Rec 2/13/14

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MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See for funding guidelines.

1. General Information	
Name of Person Submitting Request : Leslie Mayberry	
Department/Office : Energy Services	Phone # (Office) 615-904-8356
MTSU Box # 32	Phone # (Cell) 615-238-7391
E-mail : LMayberr@mtsu.edu	Submittal Date2-10-2014

2. Project Categories (Select One)			
Select the category that best describes the project.			
X	Energy Conservation/Efficiency		Sustainable Design
	Alternative Fuels		Other
	Renewable Energy		

3. Project Information
a. Please provide a brief descriptive title for the project. **b.** The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. **Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.** c. List the source of project cost estimates. d. Provide a brief explanation in response to question regarding previous funding.
3a. Project Title : Camfil Farr pleated filters
3b. Project Cost Estimate : $4,999
3c. Source of Estimate : Camfil Farr
3d. If previous funding from this source was awarded, explain how this request differs? N/A

4. Project Description

(Completed in as much detail as possible.)

a. The scope of the work to be accomplished is a detailed description of project activities.
b. The benefit statement describes the advantages of the project as relates to the selected project category.
c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
e. Provide specific information on anticipated student involvement or benefit.
f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

4a. Scope: Work to be accomplished

This project will replace 2" and 1" pleated filters. This project will save energy by lowering average pressure drop across the AHU filter bank. The motor will use less kwh saving energy.

4b. Scope: Benefit Statement

If this project is approved it will reduce Co2 emissions by 707,208 lbs, reduce the volume of filters being disposed to Murfreesboro landfill by 204 cubic yards, seal off filters banks(no escape of air around filter banks).

4. Project Description (continued)
4c. Location of Project (Building, etc.) same as line 3a
4d. Participants and Roles Les Mayberry- Project Coordinator
4e. Student participation and/or student benefit n/a .
4f. Future Operating and/or Maintenance Requirements n/a
4g. Additional Comments or Information Pertinent to the Proposed Project n/a -

5. Project Performance Information
Provide information if applicable. a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc. b. Provide information on estimated annual energy cost savings in monetary terms. c. Provide information on any annual operating or other cost savings in monetary terms. Be specific. d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.
5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.) Estimated energy saved 81000 kwh/year
5b. Annual Energy COST Savings ($) 8,100 per year
5c. Annual Operating or Other Cost Savings. Specify. ($) N/A
5d.Matching or Supplementary Funding (Identify and Explain) N/A

30/30® Panel Filter
Product Performance Guarantee

The Camfil Farr 30/30 panel filter comes fully guaranteed to last twice as long as any other MERV 8 panel filter. Since its development in 1963, this uniquely designed product has been providing "sustainable" advantages in energy savings, reduced waste and reduced carbon footprint. No other MERV 8 panel filter can perform like the 30/30. The product guarantee is as follows:

GUARANTEE: Camfil Farr guarantees the 30/30 will last twice as long as any competitor's MERV 8 panel filter, at the same or lower resistance to airflow than any competitor's product. Camfil Farr also guarantees the 30/30's MERV 8 performance throughout the life of the filter.

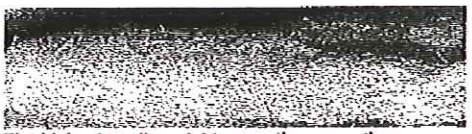
CONDITIONS: Guarantee is based on a maximum of 500 FPM on 2" & 4" depths and 350 FPM on 1" depth. Shall not exceed maximum operating temperature of 200° F (93° C). Final resistance for all depths shall not exceed 1.0" w.g. Conditions for product comparison must be the same, i.e. the airflow, fan operating time and environmental conditions need to be the same.

- The customer must contact Camfil Farr to provide installation details. Requested information will include the customer name, shipping address, contact name, contact telephone number, the distributor that provided the filters, application information, the previously used filter type/manufacturer, and a service life comparison description.
- Camfil Farr will directly ship a complete set of replacement 30/30s to the customer – up to a maximum quantity of 60 units.
- If the value of the replacement filters exceeds $500.00, a Camfil Farr distributor or representative must visit the site to verify the accuracy of the information.
- Once the information has been verified in writing to Camfil Farr, the replacement order will be shipped.
- A user may only qualify for one replacement set of filters.
- Disclaimers and exclusions that will apply include: Premature filter failure caused by mechanical damage or failure of the HVAC system; premature filter failure due to physical damage to the 30/30 caused by human intervention; premature filter failure due to application of the filter where differential pressure across the filter exceeds the published maximum recommended final pressure drop of 1.0" w.g.

IF THE 30/30 DOES NOT PERFORM TO THE ABOVE STANDARDS,
CAMFIL FARR PROMISES TO PROVIDE YOU ONE FREE SET OF REPLACEMENT FILTERS.

CONTACT US AT 1-866-4CAMFIL

Camfil Farr 30/30®



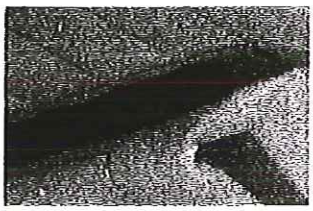
The highest media weight, more than any other pleated panel filter, and uniform lofting for high dust holding capacity, ensure that the 30/30 will last longer in any HVAC application.

Exclusive MERV 8 Performance from Camfil Media

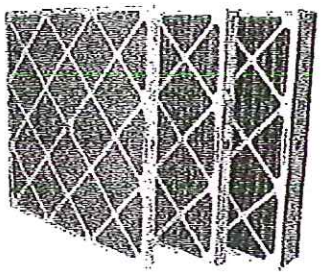
The 30/30 media is manufactured from a proprietary blend of fibers that incorporate a mechanical principle of particle capture. The filter does not require an electret charge which would dissipate and reduce filter's efficiency after minimal hours of operation in a system. The media is lofted to a uniform depth to enhance the depth-loading characteristic and ensure the longest life of any pleated filter available. The high-loft also offers a lower resistance to airflow so fan horsepower required to move air through the filter is minimized. Camfil evaluates the quality of all incoming raw materials to maintain product integrity as part of a rigorous quality control program.

Welded Wire Grid Maintains Radial Pleat Design

The media is formed into a radial pleat for uniform dust loading and full use of the media area. V-style pleats blind while loading preventing full utilization of the media area and increasing the filters pressure drop resulting in increased energy usage. A welded wire grid, spot welded on one-inch centers maintains each radial pleat and maintains media stability through varying airflows.



Rounded radial pleats, instead of v-shape pleats, allow full usage of media area.



Diagonal support members, glued to each pleat at its apex, helps maintain pleat stability and filter rigidity.

High Wet-Strength Beverage Board Frame

The high wet-strength beverage board frame, the thickest board in the industry, creates a stable and non-yielding media pack. Filter bypass is virtually eliminated because the filter fits securely in the filter holding mechanism. The media is bonded to the frame ensuring that all of the air seen by the filter will be treated by the filter. Diagonal support members are bonded to each pleat to maintain pleat spacing and add stability to the pack through bridge-style engineering. The 30/30 is guaranteed to 2.0" w.g. of pressure filter without failure. Costly filter blowouts and compromising of HVAC system cleanliness is eliminated.

ISO 9001:2008 Certified Quality Control

Every 30/30 filter is identified on the frame with a unique manufacturing code that allows us to analyze every component of construction from raw materials to the point where the product is boxed for shipping. Filters are inspected for structural integrity so they are capable of operating in the harshest HVAC system conditions. The adhesiveness of diagonal support members to pleat apexes is inspected so pleat spacing is uniform to provide longer filter life. Each media lot is laboratory tested to confirm consistent performance and individual filters are submitted from each manufacturing facility on a strict schedule for ASHRAE 52.2 testing in our world-class testing facility.

The standard of the industry, by Camfil.

Used in many systems as a prefilter, the 30/30 extends the life of final filters by capturing larger contaminant and thereby allowing the final filters to concentrate on removing smaller particles such as those that are respirable and can cause lung damage. The 30/30 is also an excellent choice when applied as the only filter in a system to keep coils clean and maintain efficiency, and protect building occupants from contaminants of annoyance such as pollen, plant spores, atmospheric dusts and other indoor air irritants.

Unprecedented Industry Guarantee

If our filters don't outlast and outperform your current filters, we'll replace them, FREE.
For guarantee details and a distributor list, visit www.camfil.com.

PERFORMANCE DATA

2" Deep Filter (actual filter depth 1.75")

Part Number	Nominal Depth (inches)	Nominal Size (inches)	Actual Size (inches) Depth	Height	Width	Initial Resistance (inches w.g.)	Airflow Capacity (cfm)	Total Media Area (sq. ft.)	Pleats per Linear Foot
049880-019		16 x 16		15.50	15.50		890	7.8	
049880-008		20 x 10		19.50	9.50		700	6.0	
049880-009		20 x 14		19.50	13.50		975	8.3	
049880-007		20 x 12		19.50	11.88		835	7.1	
049880-011		20 x 15		19.50	14.50		1045	9.3	
049880-001		20 x 16		19.50	16.50		1150	9.9	
049880-013		20 x 18		19.50	17.50		1250	10.8	
049880-007		20 x 20		19.50	19.50		1350	11.9	
402274-007		20 x 30		19.50	29.50		2085	18.2	
049880-006	2	24 x 12	1.75	23.38	11.38	0.31	1000	8.4	15 pleats per linear foot
049880-015		24 x 18		23.50	17.50		1500	13.0	
049880-012		24 x 20		23.50	19.50		1670	14.3	
049880-005		24 x 24		23.38	23.38		2000	17.3	
049880-010		25 x 14		24.50	13.50		1270	10.9	
049880-020		25 x 15		24.50	14.50		1300	11.6	
049880-016		24 x 16		24.50	15.50		1335	11.8	
049880-004		25 x 16		24.50	15.50		1390	12.4	
049880-014		25 x 18		24.50	17.50		1585	13.6	
049880-003		25 x 20		24.50	19.50		1740	14.9	
049880-018		25 x 25		24.50	24.50		2170	19	

1" Deep Filter (actual filter depth 0.88")

Part Number	Nominal Depth (inches)	Nominal Size (inches)	Actual Size (inches) Depth	Height	Width	Initial Resistance (inches w.g.)	Airflow Capacity (cfm)	Total Media Area (sq. ft.)	Pleats per Linear Foot
404207-003		10 x 10		9.50	9.50		240	1.6	
054862-025		12 x 12		11.50	11.50		330	2.2	
404207-005		16 x 12		16.50	11.50		470	3.3	
054862-012		16 x 16		16.50	15.50		620	4.3	
054862-009		20 x 7		19.50	6.50		340	2.4	
054862-016		20 x 10		19.50	9.50		490	3.3	
054862-019		20 x 12		19.50	11.50		580	4.1	
054862-008		20 x 14		19.50	13.50		680	4.6	
054862-008		20 x 15		19.50	14.50		730	5.1	
054862-001		20 x 16		19.50	15.50		780	5.4	
054862-020		20 x 18		19.50	17.50		880	6.1	
054862-002		20 x 20		19.50	19.50		970	6.6	
054862-021		22 x 22		21.50	21.50		1180	8.2	
054862-022	1	24 x 10	0.88	23.50	9.50	0.23	580	4.0	16 pleats per linear foot
054862-010		24 x 12		23.50	11.50		700	4.9	
404207-004		24 x 14		23.50	13.50		820	5.5	
054862-015		24 x 16		23.50	15.50		970	6.7	
054862-026		24 x 18		23.50	17.50		1050	7.3	
054862-011		24 x 20		23.50	19.50		1165	8.0	
054862-005		24 x 24		23.50	23.50		1400	9.6	
054862-023		25 x 10		24.50	9.50		610	4.1	
054862-024		25 x 12		24.50	11.50		730	5.2	
054862-007		25 x 14		24.50	13.50		850	5.7	
054862-013		25 x 15		24.50	14.50		910	6.1	
054862-004		25 x 16		24.50	15.50		970	6.7	
054862-017		25 x 18		24.50	17.50		1100	7.6	
054862-003		25 x 20		24.50	19.50		1215	8.3	
054862-014		25 x 25		24.50	24.50		1520	10.5	

camfil Farr 30/30®

High-Capacity MERV 8 Pleated Panel Filter

PERFORMANCE DATA (continued)

4" Deep Filter (actual filter depth 3.75")

Part Number	Nominal Depth (inches)	Nominal Size (inches)	Actual Size (inches) Depth	Height	Width	Initial Resistance (inches w.g.)	Airflow Capacity (cfm)	Total Media Area (sq. ft.)	Pleats per Linear Foot
059413-004	4	20 x 16	3.75	19.38	15.38	0.27	1100	15.7	11 pleats per linear foot
059413-003		20 x 20		19.38	19.38		1390	16.9	
059413-002		24 x 12		23.38	11.38		1000	13.9	
059413-009		24 x 16		23.38	17.38		1500	20.2	
059413-008		24 x 20		23.38	19.38		1670	22.7	
059413-001		24 x 24		23.38	23.38		2000	27.7	
059413-005		25 x 16		24.38	15.38		1390	19.7	
059413-006		25 x 20		24.38	19.38		1740	25.6	
059413-010		25 x 25		24.38	24.38		2170	30.0	
059413-007		25 x 29		24.38	28.38		2520	35.4	

Data Notes:
1.0" w.g. recommended final resistance for all depths. System design may dictate an alternative changeout point. Contact factory for guidance.
The 30/30 has been listed by Underwriters Laboratories as UL 900.
Maximum operating temperature 200° F (93° C).
2" and 4" deep filters rated at 250 feet per minute (fpm) medium and 500 fpm high. 1" deep filter's rated at 175 fpm medium and 350 fpm high.
For product specification in RTF format please go to www.camfil.com

4" deep 30/30 is available with a header for side-access housing installation. Request Product Sheet 1003

Specification

1.0 General

1.1 - Air filters shall be medium efficiency ASHRAE pleated panels consisting of cotton and synthetic media, welded wire media support grid, and beverage board enclosing frame.
1.2 - Sizes shall be noted on drawings or other supporting materials.

2.0 Construction

2.1 - Filter media shall be a cotton and synthetic blend, lofted to a uniform depth of 0.15", and formed into a uniform radial pleat.
2.2 - A welded wire grid, spot-welded on one-inch centers and treated for corrosion resistance shall be bonded to the downstream side of the media to maintain radial pleats and prevent media oscillation.
2.3 - An enclosing frame of no less than 28-point high wet-strength beverage board shall provide a rigid and durable enclosure. The frame shall be bonded to the media on all sides to prevent air bypass. Integral diagonal support members on the air entering and air exiting side shall be bonded to the apex of each pleat to maintain uniform pleat spacing in varying airflows.

3.0 Performance

3.1 - The filter shall have a Minimum Efficiency Reporting Value of MERV 8 when evaluated under the guidelines of ASHRAE Standard 52.2. It shall also have a MERV-A of 8 when tested per Appendix J of the same standard. The media shall maintain or increase in efficiency over the life of the filter.
3.2 - Initial resistance to airflow shall not exceed 0.23", 0.31" or 0.27" w.g. at an airflow of 350, 500 or 500 fpm on 1", 2" or 4" deep models respectively.
3.3 - The filter shall have an Energy Cost Index (ECI) value of five stars.
3.4 - Filter shall be listed UL 900 by Underwriters Laboratories.
3.5 - Manufacturer shall provide evidence of facility certification to ISO 9001:2008
3.6 - Manufacturer shall guarantee the integrity of the filter pack to 2.0" w.g.

Supporting Data - Provide product test report including all details as prescribed in ASHRAE Standards 52.2, including Appendix J.

Air filters shall be Camfil Farr 30/30 or equal

camfil ISO 9001:2008 Certified Quality System

ENERGY COST INDEX

Camfil | 1 North Corporate Drive, Riverdale, NJ 07457 | Tel: (973) 616-7300