The Filtration Group Newsletter

FilterTalk

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THE FILTER FACTOR

HOW CHOOSING THE RIGHT FILTERS CAN REDUCE ENERGY COSTS AND BOOST PERFORMANCE

Whether it's the skyrocketing costs of heating and cooling or soaring gas prices, Americans are feeling the pain of rising energy costs this summer. This year alone retail companies will spend $65 billion on energy costs; all to attract customers, display merchandise, refrigerate products and maintain employee productivity. These rising costs aren't expected to go away either. The U.S. Department of Energy predicts energy use for commercial buildings will grow 1.7 percent per year until 2025.

As building designers, owners, and operators look to reduce their energy costs, experts offer that one of the best ways to do this is to effectively operate and maintain HVAC systems. According to Dave Matela, market manager of filtration products for Kimberly-Clark, while lighting is the clear energy sponge for most retail buildings, space heating and cooling account for an incredible 40 percent of a building's energy costs and 12 percent of the total electricity consumed in the United States.

"The savings retail buildings can have when reducing energy costs of their HVAC systems is astounding," said Matela. "If the pressure drops were reduced by only .025" w.g. on all commercial HVAC filters there would be an estimated savings of $1 billion nationwide."

So how do your customers reduce their energy costs on HVAC systems? HVAC filters are the key. While the initial purchase price is often the determining factor for filter and filter media selection, the cost of energy used by filters far outweighs the initial cost of the filter itself.

"Energy costs can be up to 10 times the initial filter cost for standard pleated filters and four-to-five times the initial filter cost for higher efficiency filters," said Matela.

When selecting a filter, it's important to look at the total lifecycle cost of the filter and its long term impact on energy costs. There are three major components of HVACfilter lifecycle costs: initial investment and maintenance, energy consumption and disposal. An incredible 81 percent of the total lifecycle cost of a filtration system is in energy consumption. The initial investment and maintenance account for 18 percent and disposal accounts for 1 percent.

Purchasing a lower pressure drop, high efficiency filter can drastically reduce lifecycle costs. The lower pressure drop filter has less resistance to overcome to deliver the required air flow, thus the motor's energy consumption is reduced. Advanced development of filters and filter media like Filtration Group's GeoPleat filter have enabled retail buildings to reduce energy and save on costs.

Cost efficient filtration does not have to result in higher initial costs or higher pressure drops. There are significant opportunities to save energy and reduce costs. Focusing on the lifecycle costs versus initial price and maximizing filtration efficiency, all while minimizing pressure drop, will allow for far greater energy benefits.

FAST FACTS:

- 35 percent of electricity sales are to residential customers, 32 percent to industrial customers, 30 percent to commercial customers and 3 percent to other sources
- This year the DOE will award a total of $34.6 million to states, five territories and the District of Columbia to improve energy efficiency throughout the nation
- Energy Consumption for the commercial and industrial sectors in 2004 totaled 50,762 trillion btu

FILTRAIR'S CHALLENGE: REDUCING OPERATING COSTS AND IMPROVING AIR QUALITY ON OFFSHORE RIGS

Oil production on offshore drilling platforms is hazardous to say the least. High concentrations of salt, hydrocarbons, sand, rust and dirt all pose major problems to the filtration intake systems. Unique filtration systems are required to supply combustion air to the gas turbines, generate power to operate the rig and supply clean air for onboard personnel.

Because of these rigorous conditions and demands on air quality, Filtrair partnered with A.S. Wide and introduced the Infinidry Air Intake Salt and Water Barrier System. While competitive systems have a minimum of three and often four stages of filtration, Filtrair's Infinidry System offers a simple two stage process, saving both weight and space on the platform.

When Statoil, a major Norwegian oil company, heard of this new system, they wanted to test one out for their gas turbine retrofit. Located in the Norwegian sector of the North Sea, one of the harshest environments in the world, the rig was a perfect fit for testing this new filtration system.

Statoil was impressed by the two stage salt and water barrier filter that incorporates the Wide Maximum Efficiency (ME) demister vanes as the first stage. Manufactured in sea water resistant aluminum, the demister in the first phase effectively removes moisture from the air stream, ranging from light fog to heavy rain conditions.

In the second stage, the Filtrair Drop Safe Pocket removes droplets as they coalesce, accumulate and drain down the hydrophobic media where the salt and water are collected at the bottom of each pocket. It is then channeled via the filter holding frames and manifolds out of the air intake path, eliminating the problem of saturated droplets passing through to the clean air side and contaminating the air.

The Infinidry System offered an additional bonus to Statoil -- a much lower pressure drop. After two years of operation and very careful monitoring, Statoil was able to reduce their pressure loss by 0.6"w.g. Additionally, there was no evidence of any salt or moisture carryover downstream of the Drop Safe filters, reducing the risk of costly turbine blade repairs, cleaning and downtime.

Statoil has since refurbished all of the main ventilation air intake housings on three other North Sea platforms with 19 new Infinidry filter units including over 700 Drop Safe pockets. The Infinidry System helped Statoil reduce operating costs, maintain higher air standards and led to some very happy machine operators.

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GOT A QUESTION FOR US?

Q: What is LEED certification and how can I attain it?

A: The LEED (Leadership in Energy and Environment Design) Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. LEED maximizes operation efficiency while minimizing environmental impacts. It provides a recognized performance-based benchmark for building owners and operators to measure operations, improvements and maintenance on a consistent scale. To obtain LEED certification, commercial buildings must maintain:

- Whole-building cleaning and maintenance, including chemical use
- Ongoing indoor air quality
- Energy efficiency
- Water efficiency
- Recycling programs and facilities
- Exterior maintenance programs
- System upgrades to meet green building energy, water IAQ, and lighting performance standards

For more information check out: www.usgbc.com\LEED

PRODUCT SPOTLIGHT: GEOPLEAT-M

For so many harsh environments, finding a cost efficient filter with a low pressure drop can be a challenge. So, in order to meet the needs of hostile environments and keep energy costs low, Filtration Group has created the GeoPleat-M, combining the advanced pleating geometry and performance of the standard GeoPleat with the added endurance of steel.

The GeoPleat-M stands up to most HVAC installations and will not warp or collapse over time. Metal cell sides are crucial to ensure a tight, leak-free seal to the frame of the filter and the high quality, galvanized steel used for the filter's frame makes the GeoPleat-M an ideal filter for turbines, hospitals and coastal areas.

Filter life is longer for the GeoPleat-M because the media loads evenly throughout the depth of the pleats. This filter is unique in that it utilizes a thermal embossing pleating and glue bead media separation technique that allows the air stream to gently transition into the media.

The patented pleating design of the GeoPleat-M creates the lowest pressure drop available in rigid box filters. For most HVAC systems, the low pressure drop of GeoPleat-M filters elicits significant energy savings.

Being extremely light weight and having a compact design saves shipping costs and storage space for the GeoPleat-M filter. Filtration Group's GeoPleat-M is the perfect filter for hostile, humid and difficult environments.

AN AIR FILTER GAGE IS NOT A COMPASS; IT'S AN ELECTRIC METER

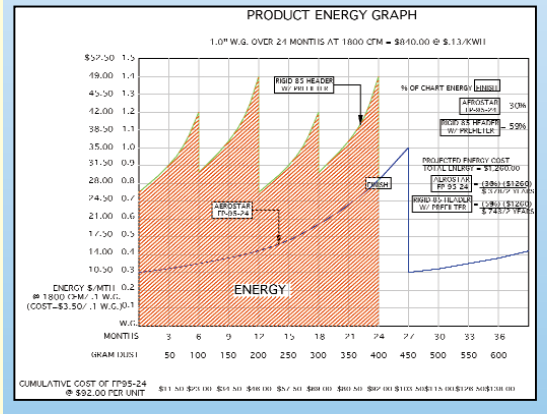
Editors Note: *This issue of FilterTalk features a special guest analysis by J. Michael Burke from Burke Environmental in Inglewood, California.*

Billions of dollars are spent each year on excess energy consumed as a result of improper selection and utilization of air filtration equipment. A typical 400,000 square-foot building will waste up to $70,000 per year in energy costs because of the lack of understanding the role filtration plays in the energy consumption process in HVAC systems.

There are four basic elements that are fundamental in the evaluation process:

1. 1.5" w.g. = 7.80 lbs/square foot force per 2424 filter = 31.2 lbs

2. Product energy graphs reflect total potential energy to be consumed for respective products and or product types. The X-axis reflects force (pressure drop). The Y-axis reflects the time or challenge.



3. Various filters have unique pressure drop and dust loading characteristics, those of which are easily plotted on product energy graphs, data of which is derived from Ashrae 52.1 and 52.2 tests.

4. The area beneath the pressure drop curve reflects that portion of the graph's energy a particular filter consumes over time and challenge.

The graph entitled "Product Energy Graph" contains all of the elements essential for the optimum selection.

In this particular instance two systems are compared:

System #1 – Rigid 85% header box filter with 2" pleated pre filter

System #2 – Aerostar (Luwa) FP-95-24 filter size 24 x 24 x 12

The total energy cost potential over 2 years (24 months) with the X-axis at 1.5" w.g is $1,260. This is indicated under

projected energy cost
Total energy = $1,260.00.

The comparison of the product systems is affected by simply plotting the area under the respective system lines.

Result

System #1 – Consumes 59% of the area of the graph ($743.00).

System #2 – Consumes 30% of the area of the graph ($378.00).

The X-axis on the product energy graph also contains incremental energy costs per .10" w.g. gain.

1800 CFM
$ .13 KwH

Approximate mix challenge = 24 micrograms/meter3

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