken for projecting remaining media life, providing scheduled maintenance, and ensuring performance.

ADDITIONAL INFORMATION ON BACK

PURAFIL 2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367 www.purafil.com

PURAFIL® SP BLEND MEDIA



ADVANTAGES

- UL Classified Class 1
- Simple media replacement
- Media are factory mixed
- Use in place of a two-pass media system
- Effective against a broad range of contaminant gases
- Media life analysis projects remaining media life for proper maintenance and optimum media performance

TARGET CONTAMINANTS

- Hydrocarbons
- VOCs
- Oxides of sulfur (SOx)
- Formaldehyde
- Nitric oxides (NOx)
- Hydrogen sulfide
- Lower molecular weight aldehydes and organic acids

INSTALLATION & DISPOSAL REQUIREMENTS

- **INSTALLATION:** Installers shall use dust masks, safety goggles, and rubber gloves.
- **DISPOSAL:** Spent Purafil® SP Blend Media should be disposed of according to local, state and federal guidelines.

PURAFIL 2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367 www.purafil.com

PURAFIL®

First...in clean air

Must DO CARBON Filters

TECH NOTE

Sodium Permanganate vs. Potassium Permanganate

New and Improved "*Purple Pellet*" Provides Higher Working Capacity

Beginning with the original Purafil media and all the way through the current Purafil Select media, potassium permanganate ($KMnO_4$) is what gave the media its characteristic purple color as well as a vastly improved performance versus other types of dry-scrubbing air filtration media. Purafil media was introduced with a 4% $KMnO_4$ content and as Purafil perfected and improved its proprietary media manufacturing process, this was increased to 8% several years ago. As expected, this doubling of the active oxidant content resulted in a doubling of the removal capacity for the Purafil Select media. With an increased removal capacity, Purafil Select offered a longer service life and the potential to reduce the size of Purafil's air filtration systems. Knowing that increasing the available active oxidant content beyond 8% would provide even better performance, development began on a new "purple pellet."

The $KMnO_4$ used by Purafil is a strong inorganic oxidizing agent that is supplied as dark purple crystals or granules. Purafil's manufacturing process requires that the $KMnO_4$ be used in liquid form, however, it has a low solubility in water (8.6 oz/gal, 65.0 g/L) and there are inherent difficulties in handling and processing this material. Historically, the impregnation level in the media had essentially been determined by the amount of $KMnO_4$ that could be added to the media and kept fully available for reaction. This describes the current 8% active oxidant content of the Purafil Select media. When using $KMnO_4$ as the active oxidant, trying to raise the impregnation level to 10%, 12%, or higher actually results in reduced media performance. Because of it's low solubility in water, the $KMnO_4$ would recrystallize and fill up the adsorption sites - significantly decreasing the surface area, pore volume, and the availability of the $KMnO_4$ in the media.

Even as Purafil Select media was being introduced almost ten years ago, development had already begun on the next generation of active oxidant media. Knowing that the maximum ***effective*** $KMnO_4$ content had been reached with Purafil Select, any new media developed had to maintain the broad spectrum oxidizing power of $KMnO_4$ while at the same time providing better overall performance. With more than 30 years of experience with and knowledge of oxidation chemistry, and specifically permanganate chemistry, we knew that there were other options available to us. This is what led us to sodium permanganate.

Sodium permanganate ($NaMnO_4$) is an inorganic oxidant that performs chemically the same way as potassium permanganate, only in a more concentrated form. Purafil had been working with sodium permanganate even before the introduction of Purafil Select, but its limited availability delayed the start of a comprehensive new product development program. However, we continued our research into $NaMnO_4$ chemistry and its potential applications which provided a much better understanding of pore size geometry and by-product formation and their relation to overall media performance.

Using this knowledge and after completing an extensive 4-year research and development effort, Purafil has now developed the industry's first dry-scrubbing air filtration media with an active oxidant content of 12% by weight - **Purafil SP**, the new purple pellet. Purafil SP provides a full 50% increase in the amount of ***effective*** active oxidant content on the media, which in turn provides a greater working capacity for installed systems. Another significant advantage in using $NaMnO_4$ is its high solubility in water, which allows the use of a more concentrated form of permanganate in the media manufacturing process and eliminates concerns about recrystallizing as with the $KMnO_4$ at high impregnation levels.

The Purafil SP media is somewhat alkaline in nature allowing the additional permanganate content to readily oxidize reactive/volatile sulfides (H_2S) to sulfate salts. Mercaptans and other reduced sulfur compounds are also oxidized by sodium permanganate. Lower molecular weight organic compounds such as aldehydes, ketones, ethers, alcohols and organic acids can be reacted to form nontoxic organic salts, carbon dioxide and water. Ethylene, arsine, phosphine, hydrazines, and many other chemical compounds can be controlled with Purafil SP.

Purafil SP is just the latest step in Purafil, Inc.'s dry-scrubbing media development efforts. Having a product that provides a full 50% increase in the amount of available active oxidant will provide a significant increase in a filtration system's working capacity, increased performance against a wide range of gaseous contaminants, and an improved cost-of-ownership for the end-user.

Corporate Office: Purafil, Inc., 2654 Weaver Way, Doraville, Georgia 30340 U.S.A.
Tel: 770-662-8545 \ 800-222-6367 \ Fax: 770-263-6922 \ Laboratory Fax: 770-263-0520

PRODUCT SPECIFICATION 4

PURAFIL® SP BLEND MEDIA

PURAFIL SP BLEND MEDIA (a blend of Purafil® SP Media and Purakol® Media) demonstrate a higher working capacity for broad-spectrum oxidation of contaminants in actual field conditions where multiple gas challenges are present. The Purafil SP Series has been specially engineered to contain more permanganate (the active ingredient) for increased removal capacity, allowing the media to remain more available for removal of target gases.

PURAFIL SP BLEND MEDIA

MEDIA SPECIFICATION

Purafil® SP Blend Media (patent-pending) shall consist of an equal mix (by volume) of Purafil® SP Media and Purakol® activated carbon media. The Purafil® SP Media shall be manufactured, generally spherical, porous pellets formed from a combination of powdered activated alumina and other binders, suitably impregnated with sodium permanganate to provide optimum adsorption, absorption and oxidation of a wide variety of gaseous contaminants. The sodium permanganate shall be applied during pellet formation, such that the impregnant is uniformly distributed throughout the pellet volume and is totally available for reaction.

The Purakol® Media shall be an activated carbon for the control of hydrocarbons with a high surface area available for adsorption.

THE CHEMISORPTIVE PROCESS

The Purafil chemisorptive process shall remove contaminant gases by means of adsorption, absorption, and chemical reaction. Gases shall be trapped within the pellet where oxidation changes the gases into harmless solids, eliminating the possibility of desorption.

REMOVAL CAPACITY

Purafil® SP Blend has been specially engineered to contain more permanganate (the active ingredient) for increased removal capacity, allowing the media to remain more available for removal of target gases.

Purakol® media is a premium-grade activated carbon and is proven to be highly effective at removing hydrocarbons and other high molecular weight contaminants.

PHYSICAL PROPERTIES

All Purafil media are submitted to quality control tests before shipping to ensure uniformity of the following attributes.

PURAFIL® SP BLEND MEDIA

- **BULK DENSITY:** 40 lbs/ft³ (0.64 g/cc) ±5%

PURAFIL® SP MEDIA

- **MOISTURE CONTENT:** 35% Maximum
- **CRUSH STRENGTH:** 35% - 70%
- **ABRASION:** 4.5% Maximum
- **BULK DENSITY:** 50 lbs/ft³ (0.8 g/cc) ±5%
- **NOMINAL PELLET DIAMETER:** 1/8" (3.175mm)
- **SODIUM PERMANGANATE CONTENT:** 12% Min.

PURAKOL® MEDIA

- **MOISTURE CONTENT:** 2%
- **CTC:** 60%
- **BASE MATERIAL:** Activated Carbon
- **BULK DENSITY:** 30 lbs/ft³ (0.48 g/cc) ±5%
- **NOMINAL PELLET DIAMETER:** 4mm

APPLICATION GUIDELINES

Purafil® SP Blend Media shall perform effectively under the following conditions and guidelines:

- **TEMPERATURE:** -4° F to 125° F
  -20° C to 51° C
- **HUMIDITY:** 10 - 95% RH
- **AIRFLOW:** Purafil® SP Blend Media shall be effective in industrial systems with airflows ranging from less than 25 CFM (42.5 m³/hr) to over 100,000 CFM (169,920 m³/hr) and with velocities from 60 FPM to 500 FPM (0.30 to 2.54 m/s).
- **MEDIA PERFORMANCE:** Purafil® SP Blend Media shall be designed for 99.5% min. removal efficiency in Purafil systems.
- **MEDIA LIFE:** Regular media samples of Purafil® SP Blend Media shall be taken for projecting remaining media life, providing scheduled maintenance, and ensuring performance.

ADDITIONAL INFORMATION ON BACK

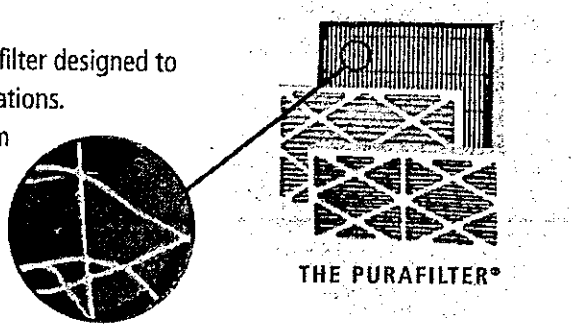
PURAFIL 2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367 www.purafil.com

www.purafil.com

PRODUCT BULLETIN 4 THE PURAFILTER®

PURAFIL FIRST IN CLEAN AIR

THE PURAFILTER® is a combination chemical and particulate filter designed to replace existing particulate filters in retrofit or rework applications. Purafil engineers are the first to successfully suspend sodium permanganate adsorbents in a bi-component fiber matrix.



THE PURAFILTER®

PRODUCT BENEFITS

- Contains up to 10 times the media of activated carbon filters.
- Removes more gaseous chemicals and odors than activated carbon.
- Removes gaseous chemicals and solid particulates.
- Adhesive-free filter design.
- Minimized by-pass and high removal efficiency.
- Purafil SP Media will not desorb.
- Low pressure drop.
- Long filter life.
- Reduced maintenance.
- Improved IAQ.

PRODUCT DESCRIPTION

Chemical filtration systems utilizing sodium permanganate remove a broader range of contaminants than carbon-only filters and exhibit higher efficiencies. Because of the Purafilter's broad-spectrum removal capabilities, it is the only chemical filter capable of meeting the stringent requirements of ASHRAE 62's Indoor Air Quality Procedure.

The bi-component fiber matrix, or filter, does not require the use of adhesives, so adsorbents are fully exposed for reaction with gaseous chemical contaminants and odors.

Purafil offers two grades of the Purafilter: Purafilter-Commercial Grade for light to moderate duty applications and Purafilter-Heavy Duty for high contaminant load applications. All standard sizes are available.

Adsorbents are evenly distributed throughout the filter structure to assure the highest filtration efficiencies. The Purafilter offers a higher media loading than other chemical filters, allowing for a longer service life and reduced maintenance.

PRODUCT APPLICATIONS

Commercial environments, including hotels, airports, office buildings, schools, casinos, restaurants, museums, and athletic stadiums.

SYSTEM ADVANTAGES

LONGER SERVICE LIFE: The Purafilter offers a higher media loading capacity and up to ten times the removal capacity of other chemical filters.

SUPERIOR EFFICIENCY: The Purafilter removes a broader range of odors and common indoor pollutants than activated carbon alone.

EASY LIFE TESTING: The Purafilter can be tested to determine remaining service life.

Purafil's filter monitoring program assures ongoing compliance with ASHRAE 62's Indoor Air Quality Procedure.

PERMANENT ODOR REMOVAL: The Purafilter will not desorb like traditional activated carbon filters and removes gases through an irreversible chemical reaction process.

STANDARD FEATURES

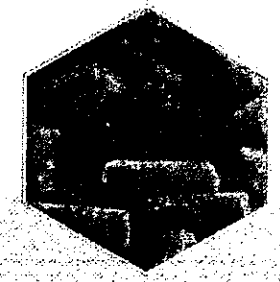
- Purafil SP (sodium permanganate) and Purakol® (activated carbon) media
- Bi-component fiber matrix filter
- Paperboard, Galvanized, or Aluminum frames
- Factory sealed filter to insure integrity
- Highest available removal efficiencies
- Particulate removal efficiency: Commercial-Grade MERV 8, Heavy-Duty: ≤ MERV 15.
- Airflow: up to 500 ft./min (2.54 m/sec)
- Temperature Rating: -4° F to 125° F (-20° C to 51° C)
- Filter weight: dependent upon filter
- All filter sizes available

OPTIONAL FEATURES

- Purafil media types
- Filter size
- Media loading
- Frame type
- Pleat count
- Particulate filter efficiencies

PURAFIL 2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367 www.purafil.com

PURAFILTER®



MEDIA WEIGHTS*

2-INCH COMMERCIAL GRADE FILTERS:

SIZE	LBS OF MEDIA
24 x 24"	1.63 lbs
20 x 24"	1.34 lbs
20 x 20"	1.08 lbs
16 x 25"	1.09 lbs
16 x 20"	0.89 lbs

4-INCH COMMERCIAL GRADE FILTERS:

SIZE	LBS OF MEDIA
24 x 24"	2.66 lbs
12 x 24"	1.33 lbs

12-INCH COMMERCIAL GRADE FILTERS:

SIZE	LBS OF MEDIA
24 x 24"	5.65 lbs
12 x 24"	2.81 lbs

12-INCH HEAVY-DUTY GRADE FILTERS:

SIZE	LBS OF MEDIA
24 x 24"	12.60 lbs
12 x 24"	6.14 lbs

* Media weights with a 50:50 volume blend of Purakol and Purafil SP Media. Call factory for weight using other Purafil-brand patented media.

PRESSURE DROP*

	COMMERCIAL GRADE		HEAVY-DUTY GRADE	
Size	2-inch	4-inch	12-inch	12-inch
Filter type	MERV 8	MERV 8	MERV 15	No particulate overlay
Pressure drop/IWG*	0.51 iwg	0.43 iwg	0.47 iwg	0.30 iwg

*** Pressure drop at 500 feet per minute.**

PURAFIL

www.purafil.com

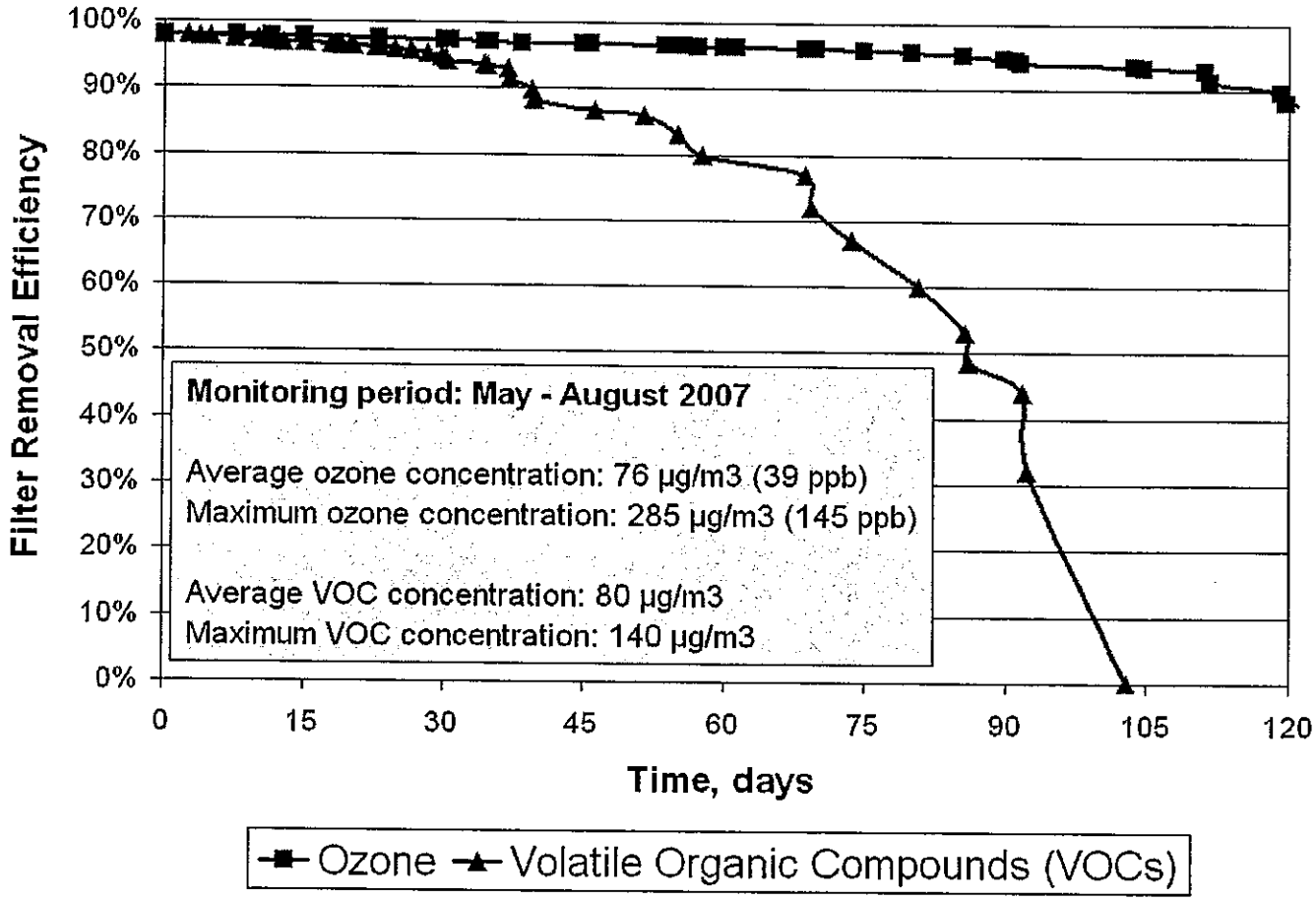
2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367

PURAFILTER CASE STUDY: OZONE AND VOC EFFECTIVENESS

An office building located in the southeastern United States was going "green" in order to attract and hold tenants. Part of this effort included the use of enhanced air cleaning for both indoor and outdoor air. The primary contaminants of concern in the outdoor air were ozone and volatile organic compounds (VOCs). Historically, ozone had averaged 30-50 ppb (60-100 µg/m^3) with peaks up to 150 ppb (300 µg/m^3) and VOC levels ranged from 80-150 µg/m^3 with peaks as high as 210 µg/m^3 during the months of May – September (GA DNR 2009).

MERV 6 and MERV 11 particulate filters were already in use in building's air handling equipment and there was no room for additional hardware to accommodate the use of media modules, so 4" (100 mm) combination particulate / chemical filters were recommended. These were accepted as replacements for the MERV 6 filters with conditions that a minimum 90-day filter life was achieved. If these filters proved effective, meaning ≥50% removal for VOCs and ≥40% removal for ozone, they would be used on a continuing basis from April to September and then replaced with the MERV 6 filters from October to March.

Upstream and downstream ozone and VOC concentrations were measured nearly daily from May to September of 2007 to gauge the effectiveness (efficiency) of these filters. At the end of 90 days the VOC efficiency had dropped to ~45%, but the ozone removal was still above 95% (Figure 1). This convinced the owner that these combination filters were effective and their use would result in improved IAQ. It was felt that the very high effectiveness for these filters against ozone – even as the effectiveness for VOCs approached zero – meant that the potential for adverse respiratory health effects due to ozone would be significantly reduced or eliminated. Also, the formation of new chemical species due to reactions between VOCs and ozone, many of which would be considered highly irritating, would be similarly reduced or eliminated.



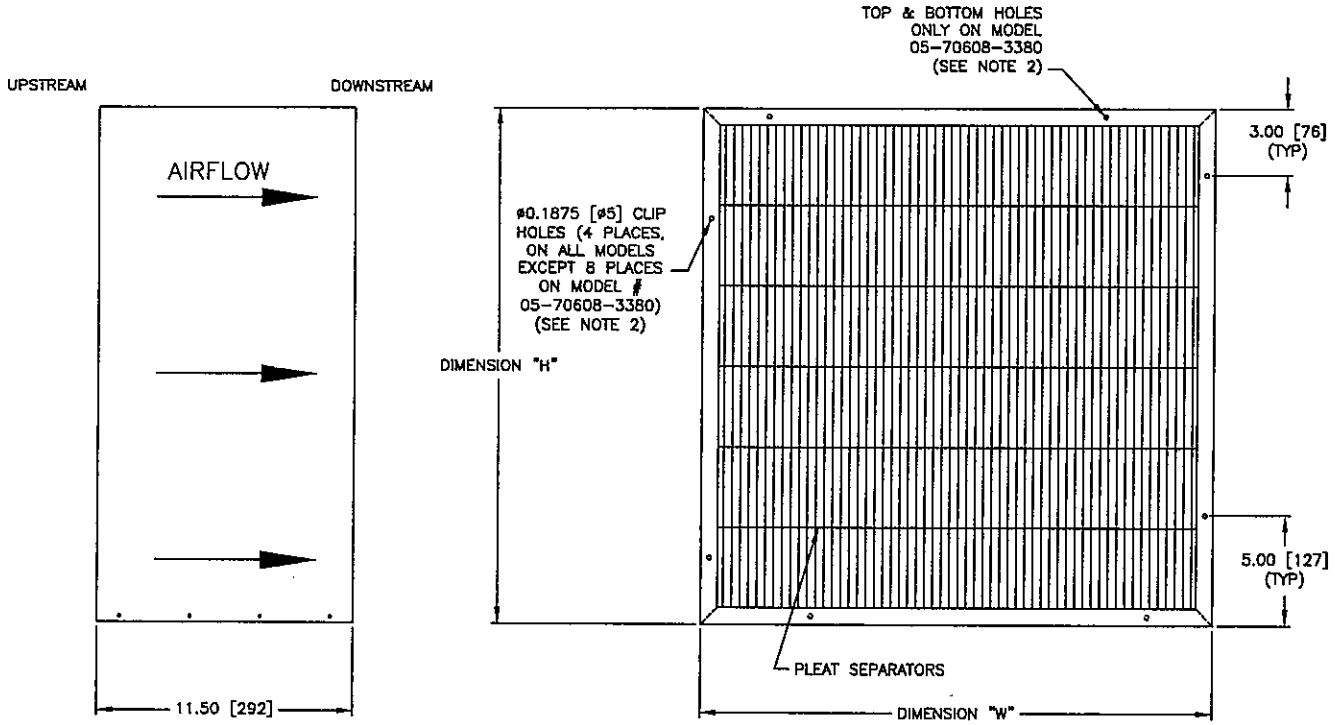
PURAFIL
www.purafil.com
2654 Weaver Way Doraville, Georgia, 30340, U.S.A. tel: (770) 662-8545 (800)-222-6367

PURAFIL™

2654 WEAVER WAY. DORAVILLE, GA. 30340 U.S.A.

PURAFILTER — COMMERCIAL GRADE
SPB MATERIAL

JOB/UNIT IDENTIFICATION:



MODEL NUMBER	DIMENSION "H"	DIMENSION "W"
05-70608-3180	23.375 [594]	23.375 [594]
05-70608-3380	23.375 [594]	19.375 [492]
05-70608-3300	19.375 [492]	19.375 [492]
05-70608-3780	23.375 [594]	11.375 [289]

NOTES:

1. APPLY ONE PURAFILTER LABEL PER FILTER.
2. ALL HOLES ARE LOCATED ON UPSTREAM SIDE OF FILTER.

MODEL NO.: SEE TABLE

MATERIAL:

FRAME: 24 GA GALVANIZED STEEL "BOX" STYLE – 2 PIECE DESIGN

MEDIA: SPB – CONSIST OF PURAFIL SP AND PURAKOL MEDIA (50/50 VOLUME TO VOLUME).

MEDIA BONDED WITH A FIRE RETARDANT/PHOSPHORUS–FREE TWO–PART POLYURETHANE SEALANT.

FIRE RETARDANT HIGH IMPACT POLYSTYRENE PLEAT SEPARATORS, 5 UPSTREAM AND 5 DOWN STREAM.

APPLICATION:

COMMERCIAL ENVIRONMENTS INCLUDING HOTELS, AIRPORTS, OFFICE BUILDINGS, SCHOOLS, CASINOS, RESTAURANTS, MUSEUMS AND ATHLETIC STADIUMS.

SPECIFICATIONS:

NOMINAL SIZE IN [mm]	ACTUAL SIZE IN [mm]	MEDIA AREA SQ FT [SQ M]	INITIAL PRESSURE DROP (@ 500FPM) IWG [Pa]
24x24x12 [610x610x305]	23.38x23.38x11.50 [594x594x292]	54.9 [5.1]	0.26 [65]
24x20x12 [610x508x305]	23.38x19.38x11.50 [594x492x292]	51.0 [4.7]	0.26 [65]
20x20x12 [508x508x305]	19.38x19.38x11.50 [492x492x292]	42.5 [3.9]	0.26 [65]
24x12x12 [610x305x305]	23.38x11.38x11.50 [594x289x292]	27.4 [2.5]	0.26 [65]

MAXIMUM OPERATING TEMPERATURE = 150 °F.
MAXIMUM HUMIDITY = 100% RELATIVE HUMIDITY.
TOLERANCE = ± 0.063 [1.6].

☐ FOR APPROVAL ☐ FOR INFORMATION

☐ FOR CONSTRUCTION ☐ AS BUILT

DATE: 10/27/06 REV DATE: 07/20/07

APPROVED BY: BLG/AND

DRAWING NUMBER: 7506 REVISION: A

DIMENSIONS ARE IN INCHES. METRIC EQUIVALENTS IN BRACKETS [ ] ARE IN MILLIMETERS.
PURAFIL, INC. RESERVES THE RIGHT TO MODIFY DESIGN FOR IMPROVED PRODUCT PERFORMANCE.

AIR RITE SERVICE SUPPLY
1290 WEST 117 • CLEVELAND, OHIO 44107
DAY or NIGHT Phone: (216) 228-8200 FAX (216) 228-5651

Fax

To:	Tim Murdock Cleveland Public Library	**From:**	Dan Andolek
Fax:	216-623-6951	**Fax:**	216-228-5651
Phone:	216-623-2905	**Phone:**	216-228-8200
Date:	6/12/2014 4:41 PM	**Pages:**	
Subject:			

Tim –

Thanks for the opportunity to bid on this project!

Ketchum and Walton is the only authorized distributor of the Purafil product in Ohio. If you want the Purafil brand you will need to order from them.

What I am offering is a similar product made by Filtration Group. These filters were supplied to you by Ketchum and Walton in 2001 and meet the building specifications at that time.

Once we became a Filtration Group distributor (like Ketchum and Walton) they change the specification to exclude competition for this project.

Please let me know if you have any questions!

Thanks
Dan Andolek

Date March 31, 2014

To: CLEVELAND PUBLIC LIBRARY
325 Superior Avenue
Cleveland, Ohio 44114

Terms Net 30 Days
F.O.B Shipping Point
Freight Prepaid & Add

Attn: TIM MURDOCH, Facilities Engineering

All Filters - Current Configuration

Quantity	Description	Unit Price	Extended Price
	LOUIS STOKES WING		
	Replacement Filter Pricing		
	AHU-1		
	PREFILTERS:		
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 130.00
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.37	$ 11.85
	SECONDARY FILTERS:		
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$ 46.88	$ 1875.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$ 33.00	$ 165.45
	FINAL CARBON FILTERS:		
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$ 412.50	$ 16,500.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$ 230.00	$ 1150.00
	TOTAL AIR FILTER MATERIAL COST AHU-1.		$ 19,832.50 ✓

Page 2
Cleveland Public Library
27-Nov-12

AHU -2

	PREFILTERS:		
36	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 117.00
9	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.37	$ 21.33
	SECONDARY FILTERS:		
36	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$ 46.88	$ 1687.68
9	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$ 33.09	$ 297.81
	FINAL CARBON FILTERS:		
36	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$ 412.50	$ 14850.00
9	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$ 230.00	$ 2070.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:		$ 19043.82

AHU -3

	PREFILTERS:		
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 130.00
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.37	$ 11.85
	SECONDARY FILTERS:		
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$ 46.88	$ 1875.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$ 33.09	$ 165.45
	FINAL CARBON FILTERS:		
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$ 412.50	$ 16500.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$ 230.00	$ 1150.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:		$ 19832.52

Page 3
Cleveland Public Library
27-Nov-12

	AHU -4		
	PREFILTERS:		
40	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 130.00
5	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.37	$ 11.85
	SECONDARY FILTERS:		
40	24 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S4412	$ 46.88	$ 1875.20
5	12 x 24 x 12 Flanders Rigid Air MERV 14 (95%) #PRP95S2412	$ 33.09	$ 165.45
	FINAL CARBON FILTERS:		
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-3180 **(BOX STYLE)**	$ 412.50	$ 16500.00
5	12 x 24 x 12 Purafil Purafilter CPS #05-70608-3780 **(BOX STYLE)**	$ 230.00	$ 1150.00
	TOTAL AIR FILTER MATERIAL COST AHU-2:		$ 19832.50
	AHU - 5		
	PREFILTERS:		
12	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$ 2.53	$ 30.36
8	25 x 25 x 2 Flanders VP-8 Pleated Filter #80085.022525	$ 4.08	$ 32.64
	SECONDARY FILTERS:		
8	24 x 24 x 12 Flanders Rigid Air/PH MERV 14 #PRP95S4412H	$ 48.64	$ 389.12
	TOTAL AIR FILTER MATERIAL COST AHU-5:		$ 452.12
	AHU - 6		
	PREFILTERS:		
2	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 3.16	$ 6.32
4	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$ 2.53	$ 10.12
	TOTAL AIR FILTER MATERIAL COST AHU-6:		$ 16.44

AHU - 7

PREFILTERS:

3	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$ 2.27	$

TOTAL AIR FILTER MATERIAL COST AHU-7: $ 6.81

AHU - 8

PREFILTERS:

4	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$ 2.27	$ 9.08
5	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$ 2.53	$ 12.65

TOTAL AIR FILTER MATERIAL COST AHU-8: $ 21.73

AHU - 9

PREFILTERS:

3	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$ 2.27	$

TOTAL AIR FILTER MATERIAL COST AHU-9: $ 6.81

AHU - 10

PREFILTERS:

3	20 x 25 x 2 Flanders VP-8 Pleated Filter #80085.022025	$ 2.85	$ 8.55
3	16 x 25 x 2 Flanders VP-8 Pleated Filter #80085.021625	$ 2.53	$ 7.59

TOTAL AIR FILTER MATERIAL COST AHU-10: $ 16.14

MAIN LIBRARY WING

Replacement Filter Pricing

AHU -20

	PREFILTERS:		
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 65.00
	SECONDARY FILTERS:		
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 46.09	$ 921.80
	FINAL CARBON FILTERS:		
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$ 368.75	$ 7375.00
	TOTAL AIR FILTER MATERIAL COST AHU-20:		$ 8361.80

AHU -21

	PREFILTERS:		
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 65.00
	SECONDARY FILTERS:		
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 46.09	$ 921.80
	FINAL CARBON FILTERS:		
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$ 368.75	$ 7375.00
	TOTAL AIR FILTER MATERIAL COST AHU-21:		$ 8361.80

AHU -22

	PREFILTERS:		
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 65.00
	SECONDARY FILTERS:		
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 46.09	$ 921.80
	FINAL CARBON FILTERS:		
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$ 368.75	$ 7375.00
	TOTAL AIR FILTER MATERIAL COST AHU-22:		$ 8361.80

AHU -23

	PREFILTERS:		
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 65.00
	SECONDARY FILTERS:		
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 46.09	$ 921.80
	FINAL CARBON FILTERS:		
20	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)**	$ 368.75	$ 7375.00
	TOTAL AIR FILTER MATERIAL COST AHU-23:		$ 8361.80

AHU -24

	PREFILTERS:		
4	20 x 20 x 2 Flanders VP-8 Pleated Filter 80085.022020	$ 2.53	$ 10.12
4	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 3.16	$ 12.64
	SECONDARY FILTERS:		
4	20 x 20 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP850012H	$ 46.53	$ 186.12
4	20 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP850412H	$ 43.95	$ 175.80
	FINAL CARBON FILTERS:		
4	20 x 20 x 12 Purafil Purafilter CPS #05-70608-C3C0 **(HEADER STYLE)**	$ 331.25	$ 1325.00
4	20 x 24 x 12 Purafil Purafilter CPS #05-70608-C380 **(HEADER STYLE)**	$ 331.25	$ 1325.00
	TOTAL AIR FILTER MATERIAL COST AHU-24:		$ 3034.68

AHU -25

	PREFILTERS:		
20	24 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 3.25	$ 65.00
	SECONDARY FILTERS:		
20	24 x 24 x 12 Flanders Rigid Air/PH MERV 13 (85%) #PRP85S4412H	$ 46.09	$ 921.80
	FINAL CARBON FILTERS:		
40	24 x 24 x 12 Purafil Purafilter CPS #05-70608-C180 **(HEADER STYLE)** (This unit has two stages of carbon filters)	$ 368.75	$ 14750.00
	TOTAL AIR FILTER MATERIAL COST AHU-25		$ 15736.80

Page 7
Cleveland Public Library
27-Nov-12

AHU -26

PREFILTERS:

3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 3.16	$ 9.48
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.36	$ 4.72

TOTAL AIR FILTER MATERIAL COST AHU-26: $ 14.20

AHU -27

PREFILTERS:

3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 3.16	$ 9.48
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.36	$ 4.72

TOTAL AIR FILTER MATERIAL COST AHU-27: $ 14.20

AHU -28

PREFILTERS:

6	16 x 20 x 2 Flanders VP-8 Pleated Filter #80085.021620	$ 2.26	$

TOTAL AIR FILTER MATERIAL COST AHU-28: $ 13.56

AHU -29

PREFILTERS:

3	20 x 24 x 2 Flanders VP-8 Pleated Filter #80085.022024	$ 3.16	$ 9.48
2	12 x 24 x 2 Flanders VP-8 Pleated Filter 80085.022424	$ 2.36	$ 4.72

TOTAL AIR FILTER MATERIAL COST AHU-29: $ 14.20

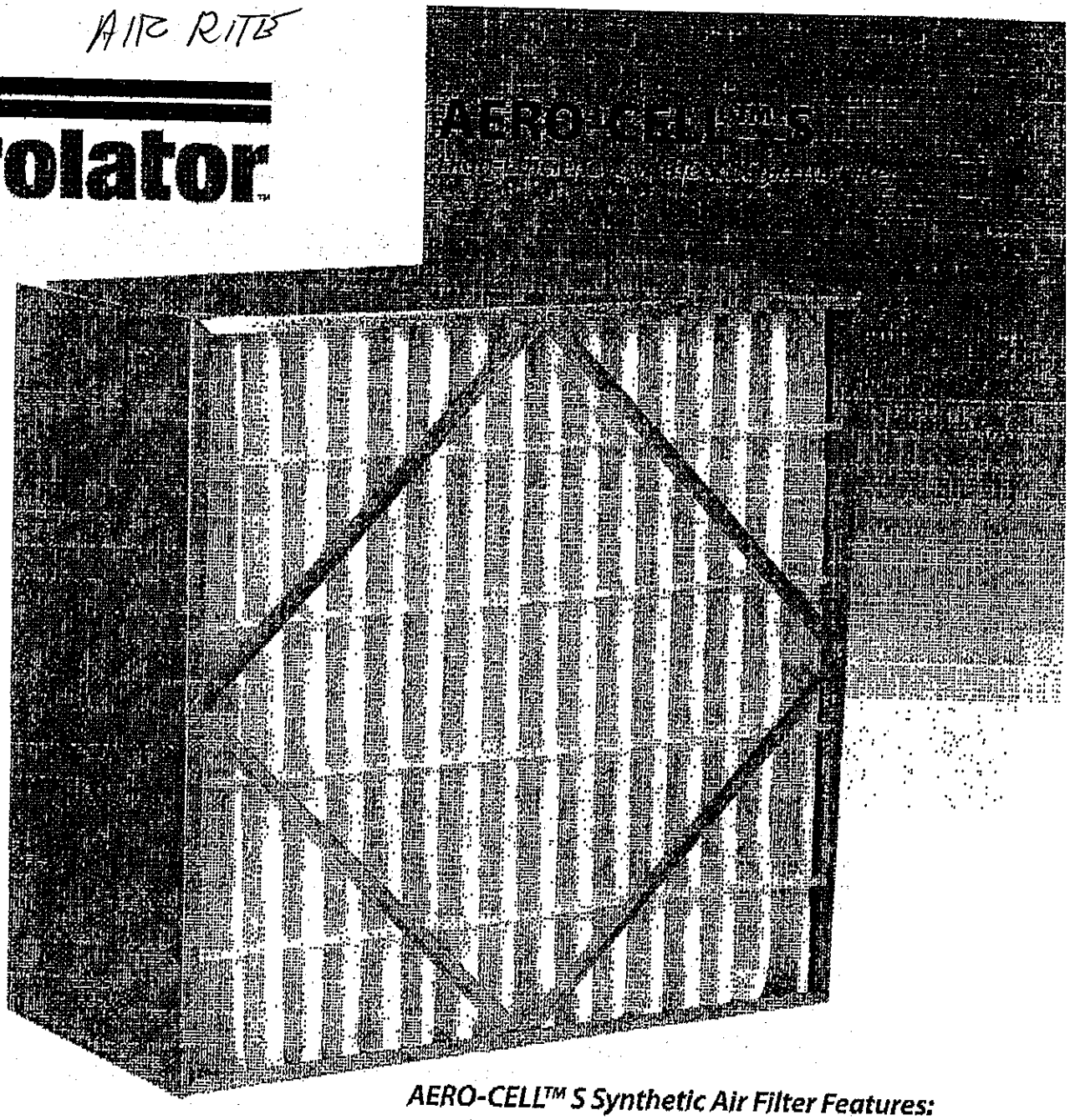
TOTAL $131,336.21

SEE ATTACHED PAGE

	A	B
1	Air	Rite Filters
2	AHU	Cost
3	1	$ 19,832.50
4	2	$ 19,043.82
5	3	$ 19,832.50
6	4	$ 19,832.50
7	5	$ 452.12
8	6	$ 16.44
9	7	$ 6.81
10	8	$ 21.73
11	9	$ 6.81
12	10	$ 16.14
13	20	$ 8,361.80
14	21	$ 8,361.80
15	22	$ 8,361.80
16	23	$ 8,361.80
17	24	$ 3,034.68
18	25	$ 15,736.80
19	26	$ 14.20
20	27	$ 14.20
21	28	$ 13.56
22	29	$ 14.20
23	Total	$ 131,336.21

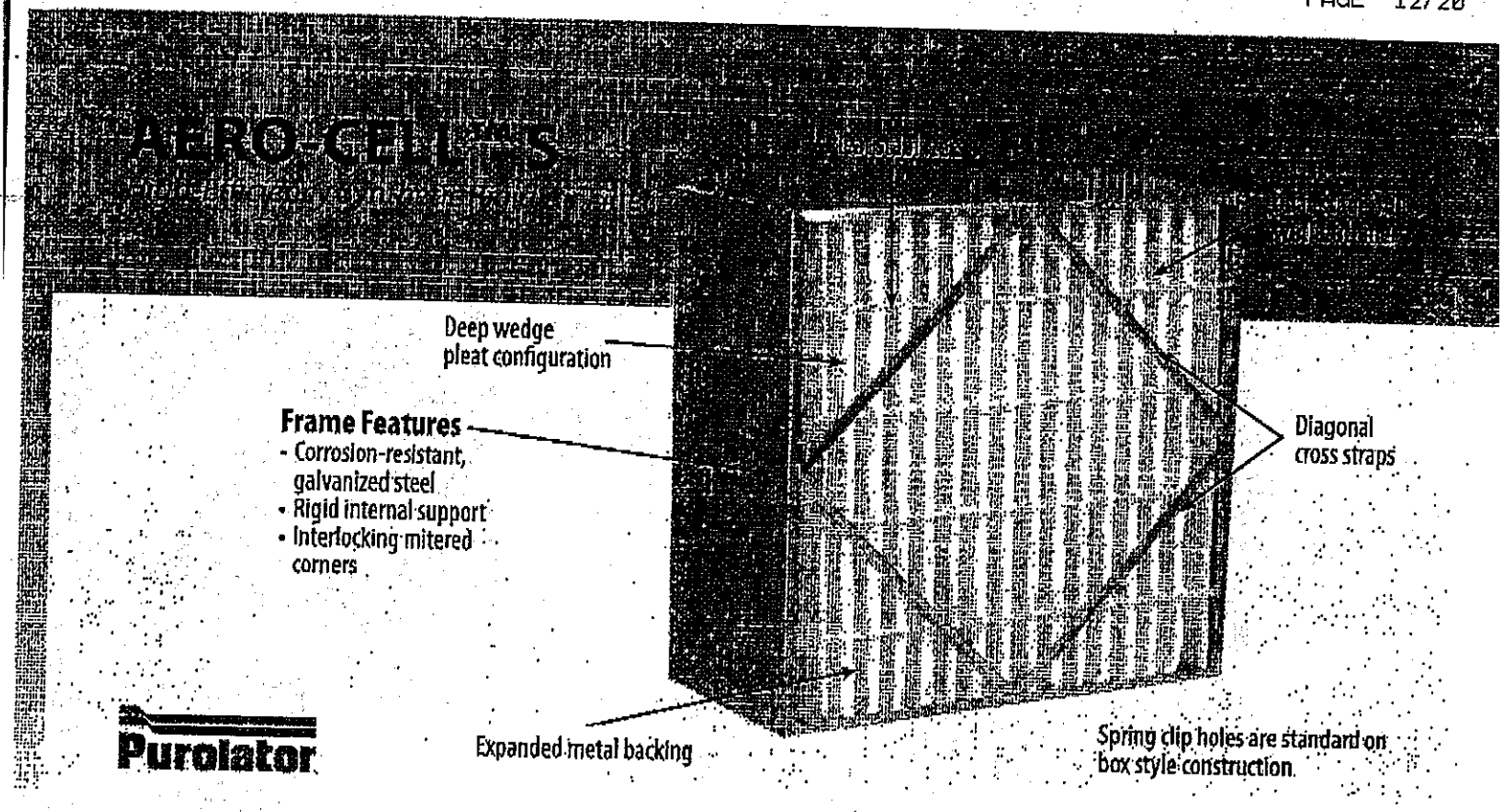
AIR RITE

Purolator



AERO-CELL™ S Synthetic Air Filter Features:

- **Dual-Stage 100% Synthetic Fibers**
- **Classified Per UL Standard 900**
- **Up To MERV 14 Performance**
- **Corrosion-Resistant Galvanized Steel**
- **Rigid Internal Support**



In an effort to respond to the increasing synthetic media requirements of the air filtration industry, Purolator offers the AERO-CELL™ S rigid box filter, a rigid air filter engineered to provide medium and high-efficiency filtration combined with a prolonged life cycle. Its box filter construction eliminates the need for retainers and special external wire media supports.

A high surface area-to-depth ratio provides the maximum amount of effective filter media in areas of minimum in-line duct space. The result: A rigid, stable filter with consistent performance in a variety of operating conditions.

Applications

Each AERO-CELL™ S filter provides medium to high-efficiency air filtration capability for a number of distinct applications. These filters are specifically designed for situations requiring strict adherence to filter media specifications, including the pharmaceutical, food processing, health care, paint spray, and commercial property industries.

The AERO-CELL™ S filter will operate to a final resistance of 1.5" w.g. Available in a variety of filtering efficiencies and sizes, the AERO-CELL™ S filter will satisfy and effectively service most applications.

In Variable Air Volume (VAV) applications, the AERO-CELL™ S filter maintains consistent filtering performance throughout a full range of velocities.

Interchangeable

The AERO-CELL™ S filter is designed to be completely interchangeable with all makes and types of medium to high-efficiency rigid cell filters. When used with Purolator conversion filter clips, existing side access and built up filter banks are easily converted to support the AERO-CELL™ S filter. In high dust concentration applications, the life of an AERO-CELL™ S is extended by the use of a prefilter. The Purolator Defiant Mark 80®-D and Hi-E® 40 pleated filters have proven effective in such situations.

Dual Stage Media

Purolator utilizes a dual stage media in each AERO-CELL™ S filter. The first stage is a prefilter which consists of coarse synthetic fibers designed to arrest larger particulate in the airstream and enhance dirt loading ability.

The second stage is a layer of micro-fine polypropylene fibers spun-bonded and fastened to a polypropylene backing which captures the remaining smaller particles. This dual stage media configuration increases the filter's overall efficiency and dust holding capacity.

The media is continuously bonded with solvent-free, water-based glue to expanded, corrosion-resistant, 28-gauge electro-galvanized steel which allows a 95% open face area.

It is important to note, as well, that synthetic fibers are inherently stronger than microfiberglass fibers,

Filtering Efficiencies

Model	MERV	Average Arrestance	Media Color
AC50S	10	96%	White
AC65S	11	97%	Orange
AC85S	13	98%	Pink
AC95S	14	99%	Yellow

decreasing the chance of media damage due to handling or high moisture conditions. In addition, the synthetic fibers are more resistant to the shearing stresses encountered at high air flow rates. The continuous filament associated with the spun-bonded process further ensures the integrity of the filter mat and eliminates fiber shedding.

Pleat Configuration

To achieve a maximum dust holding capacity while minimizing pressure loss and replacement frequencies, the AERO-CELL™ S incorporates aerodynamically wedge-shaped pleats into its design. The expanded metal backing and stationary pleat spacers allow consistent pleat configuration.

Frame Construction

The AERO-CELL™ S perimeter frame is constructed of high strength, corrosion resistant galvanized steel. To prevent air bypass, the filter pak is sealed to the frame on all sides.

Product Specification

Air filters shall be the high-efficiency, deep-pleated, disposable, rigid-cell type. Filter media shall be of dual stage, 100% synthetic fibers formed into a .25" thick filter blanket reinforced by an integral polypropylene backing.

Each filter shall have a rated airflow of ____ cfm, and initial resistance not to exceed ____, and a final resistance of ____ w.g. Each filter shall have no less than ____ square feet of media area. The filter shall have MERV Performance of ___ when tested in accordance with ASHRAE 52.2-2007. Data based on a 24x24x12 filter tested at 492 FPM.

The filter media shall be continuously bonded to a heavy-duty, 28-gauge, corrosion-resistant, electrogalvanized steel, expanded metal grid with an open face area of not less than 95%.

To inhibit dirty air bypass, the media grid assembly shall be bonded to all interior surfaces of the enclosure frame. The support grid shall be formed into a wedge configuration to optimize usage of the filter media. Pleat spacers shall be permanently installed.

The enclosure frame shall be constructed of corrosion-resistant galvanized steel in such as manner as to produce a rigid, durable filter. The filter shall be the AERO-CELL™ S as manufactured by Purolator. Filters shall be Classified per UL Standard 900.

Prefilters

Prefilters shall be the 2" or 4" medium efficiency (25 - 30%) pleated, disposable type, constructed with a non-woven cotton media supported by an expanded metal support backing and enclosed in a heavy duty, high wet strength board frame. The filter shall be the Defiant Mark 80®-D or Hi-E® 40 type as manufactured by Purolator.

Holding Frames

Holding frames shall be constructed of heavy duty, 16-gauge galvanized steel with flush-mitered, welded corners. The frame shall be suplied with closed cell eps/ polyethyl/butyl gasket secured to the rear seating flanges of the frame. Each frame shall be supplied with positive sealing filter locks. The holding frames shall be the PURO™ Frame type manufactured by Purolator.

Side Access Housings

Housing shall be side-servicing from either end through access doors fitted with positive pressure trip lock latches and gasketed inside doors, parallel to the filter track. Housings shall be constructed of heavy duty 16-gauge galvanized steel.

The housing shall be equipped with both a 2" prefilter track and a 1" final filter track. Each track shall be constructed of extruded aluminum combined with reinforced nylon pile air seals to create a corrosion-resistant, air-tight seal.

Each AERO-CELL™ S filter is constructed to meet Underwriters Laboratories, Inc. requirements. Testing is performed in accordance with UL Standard 900.

AERO-CELL™ S

Standard Models

Series	AERO-CELL™ Model Number	Nominal Size W x H x D	CFM Capacity	Resist in w.g.	Media area Sq. Ft.
50%	AC50S	24x24x12	2000	.18	58
	AC50S	20x24x12	1650	.18	47
	AC50S	20x20x12	1400	.18	39
	AC50S	12x24x12	1000	.18	28
	AC50S	24x24x6	1000	.18	30
	AC50S	20x24x6	850	.18	20
	AC50S	20x20x6	700	.18	24
	AC50S	12x24x6	500	.18	15
65%	AC60S	24x24x12	2000	.23	58
	AC60S	20x24x12	1650	.23	47
	AC60S	20x20x12	1400	.23	39
	AC60S	12x24x12	1000	.23	28
	AC60S	24x24x6	1000	.23	30
	AC60S	20x24x6	850	.23	20
	AC60S	20x20x6	700	.23	24
	AC60S	12x24x6	500	.23	15
85%	AC85S	24x24x12	2000	.42	58
	AC85S	20x24x12	1650	.42	47
	AC85S	20x20x12	1400	.42	39
	AC85S	12x24x12	1000	.42	28
	AC85S	24x24x6	1000	.42	30
	AC85S	20x24x6	850	.42	20
	AC85S	20x20x6	700	.42	24
	AC85S	12x24x6	500	.42	15
95%	AC95S	24x24x12	2000	.51	58
	AC95S	20x24x12	1650	.51	47
	AC95S	20x20x12	1400	.51	39
	AC95S	12x24x12	1000	.51	28
	AC95S	24x24x6	1000	.51	30
	AC95S	20x24x6	850	.51	20
	AC95S	20x20x6	700	.51	24
	AC95S	12x24x6	500	.51	15

Headered Models*

AERO-CELL™ Model Number	Resist in w.g.	Media area Sq. Ft.
HAC50S	.26	47
HAC50S	.26	40
HAC50S	.26	32
HAC50S	.26	23
HAC50S	.26	26
HAC50S	.26	23
HAC50S	.26	19
HAC50S	.26	14
HAC60S	.29	47
HAC60S	.29	40
HAC60S	.29	32
HAC60S	.29	23
HAC60S	.29	26
HAC60S	.29	23
HAC60S	.29	19
HAC60S	.29	14
HAC85S	.50	47
HAC85S	.50	40
HAC85S	.50	32
HAC85S	.50	23
HAC85S	.50	26
HAC85S	.50	23
HAC85S	.50	19
HAC85S	.50	14
HAC95S	.59	47
HAC95S	.59	40
HAC95S	.59	32
HAC95S	.59	23
HAC95S	.59	26
HAC95S	.59	23
HAC95S	.59	19
HAC95S	.59	14

* Standard Header is ¾"; a 1¼" header is available.

Dimensions: Standard or Headered Filter Models

Size	Width	Height	Depth
12" x 24"	11¾"	23¾"	5¾" or 11½"
20" x 24"	19¾"	23¾"	5¾" or 11½"
24" x 24"	23¾"	23¾"	5¾" or 11½"

*Optional 1⅛" header is available upon request. 3/4" header is standard.

P-AERO5-0113

Purolator

www.purolatorair.com

CLARCOR Air Filtration Products
100 River Ridge Circle • Jeffersonville, IN 47130
Customer Service: 1-866-925-2247 • Fax: 1-866-601-1809
Email: info@purolatorair.com • www.purolatorair.com

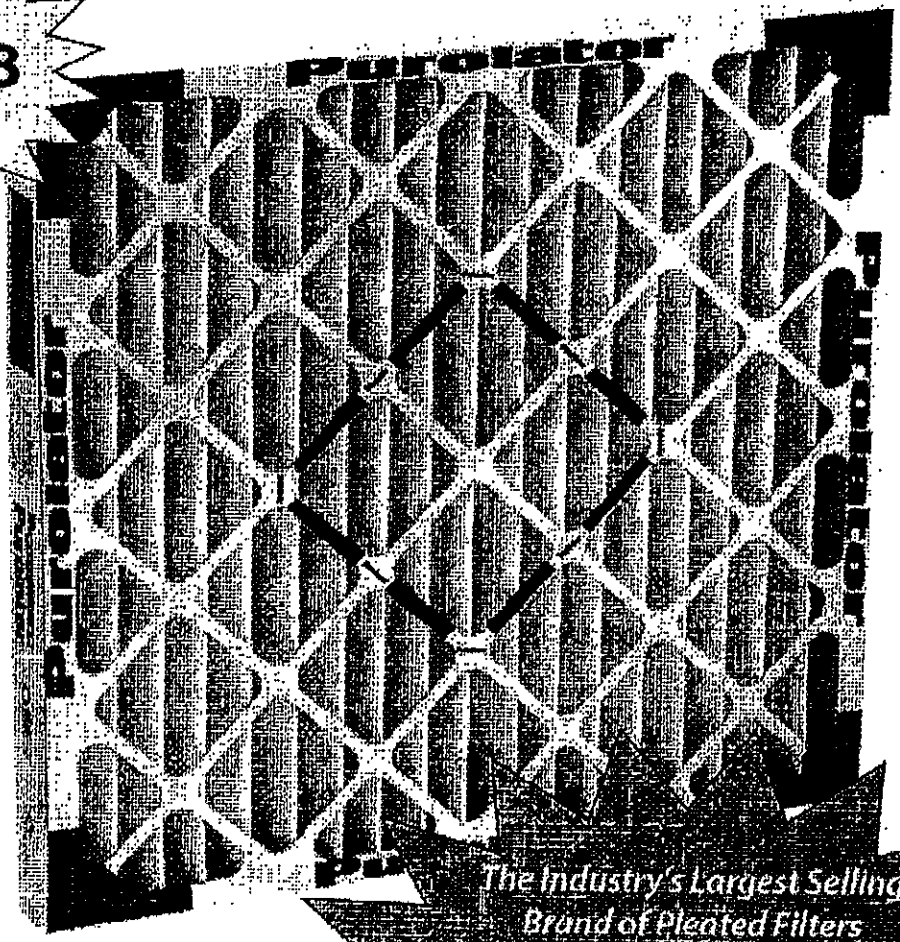
Distributed by:

Purolator

Hi-E® 40

Extended Surface Pleated Filters

MERV 8



The Industry's Largest Selling Brand of Pleated Filters

- **Mechanical MERV 8**
- **Low Initial Resistance for Energy Savings**
- **Quality Engineered**
- **Consistently Produced**
- **Widest Selection**
- **Industry's Largest Inventory**
- **Competitively Priced**

The Brand
Just Got Better
Hi-E 40 Plus Now
Mechanical MERV 8

HI-E 40

Mechanical MERV 8

- **HI-E 40** - The industry standard for performance and value for over 30 years.

- **Gain 1 Point toward LEED Certification** - During the process of new construction, install MERV 8 filters at each return air grille for air handlers used during construction. Conduct a two-week building flushout with new air filters and 100-percent outdoor air prior to occupancy.

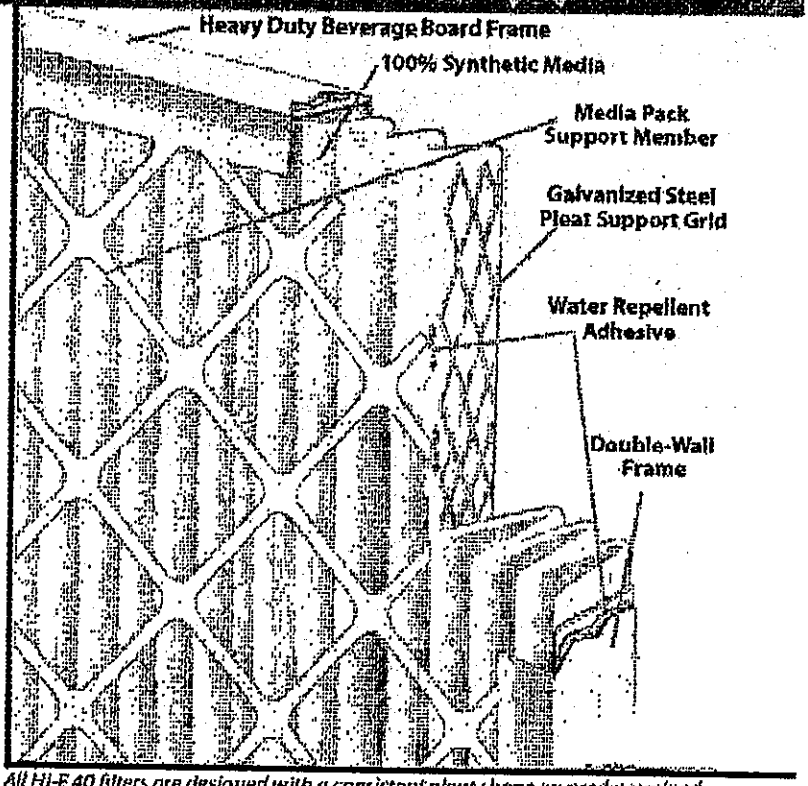
Nobody Sells More Pleats than Purolator. Here's Why...

Quality Engineered

Proprietary MERV 8 Media - Developed to deliver consistent performance-
The heart of the product. Purolator medias are manufactured to exclusive specifications produced only for Purolator. Nobody pays more attention to media specifications than Purolator. Rigid requirements for resistance, efficiency, MERV values and dust holding capacity are verified by QC checks on incoming raw materials, production line sampling and field audits of finished goods.

Mechanical Media - HI-E 40 filters are made with 100% synthetic fibers providing mechanical efficiency to achieve a MERV 8 performance. Hi-E 40 filters have a MERV 8 performance before and after a conditioning step. The MERV 8 media has a Polyvinyl Acetate (PVA) adhesive that is not affected by mold or microbial growth.

Heavy Duty Beverage Board Frame - Moisture resistant, sturdy frame material stands up to rough handling and difficult service conditions, providing long service life. The new die cut pattern increases contact points between the beverage board and die cut by 50%.

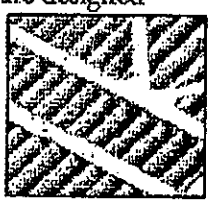


All Hi-E 40 filters are designed with a consistent pleat shape on predetermined centers causing dirt to collect evenly over the entire surface of the media. Fully utilizing every square inch results in a slow steady rise in resistance for maximum dust holding capacity.

Purolator pleats can't be beat!

Two-Piece Frame Construction - Double-wall thickness around the outer edge and integral die cut cross members provide strength and rigidity. Hi-E 40 filters will not rack, warp or bend under normal handling or operating conditions.

Pleat Stabilizers - The 4" deep filters are designed with individual die cut fingers that separate and stabilize each pleat. Consistent pleat alignment enhances dust holding capacity for longer service life.



Purolator Pleats Can't Be Beat!

Mechanical MERV 8

Purolator

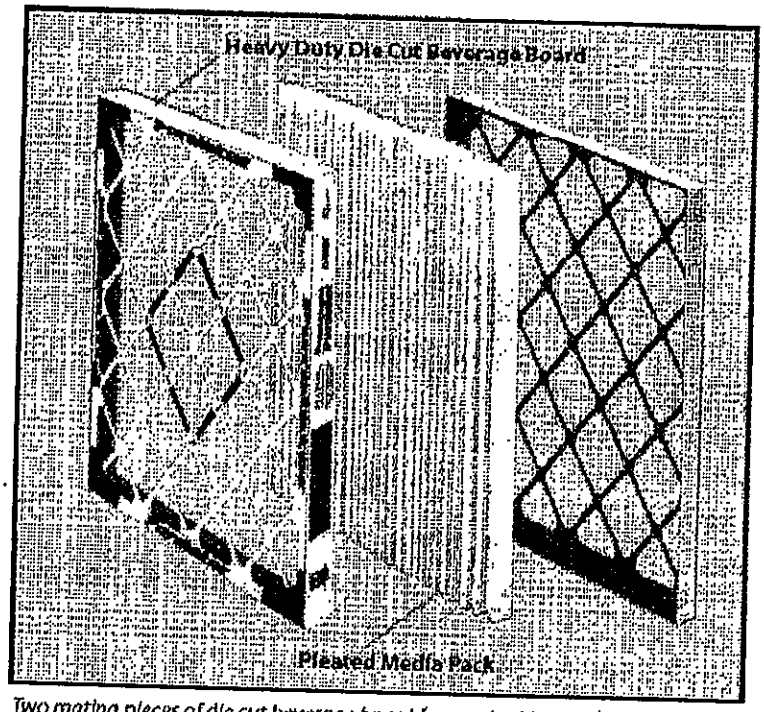
Water Repellent Adhesive–Adheres Even When Wet-
The adhesive used to bond the frame and media pack into a unitized assembly is highly water repellent. The pleats hold together even when wet. No delaminating, no excessive buckling, no collapsing.

Galvanized Steel Pleat Support - Prevents Rust-
How many pleats have you seen with rust flaking off the grid? The Purolator expanded metal pleat support grid is made of galvanized steel for maximum rust resistance. The metal grid maintains pleat shape and prevents fluttering in operation. Consistent pleat shape minimizes resistance and improves dirt loading characteristics throughout the life of the filter.

Consistently Produced

Uniform Pleat Shape - Holds More Dirt -
Consistent pleat shape produces oprimum performance. Sophisticated production control techniques assure consistent pleat count, pleat height, pleat shape and spacing.

100% Adhesive Application - Assures Filter Integrity -
The inside of the die cut frame is completely coated with adhesive to assure a solid bond at all points of contact. The die cut boxes are bonded to each other. The media pack is sealed inside the frame and the pleat tips are bonded to the diagonal support members.



Two mating pieces of die cut beverage board form a double wall frame around all four edges of the filter. Hi-E 40 filters will not rack or warp under normal operating conditions.

Competitively Priced

Ask your Purolator representative for a quote today.

Largest Inventory

(Nobody stocks more pleats than Purolator.)

We know ready availability is critical to meeting your needs for clean air... on time. All our Distribution Centers are kept fully stocked with pleats the year round.

Compare

The performance and value of Hi-E 40 pleats to other types of filters including disposable panel filters, ring panels, pads and frames or permanent filters for efficiency, low resistance, high dust holding capacity, durability and price. The Hi-E 40 line has lower resistance levels to aid in your energy savings goals and objectives.

Hi-E 40

Extended Surface Pleated Filters

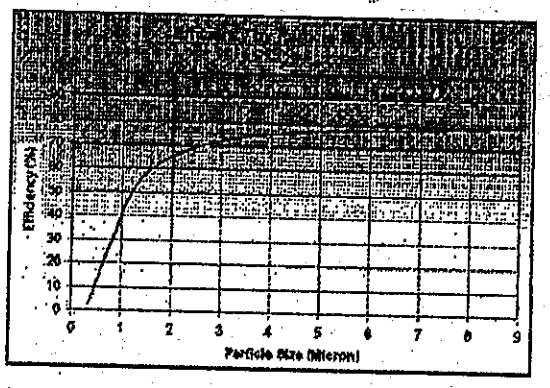
Mechanical MERV 8

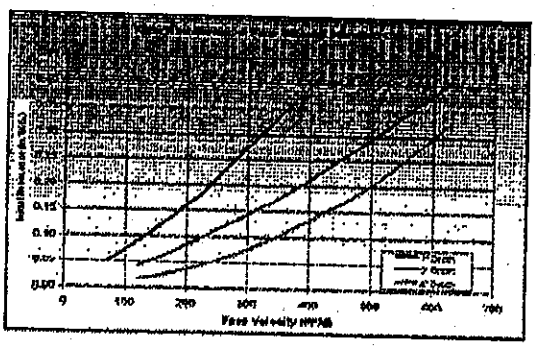
Performance Data: Hi-E 40 Filters

Hi-E 40 Model Number	Nominal Size W x H x D	Actual Size W x H x D	CFM Capacity	Resistance Inches W.G.	Total Media Area of Filter
HE40-STD1*	10x10x1	9-1/2 x 9-1/2 x 3/4	210	.27	1.4
HE40-STD1	10x15x1	9-3/4 x 14-3/4 x 3/4	310	.27	2.4
HE40-STD1	10x20x1	9-1/2 x 19-1/2 x 3/4	415	.27	2.4
HE40-STD1	10x24x1	9-3/8 x 23-3/8 x 3/4	500	.27	2.8
HE40-STD1	12x12x1	11-3/4 x 11-3/4 x 3/4	300	.27	2.9
HE40-STD1	12x16x1	11-1/2 x 15-3/4 x 3/4	400	.27	2.9
HE40-STD1	12x20x1	11-1/2 x 19-1/2 x 3/4	500	.27	2.9
HE40-STD1	12x24x1	11-3/8 x 22-3/8 x 3/4	600	.27	2.9
HE40-STD1	14x14x1	13-3/4 x 13-3/4 x 3/4	410	.27	3.4
HE40-STD1	14x20x1	13-1/2 x 19-1/2 x 3/4	585	.27	3.4
HE40-STD1	14x24x1	13-3/8 x 23-3/8 x 3/4	700	.27	3.4
HE40-STD1	14x25x1	13-1/2 x 24-1/2 x 3/4	730	.27	4.0
HE40-STD1	14x30x1*	13-3/4 x 29-3/4 x 3/4	875	.27	4.2
HE40-STD1	15x20x1	14-1/2 x 19-1/2 x 3/4	625	.27	3.6
HE40-STD1	15x30x1*	14-3/4 x 29-3/4 x 3/4	935	.27	7.1
HE40-STD1	16x16x1	15-1/2 x 15-1/2 x 3/4	530	.27	3.6
HE40-STD1	16x20x1	15-1/2 x 19-1/2 x 3/4	665	.27	3.8
HE40-STD1	16x24x1	15-3/8 x 23-3/8 x 3/4	800	.27	3.8
HE40-STD1	16x25x1	15-1/2 x 24-1/2 x 3/4	833	.27	4.6
HE40-STD1	16x30x1*	15-3/4 x 29-3/4 x 3/4	1000	.27	4.8
HE40-STD1	18x18x1	17-3/4 x 17-3/4 x 3/4	675	.27	7.2
HE40-STD1	18x20x1	17-3/8 x 19-1/2 x 3/4	750	.27	4.1
HE40-STD1	18x22x1	17-3/8 x 21-1/2 x 3/4	825	.27	4.1
HE40-STD1	18x24x1	17-1/2 x 23-3/8 x 3/4	900	.27	4.8
HE40-STD1	18x25x1	17-1/2 x 24-1/2 x 3/4	935	.27	4.8
HE40-STD1	20x20x1	19-1/2 x 19-1/2 x 3/4	830	.27	5.4
HE40-STD1	20x22x1	19-3/4 x 21-3/4 x 3/4	915	.27	4.8
HE40-STD1	20x24x1	19-3/8 x 23-3/8 x 3/4	1000	.27	5.7
HE40-STD1	20x25x1	19-1/2 x 24-1/2 x 3/4	1040	.27	5.7
HE40-STD1	20x30x1*	19-1/2 x 29-1/2 x 3/4	1250	.27	6.0
HE40-STD1	22x22x1	21-3/4 x 21-3/4 x 3/4	1005	.27	7.2
HE40-STD1	24x24x1	23-3/8 x 23-3/8 x 3/4	1200	.27	6.0
HE40-STD1	24x30x1*	23-3/4 x 29-3/4 x 3/4	1500	.27	6.6
HE40-STD1	25x25x1	24-1/2 x 24-1/2 x 3/4	1300	.27	7.2
					7.5
HE40-STD2	10x20x2	9-1/2 x 19-1/2 x 1-3/4	695	.29	4.7
HE40-STD2	12x12x2	11-3/4 x 11-3/4 x 1-3/4	500	.29	3.2
HE40-STD2	12x20x2	11-1/2 x 19-1/2 x 1-3/4	830	.29	5.2
HE40-STD2	12x24x2	11-3/8 x 23-3/8 x 1-3/4	1000	.29	5.2
HE40-STD2	14x20x2	13-1/2 x 19-1/2 x 1-3/4	970	.29	6.2
HE40-STD2	14x25x2	13-1/2 x 24-1/2 x 1-3/4	1215	.29	6.7
HE40-STD2	15x20x2	14-1/2 x 19-1/2 x 1-3/4	1040	.29	7.1
HE40-STD2	16x16x2	15-3/4 x 15-3/4 x 1-3/4	890	.29	6.3
HE40-STD2	16x20x2	15-1/2 x 19-1/2 x 1-3/4	1110	.29	6.7
HE40-STD2	16x24x2	15-3/8 x 23-3/8 x 1-3/4	1330	.29	6.7
HE40-STD2	16x25x2	15-1/2 x 24-1/2 x 1-3/4	1390	.29	8.0
HE40-STD2	18x18x2	17-3/4 x 17-3/4 x 1-3/4	1125	.29	8.0
HE40-STD2	18x20x2	17-1/2 x 19-1/2 x 1-3/4	1250	.29	7.8
HE40-STD2	18x22x2	17-1/2 x 21-1/2 x 1-3/4	1375	.29	7.8
HE40-STD2	18x24x2	17-3/8 x 23-3/8 x 1-3/4	1500	.29	9.8
HE40-STD2	18x25x2	17-1/2 x 24-1/2 x 1-3/4	1560	.29	9.8
HE40-STD2	20x20x2	19 1/2 x 19-1/2 x 1 3/4	1390	.29	9.7
HE40-STD2	20x24x2	19-3/8 x 23-3/8 x 1-3/4	1665	.29	8.3
HE40-STD2	20x25x2	19-1/2 x 24-1/2 x 1-3/4	1735	.29	9.9
HE40-STD2	20x30x2*	19-1/2 x 29-1/2 x 1-3/4	2080	.29	10.3
HE40-STD2	24x24x2	23-3/8 x 23-3/8 x 1-3/4	2000	.29	11.0
HE40-STD2	25x25x2	24-1/2 x 24-1/2 x 1-3/4	2170	.29	11.7
					13.6
HE40-STD4	12x24x4	11-3/8 x 23-3/8 x 3-3/4	1000	.20	11.2
HE40-STD4	16x20x4	15-1/2 x 19-1/2 x 3-3/4	1110	.20	14.8
HE40-STD4	16x25x4	15-1/2 x 24-1/2 x 3-3/4	1390	.20	12.5
HE40-STD4	18x24x4	17-3/8 x 23-3/8 x 3-3/4	1500	.20	16.2
HE40-STD4	20x20x4	19-1/2 x 19-1/2 x 3-3/4	1390	.20	15.7
HE40-STD4	20x24x4	19-3/8 x 23-3/8 x 3-3/4	1665	.20	18.7
HE40-STD4	20X25X4	19-1/2 x 24-1/2 x 3-3/4	1735	.20	19.8
HE40-STD4	24X24X4	23-3/8 x 23-3/8 x 3-3/4	2000	.20	22.4

* Reverse Pleat

1. Width and height dimensions are interchangeable. The Hi-E 40 may be installed with pleats vertical or horizontal.
2. Rated Efficiency: Hi-E 40 filters are rated MERV 8 per ASHRAE 52.2-2007. Data based on 24x24 size nominal velocity of 295 or 492 FPM.
3. Hi-E 40 filters have a MERV 8 performance before and after a conditioning step. MERV-A 8-A per ASHRAE 52.2-2007 Appendix J.
4. Rated Air Velocity: 1" @300 FPM, 2" and 4" @500 FPM.
5. Final Resistance 1.0" WG.





Underwriters Laboratories, Inc. Classification: Hi-E 40 filters are classified U.L. Class 2 per U.L. Standard 900.

Operating Temperature Limit: Maximum operating temperature is 225°F (107°C).

Pleat Count -	1"	2"	4"
	(Pleats per foot)		
Hi-E 40 -	12.0	10.0	9.0

Purolator Inc.

www.purolatorair.com

CLARCOR Air Filtration Products
100 River Ridge Circle • Jeffersonville, IN 47130
Customer Care Team: 1-866-925-2247 • Fax: 1-800-784-3458
Email: info@purolatorair.com • www.purolatorair.com

P-HIESTAND-510

Distributed by:

FILTER SPECIFICATION PROCEDURE

SERIES 2651

Molecular Filter

Molecular filters specified for installation shall be series 2651 as manufactured by Filtration Group, Inc.

The filter shall be constructed of a nonwoven media to which sorbent particles are bonded directly to the fiber without any type of adhesive additive. The filter shall be constructed in such a way as to provide essentially dust free operation. Nominal 24"x24"x12" filters shall have an initial pressure drop (resistance) of not more than 0.40" @ 2000 cfm.

Filter Size

Nominal dimensions for full size single header and double-header series 2651 filters shall be 24"x24"x12". Exact filter dimensions are 23.38"x23.38"x11.5".

Filter Media

The filter media shall contain a carbon loaded nonwoven media containing 500 g/m^2 of activated carbon with 1100 m^2/g of total surface area in the base carbon. In addition the media shall be a blend of high activity activated carbon and impregnated carbon. The media shall be suitable for the removal of aldehydes, acid gases, VOC's and ozone. Nominal 24"x24"x12" filters shall contain 104 ft^2 of media surface area.

Frame Enclosure

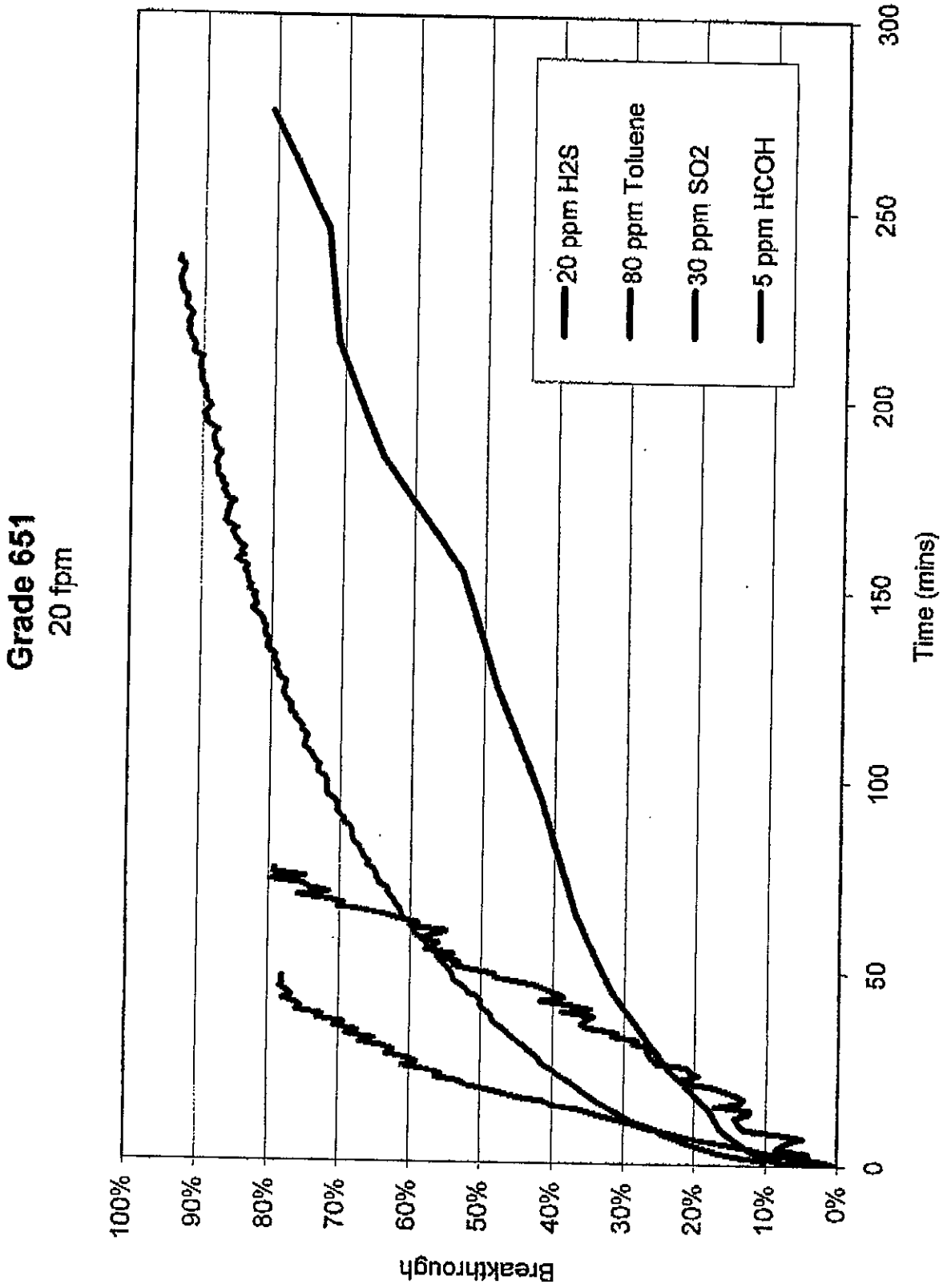
The frame shall be of rigid, galvanized sheet metal construction. A sealant shall be used to encapsulate the media to the filter casing, preventing any bypass. Each frame shall be labeled with size, type, and airflow.

Packaging

The filter shall be packaged into a non-porous bag to inhibit adsorption during shipping and storage.

Performance

Each filter shall evidence a minimum initial efficiency of not less than 95% for specified contaminants when laboratory tested under dynamic conditions. The filters shall have been evaluated for contaminant removal performance at 500 fpm.


Grade 651
20 fpm
Breakthrough
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
50
100
150
200
250
300
Time (mins)
20 ppm H2S
80 ppm Toluene
30 ppm SO2
5 ppm HCOH

FIRST FILTER

620 1ST STREET - AMPOINT INDL PK
PERRYSBURG, OH 43551

Quotation

Date	Quote #
6/12/2014	061214-1

TO:

Cleveland Public Library
325 Superior Avenue
Cleveland, OH 44114-1271
Attn: Tim Murdock
Property Management

(11) TOTAL PAGES

P.O. No.	Terms	FOB
	Net 30 Days	Delivered

Item	Description	Qty	Each	Total
	Per your FAX request we are pleased to quote the following:			
MISC	Filters for Louis Stokes Wing		68,883.31	68,883.31
MISC	Filters for Main Library Wing		42,280.15	42,280.15
	Please see attached breakdown per each wing.			
	Delivery: Approximately 4 weeks.			

Please call with any questions.

Total $111,163.46

Phone #	Fax #
419.666.5260	419.666.5253

Cleveland Public Library

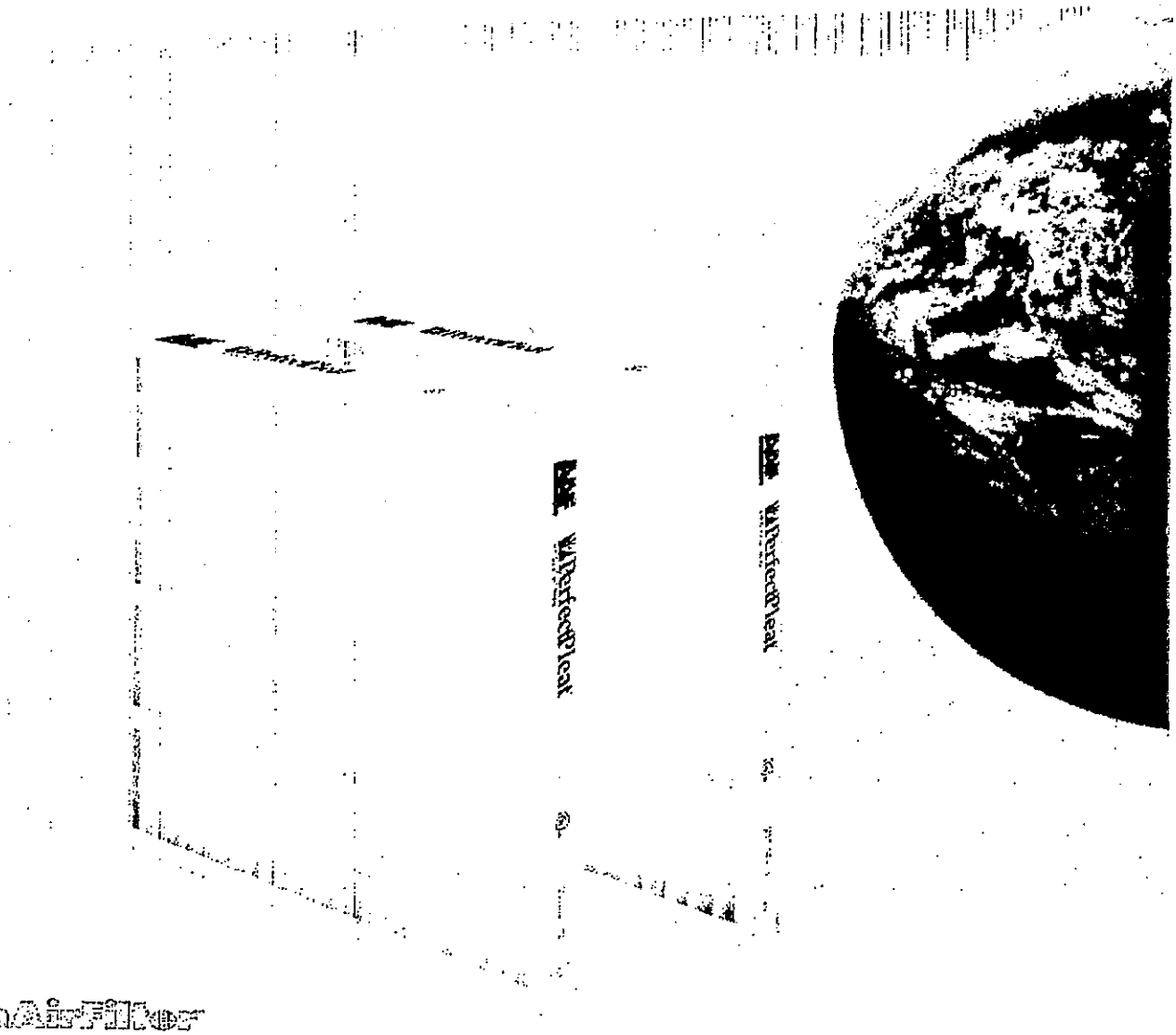
Louis Stokes Wing

Unit	Size	Type	Qty	Sell Ea	Total	AHU Total
AHU 1	24 x 24 x 2	Merv 8 Pleat	40	4.61	184.40	
	12 x 24 x 2	Merv 8 Pleat	5	3.12	15.60	
	24 x 24 x 12	95% Final	40	52.65	2,106.00	
	12 x 24 x 12	95% Final	5	39.48	197.40	
	24 x 24 x 12	CP Final	40	336.47	13,458.80	
	12 x 24 x 12	CP Final	5	242.67	1,213.35	$ 17,175.55
AHU 2	24 x 24 x 2	Merv 8 Pleat	36	4.61	165.96	
	12 x 24 x 2	Merv 8 Pleat	9	3.12	28.08	
	24 x 24 x 12	95% Final	36	52.65	1,895.40	
	12 x 24 x 12	95% Final	9	39.48	355.32	
	24 x 24 x 12	CP Final	36	336.47	12,112.92	
	12 x 24 x 12	CP Final	9	242.67	2,184.03	$ 16,741.71
AHU 3	24 x 24 x 2	Merv 8 Pleat	40	4.61	184.40	
	12 x 24 x 2	Merv 8 Pleat	5	3.12	15.60	
	24 x 24 x 12	95% Final	40	52.65	2,106.00	
	12 x 24 x 12	95% Final	5	39.48	197.40	
	24 x 24 x 12	CP Final	40	336.47	13,458.80	
	12 x 24 x 12	CP Final	5	242.67	1,213.35	$ 17,175.55
AHU 4	24 x 24 x 2	Merv 8 Pleat	40	4.61	184.40	
	12 x 24 x 2	Merv 8 Pleat	5	3.12	15.60	
	24 x 24 x 12	95% Final	40	52.65	2,106.00	
	12 x 24 x 12	95% Final	5	39.48	197.40	
	24 x 24 x 12	CP Final	40	336.47	13,458.80	
	12 x 24 x 12	CP Final	5	242.67	1,213.35	$ 17,175.55
AHU 5	16 x 25 x 2	Merv 8 Pleat	12	3.68	44.16	
	25 x 25 x 2	Merv 8 Pleat	8	6.49	51.92	
	24 x 24 x 12	95% Final	8	52.64	421.12	$ 517.20
AHU 6	20 x 24 x 2	Merv 8 Pleat	2	4.13	8.26	
	16 x 25 x 2	Merv 8 Pleat	4	3.68	14.72	$ 22.98
AHU 7	16 x 20 x 2	Merv 8 Pleat	3	3.27	9.81	$ 9.81
AHU 8	16 x 20 x 2	Merv 8 Pleat	4	3.27	13.08	
	16 x 25 x 2	Merv 8 Pleat	5	3.68	18.40	$ 31.48
AHU 9	16 x 20 x 2	Merv 8 Pleat	3	3.27	9.81	$ 9.81
AHU 10	20 x 25 x 2	Merv 8 Pleat	3	4.21	12.63	
	16 x 25 x 2	Merv 8 Pleat	3	3.68	11.04	$ 23.67
					TOTAL	$ 68,883.31

Cleveland Public Library

Main Library Wing

Unit	Size	Type	Qty	Sell Ea	Total	AHU Total
AHU 20	24 x 24 x 2	Merv 8 Pleat	20	4.61	92.20	
	24 x 24 x 12	85% Final	20	51.79	1,035.80	
	24 x 24 x 12	CP Final	20	336.47	6,729.40	$ 7,857.40
AHU 21	24 x 24 x 2	Merv 8 Pleat	20	4.61	92.20	
	24 x 24 x 12	85% Final	20	51.79	1,035.80	
	24 x 24 x 12	CP Final	20	336.47	6,729.40	$ 7,857.40
AHU 22	24 x 24 x 2	Merv 8 Pleat	20	4.61	92.20	
	24 x 24 x 12	85% Final	20	51.79	1,035.80	
	24 x 24 x 12	CP Final	20	336.47	6,729.40	$ 7,857.40
AHU 23	24 x 24 x 2	Merv 8 Pleat	20	4.61	92.20	
	24 x 24 x 12	85% Final	20	51.79	1,035.80	
	24 x 24 x 12	CP Final	20	336.47	6,729.40	$ 7,857.40
AHU 24	20 x 20 x 2	Merv 8 Pleat	4	3.72	14.88	
	20 x 24 x 4	Merv 8 Pleat	4	4.13	16.52	
	20 x 20 x 12	85% Final	4	44.12	176.48	
	20 x 24 x 12	85% Final	4	47.33	189.32	
	20 x 20 x 12	CP Final	4	293.64	1,174.56	
	20 x 24 x 12	CP Final	4	336.47	1,345.88	$ 2,917.64
AHU 25	24 x 24 x 2	Merv 8 Pleat	20	4.61	92.20	
	24 x 24 x 12	85% Final	20	51.79	1,035.80	
	24 x 24 x 12	CP Final	20	336.47	6,729.40	$ 7,857.40
AHU 26	20 x 24 x 2	Merv 8 Pleat	3	4.13	12.39	
	12 x 24 x 2	Merv 8 Pleat	2	3.12	6.24	$ 18.63
AHU 27	20 x 24 x 2	Merv 8 Pleat	3	4.13	12.39	
	12 x 24 x 2	Merv 8 Pleat	2	3.12	6.24	$ 18.63
AHU 28	16 x 20 x 2	Merv 8 Pleat	6	3.27	19.62	$ 19.62
AHU 29	20 x 24 x 2	Merv 8 Pleat	3	4.13	12.39	
	12 x 24 x 2	Merv 8 Pleat	2	3.12	6.24	$ 18.63
					TOTAL	**$ 42,280.15**



American Air Filter

PerfectPleat® HC M8
PerfectPleat®

1" and 2" Extended Surface, Pleated Filters with Process-Controlled Quality

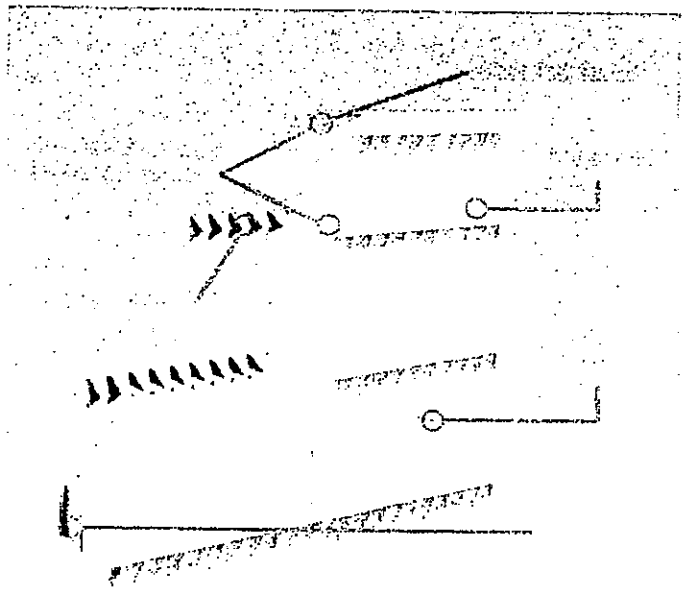
With DuraFlex® Media

Better Air is Our Business®

AmericanAirFilter

PerfectPleat® HC M8 - MERV 8
PerfectPleat® - MERV 7

1" and 2" Extended Surface, Pleated Filters with Process-Controlled Quality



- ***Mechanical efficiency — does not rely on electret charge technology***
- ***Form and fit unlike any other pleat available today***
- ***Self-supporting DuraFlex® media made from virgin fiber; no wire support needed***
- ***Consistent media with controlled fiber size and blend***
- ***High capacity model, PerfecPleat HC M8 filter, available for applications where higher efficiencies, airflow, and longer life are important***
- ***Available in 1", 2" and *4" models***
- ***Patented media, filter design, and manufacturing process. Patents covered under one or more of the following US 6398839 B2; US 6254653 B1; US 6159318; US 6165242; US 6387140 B1 (1" model only)***

PerfectPleat® 2" Filter Construction

The Air Filtration Leader

AAF International, one of the world's largest manufacturers of air filtration products, is known for technical innovation and excellence. Designed, developed, and patented by AAF, the PerfectPleat filter is a product with form and fit unlike any other pleated filter in the marketplace today. In addition, the PerfectPleat filter has the efficiency you need and expect.

Superior Design and Construction

Drawing on years of experience in manufacturing quality air filters, AAF has created a state-of-the-art process for producing pleated filters. The extremely high quality of these filters is a result of three unique innovations: a new, automated manufacturing process; a unique, self-supporting media; and a filter construction that provides incredible strength without wire support.

Since their introduction, pleated filters have become a larger and more important segment of the filtration marketplace. However, conventional design and process are not conducive to the manufacture of consistently pleated media packs or finished filters. Inconsistency in pleat arrangement, variations in media, improper bonding of media to frame, along with antiquated manufacturing techniques, have a negative impact on efficiency, resistance, durability, and strength. The automated and controlled process AAF has developed for the PerfectPleat filter eliminates these inconsistencies and irregularities. Our automated manufacturing process offers consistency unmatched by conventionally manufactured pleats.

DuraFlex® Media - Patented Media Design

Uniform size virgin fibers are assembled in closely controlled blends to create a media that is both self-supporting and remarkably consistent in performance. When pleated, DuraFlex media will hold its shape without the wire support characteristic of conventional pleated filters. That means no potential for the formation of rust and safer handling - no nicks or cuts for the installer or handler.

With the superior resiliency of DuraFlex media and no need for wire support, the PerfectPleat filter can sustain significant abuse and maintain its shape and pleat spacing. The absence of the wire also makes the filter totally incinerable, which simplifies disposal. The PerfectPleat filter meets or exceeds all current expectations for service life.

As a result of its unique design, the PerfectPleat® filter can withstand significant damage.

DuraFlex® media has "memory" which allows PerfectPleat® filters to remain functional, even when the frame has been compromised.

** See brochure AFP-1-206 for 4" model.*

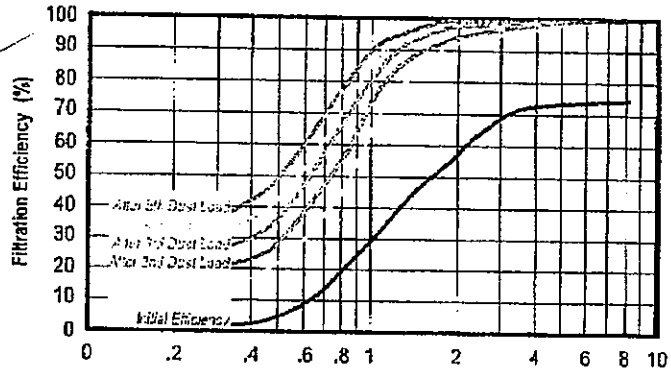
Increasing Efficiency — Throughout Life of the Filter

The PerfectPleat filter is designed to consistently increase its efficiency throughout the service life of the filter. Competitive pleated panel filters, manufactured using an electret charge to obtain the MERV 8 rating, perform with declining efficiency over time. PerfectPleat HC M8 and PerfectPleat filters have initial MERV 8 and MERV 7 ratings respectively, but the efficiency increases significantly when dust loading begins.

Applications

PerfectPleat filters have distinctive self-supporting characteristics that allow a pleating pattern, which promotes airflow and maximizes dust holding capacity (DHC). The PerfectPleat HC M8 filter is ideal for applications where pleated filters are currently in use and higher efficiencies are required or desired. The PerfectPleat filter is best suited for standard capacity pleated filter applications. Heavy Duty (HD) PerfectPleat filter is available for applications where extremely low temperature and high airflow are present. See Brochure AFP-1-201. Every PerfectPleat filter offers superior durability and performance when properly installed and maintained.

Particle Size Efficiency Curves



Particle Diameter (micrometers)

based on 2" PerfectPleat® HC M8 filter

Environmentally Responsible Air Filtration Solutions

AAF is committed to operating with a goal of sustainability. We have implemented several initiatives to work and manufacture in an environmentally responsible manner and contribute more to protecting our planet by using fewer natural resources and reducing our carbon footprint. The PerfectPleat filter product design minimizes base raw material consumption and meets our "Green" product development standards. The PerfectPleat filter product line is totally incinerable and the absence of support wire simplifies disposal. Used during construction, PerfectPleat HC M8 filters may contribute to LEED® certification points under IEQ categories.

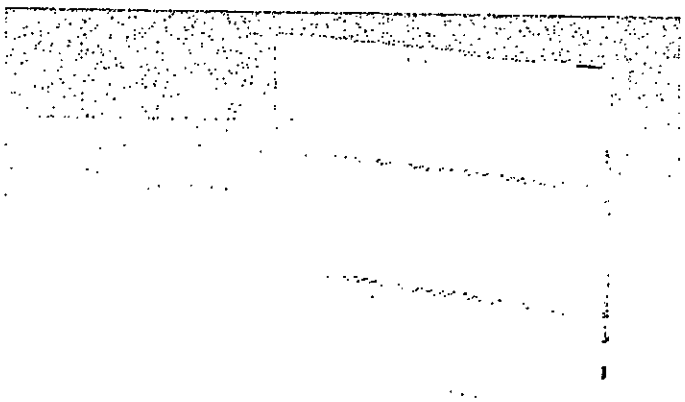
2" PerfectPleat® Filter — Heavy Duty Frame

The perimeter frame of the PerfectPleat HC M8 and PerfectPleat filters is constructed from the highest wet-strength 28 pt. beverage carrier board available, securely bonded to the media pack. The 28 pt. thickness improves filter strength and helps resist damage.

Uniquely designed pleat stabilizers are bonded to the media on the air leaving side to ensure uniform pleat spacing and provide additional strength. On the air-entering side, support straps increase the rigidity of the PerfectPleat filter. The support straps and pleat stabilizers ensure integrity against turbulent airflow and provide excellent lateral stability for installation in side-access systems.

1" PerfectPleat® Filter — Strength and Durability

The 1" PerfectPleat HC M8 and PerfectPleat filters have the same durability and performance as the 2" models. Both are made using DuraFlex media encased in a 28 pt. beverage carrier board frame. PerfectPleat 1" filter models feature a perimeter frame, with three supporting straps on the air entering and air leaving sides of the filter. Both models resist crushing and abuse and can be used in any application where 1" filters are currently in place. The PerfectPleat HC M8 and PerfectPleat filters rate MERV 8 and MERV 7 respectively.



PerfectPleat® HC M8 filter, 1" thick, air leaving side. A blue stripe designates PerfectPleat® HC M8 filter media.

American AirFilter

PerfectPleat® HC M8 - MERV 8
PerfectPleat® - MERV 7

Product Information Standard Sizes

Nominal Sizes (Inches) (W x H x D)	Actual Sizes (Inches) (W x H x D)	Rated Airflow Capacity (SCFM) 300 FPM	500 FPM	625 FPM	Pleats Per Filter PerfectPleat HC M8 1"	PerfectPleat 1"	PerfectPleat HC M8 2"	PerfectPleat 2"
10 x 10 x 1	9½ x 9½ x ¾	200	350		11	11		
10 x 20 x 1	9½ x 19½ x ¾	400	700		11	11		
12 x 12 x 1	11½ x 11½ x ¾	300	500		14	14		
12 x 20 x 1	11½ x 19½ x ¾	500	850		14	14		
12 x 24 x 1	11⅞ x 23⅞ x ¾	600	1000		14	14		
14 x 20 x 1	13½ x 19½ x ¾	600	1000		16	16		
14 x 25 x 1	13½ x 24½ x ¾	750	1200		16	16		
15 x 20 x 1	14½ x 19½ x ¾	650	1050		17	17		
16 x 16 x 1	15½ x 15½ x ¾	550	900		19	19		
16 x 20 x 1	15½ x 19½ x ¾	650	1100		19	19		
16 x 25 x 1	15½ x 24½ x ¾	850	1400		19	19		
18 x 20 x 1	17½ x 19½ x ¾	750	1250		21	21		
18 x 24 x 1	17⅞ x 23⅞ x ¾	900	1500		21	21		
18 x 25 x 1	17½ x 24½ x ¾	950	1550		21	21		
20 x 20 x 1	19½ x 19½ x ¾	850	1400		24	24		
20 x 25 x 1	19½ x 24½ x ¾	1050	1750		24	24		
24 x 24 x 1	23⅞ x 23⅞ x ¾	1200	2000		29	29		
25 x 25 x 1	24½ x 24½ x ¾	1300	2200		30	30		
10 x 20 x 2	9½ x 19½ x 1¾	400	700	850			11	8
12 x 20 x 2	11½ x 19½ x 1¾	500	850	1050			14	10
12 x 24 x 2	11⅞ x 23⅞ x 1¾	600	1000	1250			14	10
14 x 25 x 2	13½ x 24½ x 1¾	750	1200	1500			16	11
15 x 20 x 2	14½ x 19½ x 1¾	650	1050	1300			17	12
15 x 25 x 2	14½ x 24½ x 1¾	800	1300	1650			17	12
16 x 16 x 2	15½ x 15½ x 1¾	550	900	1100			19	13
16 x 20 x 2	15½ x 19½ x 1¾	650	1100	1400			19	13
16 x 24 x 2	15⅞ x 23⅞ x 1¾	800	1350	1650			19	13
16 x 25 x 2	15½ x 24½ x 1¾	850	1400	1750			19	13
18 x 25 x 2	17½ x 24½ x 1¾	950	1550	1950			21	15
18 x 24 x 2	17⅞ x 23⅞ x 1¾	900	1500	1900			21	15
20 x 20 x 2	19½ x 19½ x 1¾	850	1400	1750			24	17
20 x 24 x 2	19⅞ x 23⅞ x 1¾	1000	1650	2100			24	17
20 x 25 x 2	19½ x 24½ x 1¾	1050	1750	2150			24	17
24 x 24 x 2	23⅞ x 23⅞ x 1¾	1200	2000	2500			29	20
25 x 25 x 2	24½ x 24½ x 1¾	1300	2150	2700			30	21

PerfectPleat and PerfectPleat HC M8 filters are classified UL Class 2. Testing was performed according to UL Standard 900 and CAN 4-S111.

Performance Data

Filter	Pleats Per Lineal Foot	Rated Initial Resistance (in. w.g.) 300 FPM	500 FPM	625 FPM	Recommended Final Resistance (in. w.g.)	ASHRAE 52.2 MERV	Continuous Operating Temperature Limits °F	°C
PerfectPleat HC M8 2"	15.0	.16	.33	.43	1.0	8	170°	77°
PerfectPleat 2"	10.0	.14	.30	.45	1.0	7	170°	77°
PerfectPleat HC M8 1"	15.0	.31	.62	---	1.0	8	170°	77°
PerfectPleat 1"	15.0	.20	.48	---	1.0	7	170°	77°

10300 Ormsby Park Place Suite 600
Louisville, Kentucky 40223-6169
www.aafintl.com
Customer Service 888.AAF.2003
Fax 888.223.6500

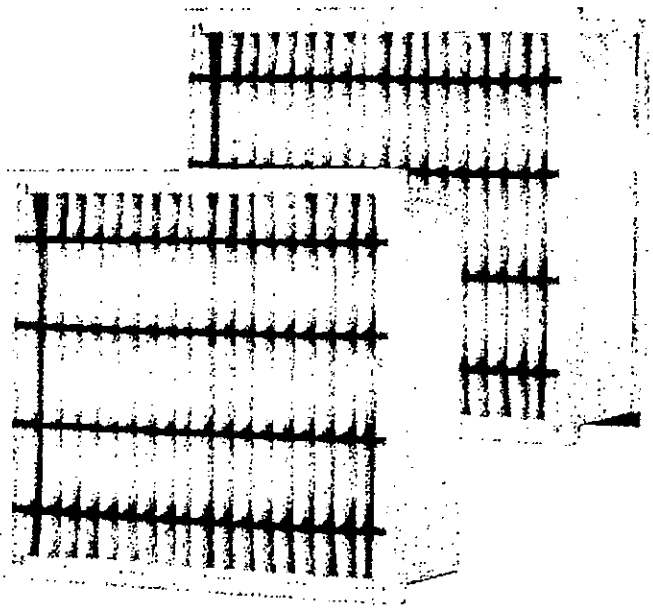
AFP-200P WAR '10 PM 3M

Better Air is Our Business®

American Air Filter

VariCel® RF = Secondary Filter

Extended-Surface Rigid Air Filter with Synthetic Media



- ***Designed for improved performance and durability***
- ***Layered synthetic media with plastic pleat spacers on both sides***
- ***Heavy-duty expanded metal media support grid***
- ***Ideal for VAV systems***

Excellent Performance

With superior strength and durability, the VariCel RF filter is ideal for Variable Air Volume (VAV) systems. It provides a high level of filtration efficiency in those applications where cleaner air is required. With metal cell sides and a layered synthetic media pack, the VariCel RF filter offers superior dust holding, moisture resistance, and overall performance. Color-coded media designates each efficiency: MERV 15 Yellow, MERV 14 Pink, MERV 12 Green, and MERV 11 White. Both single and double-header models are available.

= To 95%

Sturdy Construction and Dependability

The VariCel RF filter, with its galvanized steel cell sides and plastic pleat spacers on the air-entering and air-leaving sides, withstands the most demanding applications. The pleat spacers and expanded metal support grid maintain the shape of the synthetic media pack and ensure that both the efficiency and dust-holding capacity are maximized.

The rigid construction with supported pleat media pack maintains a compact unitized structure under variable air velocities and repeated fan shutdowns. The interlocked header and cell sides, along the entire length of each side, provide maximum sealing. Competitive filters are designed with loose fitting headers that allow greater potential for bypass leakage.

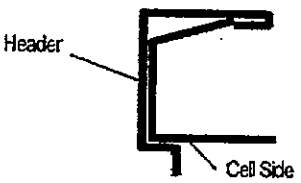
Layered Synthetic Media Pack

The layered media used in the VariCel RF filter is a meltblown synthetic protected by a scrim on the air-leaving side. Layering the media provides both a high-efficiency final filter layer that effectively filters fine particulate and an integral lofted prefilter layer that captures larger particulate. Meltblown synthetic media is stronger than fiberglass, non-shedding, and is water-resistant.

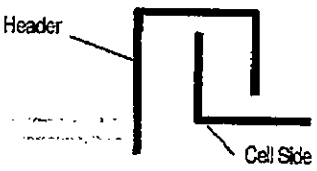
Open Header Design

AAF's unique open-header design creates a built-in handle that makes carrying and installing the VariCel RF filter easy. As an added safety measure, we roll the edges of the header to eliminate sharp edges that can make handling competitors' products hazardous.

VariCel® RF Filter Construction



Typical Competitive Construction



American Air Filter

VariCel® RF

Selection Guide and Performance Data

Class 2 Synthetic

Part Number	Filter Description	Efficiency	Nominal Size (in.)	Actual Size (in.)	Airflow (CFM)	Resistance (in. w.g.) Initial	Resistance (in. w.g.) Final	Media Area (ft. sq.)
3011087-001	VariCel RF DH	MERV 15 (90-95%)	24x24x12	23.38x23.38x11.50	2000	.56	1.5	62
3011087-004	VariCel RF DH	MERV 15 (90-95%)	24x12x12	23.38x11.38x11.50	1000	.56	1.5	31
3011087-002	VariCel RF DH	MERV 15 (90-95%)	24x20x12	23.38x19.38x11.50	1660	.56	1.5	52
3011087-003	VariCel RF DH	MERV 15 (90-95%)	20x20x12	19.38x19.38x11.50	1400	.56	1.5	41
3011079-001	VariCel RF SH	MERV 15 (90-95%)	24x24x12	23.38x23.38x11.50	2000	.56	1.5	62
3011079-004	VariCel RF SH	MERV 15 (90-95%)	24x12x12	23.38x11.38x11.50	1000	.56	1.5	31
3011079-002	VariCel RF SH	MERV 15 (90-95%)	24x20x12	23.38x19.38x11.50	1660	.56	1.5	52
3011079-003	VariCel RF SH	MERV 15 (90-95%)	20x20x12	19.38x19.38x11.50	1400	.56	1.5	41
3011087-005	VariCel RF DH	MERV 14 (80-85%)	24x24x12	23.38x23.38x11.50	2000	.36	1.5	62
3011087-008	VariCel RF DH	MERV 14 (80-85%)	24x12x12	23.38x11.38x11.50	1000	.36	1.5	31
3011087-006	VariCel RF DH	MERV 14 (80-85%)	24x20x12	23.38x19.38x11.50	1660	.36	1.5	52
3011087-007	VariCel RF DH	MERV 14 (80-85%)	20x20x12	19.38x19.38x11.50	1400	.36	1.5	41
3011079-005	VariCel RF SH	MERV 14 (80-85%)	24x24x12	23.38x23.38x11.50	2000	.36	1.5	62
3011079-008	VariCel RF SH	MERV 14 (80-85%)	24x12x12	23.38x11.38x11.50	1000	.36	1.5	31
3011079-006	VariCel RF SH	MERV 14 (80-85%)	24x20x12	23.38x19.38x11.50	1660	.36	1.5	52
3011079-007	VariCel RF SH	MERV 14 (80-85%)	20x20x12	19.38x19.38x11.50	1400	.36	1.5	41
3011087-009	VariCel RF DH	MERV 12 (60-65%)	24x24x12	23.38x23.38x11.50	2000	.25	1.5	62
3011087-012	VariCel RF DH	MERV 12 (60-65%)	24x12x12	23.38x11.38x11.50	1000	.25	1.5	31
3011087-010	VariCel RF DH	MERV 12 (60-65%)	24x20x12	23.38x19.38x11.50	1660	.25	1.5	52
3011087-011	VariCel RF DH	MERV 12 (60-65%)	20x20x12	19.38x19.38x11.50	1400	.25	1.5	41
3011079-009	VariCel RF SH	MERV 12 (60-65%)	24x24x12	23.38x23.38x11.50	2000	.25	1.5	62
3011079-012	VariCel RF SH	MERV 12 (60-65%)	24x12x12	23.38x11.38x11.50	1000	.25	1.5	31
3011079-010	VariCel RF SH	MERV 12 (60-65%)	24x20x12	23.38x19.38x11.50	1660	.25	1.5	52
3011079-011	VariCel RF SH	MERV 12 (60-65%)	20x20x12	19.38x19.38x11.50	1400	.25	1.5	41
3011087-013	VariCel RF DH	MERV 11 (45-50%)	24x24x12	23.38x23.38x11.50	2000	.23	1.5	62
3011087-016	VariCel RF DH	MERV 11 (45-50%)	24x12x12	23.38x11.38x11.50	1000	.23	1.5	31
3011087-014	VariCel RF DH	MERV 11 (45-50%)	24x20x12	23.38x19.38x11.50	1660	.23	1.5	52
3011087-015	VariCe RF DH	MERV 11 (45-50%)	20x20x12	19.38x19.38x11.50	1400	.23	1.5	41
3011079-013	VariCel RF SH	MERV 11 (45-50%)	24x24x12	23.38x23.38x11.50	2000	.23	1.5	62
3011079-016	VariCel RF SH	MERV 11 (45-50%)	24x12x12	23.38x11.38x11.50	1000	.23	1.5	31
3011079-014	VariCe RF SH	MERV 11 (45-50%)	24x20x12	23.38x19.38x11.50	1660	.23	1.5	52
3011079-015	VariCel RF SH	MERV 11 (45-50%)	20x20x12	19.38x19.38x11.50	1400	.23	1.5	41

Notes

All listed efficiencies are averages according to ASHRAE 52.2-2007. Comparable ASHRAE 52.1 atmospheric dust spot efficiency shown in parenthesis.
Performance tolerances conform to section 7.4 of ARI Standard 850-93.
Rated UL and C-UL Class 2.
Temperature limitation is 200°F (93°C) continuous, and 220°F (107°C) intermittent.
Actual depth of 12" filter is 11.50" (292mm).
Headers are 13/15" (21mm).
Width and height dimensions are interchangeable.

Efficiency

MERV 15 (90-95%) - Yellow
MERV 14 (80-85%) - Pink
MERV 12 (60-65%) - Green
MERV 11 (45-50%) - White

*Maximum recommended final resistance in system design may indicate a lower change-out point.

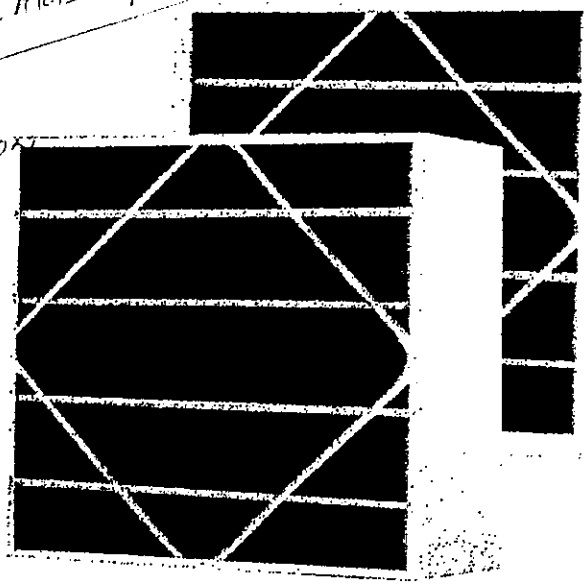
© 10300 Ormsby Park Place Suite 600
Louisville, Kentucky 40223-6169
www.aafintl.com
Customer Service 888.AAF.2003
Fax 888.223.6500

AFP-1-105E MAR 2010 PM2M

Better Air is Our Business®

American Air Filter

VariCel® RF/C
VariCel® RF/C+SAAFOxi™



Extended-Surface Rigid Air Filter for the Removal of Gaseous Pollutants, Odors and Particulates

- *VariCel RF/C — 60% activity granular activated carbon*
- *VariCel RF/C+SAAFOxi — 50/50 blend of 60% activated carbon and AAF's proprietary activated alumina impregnated with potassium permanganate ($KMnO_4$)*
- *Particulate and gaseous contaminants removal in a UL Class 2 rated filter*
- *MERV 8 (all models)*
- *Single-header and no-header models*

Applications

- Airports
- Hospitals
- Industrial plant offices and laboratories
- Microelectronic component assembly
- Office, retail and commercial buildings

Excellent Performance

IAQ issues are unpredictable. They can appear suddenly and may be a one-time occurrence or an on-going nuisance. No matter what the cause, when the air smells bad, it is unpleasant, distracting and potentially unhealthy — and people associate unpleasant odors with dirty air. In many instances, making extensive changes to the air handling system to eliminate the problem is not easy, timely or cost effective.

The solution may be VariCel RF/C and VariCel RF/C+SAAFOxi filters. These filters provide high efficiency removal of multiple contaminants for a variety of applications. VariCel RF/C filters use filter media containing 60% activity granular activated carbon to remove odors and gaseous pollution. The VariCel RF/C+SAAFOxi filters are made with SAAFWeb™ technology containing equal volumes of 60% activated carbon and an exclusive formulation of activated alumina impregnated with 8% potassium permanganate ($KMnO_4$) to remove odors and light gases. Either loading will provide a fresher, more odor free environment.

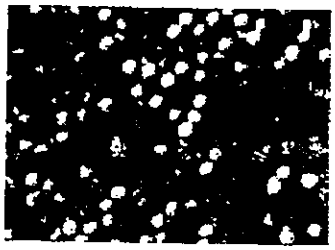
Sturdy Construction and Dependability

The VariCel RF/C and RF/C+SAAFOxi filters, with galvanized steel construction and plastic pleat spacers on the air-entering and air-leaving sides, withstand the most demanding applications. The pleat spacers maintain the shape of the synthetic media pack and ensure that both the effectiveness and service life are maximized.

The strong construction, with a supported pleat media pack, helps maintain a compact unitized structure under variable air velocities and repeated fan shutdowns. The interlocked header and cell sides, along the entire length of each side, provide maximum sealing.

Additional Features

VariCel RF/C and RF/C+SAAFOxi filters replace existing HVAC filters of the same type with no changes required for frames or latches. They are packed in polyethylene to preserve capacity and cleanliness.



VariCel® RF/C and RF/C+SAAFOxi filters use SAAFWeb™ technology.

AmericanAirFilter

VariCel® RF/C
VariCel® RF/C+SAAFOxi™

Product Information

Product Number	Nominal Size (in.)	Actual Size (in.)	Media Area (ft. sq.)	Per Filter Pounds *GAC-Wt.*	*Initial Resistance (in. w.g.) 300 FPM	500 FPM	Final Resistance (in. w.g.)	MERV Rating
VariCel RF/C Filter (No Header)								
185-100-319	12 x 24 x 12	11⅞ x 23⅞ x 11½	29.0	3.8	.17	.43	1.5	8
185-100-700	20 x 20 x 12	19⅞ x 19⅞ x 11½	39.9	5.3	.17	.43	1.5	8
185-100-782	20 x 24 x 12	19⅞ x 23⅞ x 11½	48.3	6.4	.17	.43	1.5	8
185-100-863	24 x 24 x 12	23⅞ x 23⅞ x 11½	58.7	7.8	.17	.43	1.5	8
VariCel RF/C Filter Type SH (Single Header)								
185-101-319	12 x 24 x 12	11⅞ x 23⅞ x 11½	26.0	3.4	.17	.43	1.5	8
185-101-700	20 x 20 x 12	19⅞ x 19⅞ x 11½	35.4	4.7	.17	.43	1.5	8
185-101-782	20 x 24 x 12	19⅞ x 23⅞ x 11½	43.4	5.7	.17	.43	1.5	8
185-101-863	24 x 24 x 12	23⅞ x 23⅞ x 11½	52.6	7.0	.17	.43	1.5	8
VariCel RF/C+SAAFOxi Filter (No Header)								
185-110-319	12 x 24 x 12	11⅞ x 23⅞ x 11½	29.0	4.8	.17	.43	1.5	8
185-110-700	20 x 20 x 12	19⅞ x 19⅞ x 11½	39.9	6.6	.17	.43	1.5	8
185-110-782	20 x 24 x 12	19⅞ x 23⅞ x 11½	48.3	8.0	.17	.43	1.5	8
185-110-863	24 x 24 x 12	23⅞ x 23⅞ x 11½	58.7	9.7	.17	.43	1.5	8
VariCel RF/C+SAAFOxi Filter Type SH (Single Header)								
185-111-319	12 x 24 x 12	11⅞ x 23⅞ x 11½	26.0	4.3	.17	.43	1.5	8
185-111-700	20 x 20 x 12	19⅞ x 19⅞ x 11½	35.4	5.9	.17	.43	1.5	8
185-111-782	20 x 24 x 12	19⅞ x 23⅞ x 11½	43.4	7.2	.17	.43	1.5	8
185-111-863	24 x 24 x 12	23⅞ x 23⅞ x 11½	52.0	8.6	.17	.43	1.5	8

Notes:
All performance data is based on ASHRAE 52.2 test method.
Performance tolerances conform to section 7.4 of ARI Standard 850-78.
Rated UL and C-UL Class 2.
Width and height dimensions are interchangeable.
Headers are ⅞" (21mm).

Efficiency:
All models MERV 8.
*Maximum recommended final resistance in system design may indicate a lower change-out point.

10300 Ormsby Park Place Suite 600
Louisville, Kentucky 40223-6169
www.aafnet.com
Customer Service 888.AAF.2003
Fax 888.223.6500