



All Air Intakes Are Not the Same



HVAC mechanical systems present a wide variety of challenges to facilities managers and probably cost more than any other item in the facilities budget.

Responsible for system performance, Facility Managers struggle to balance optimal performance with maintenance and still balance the budget. Recent wide spread budget cuts and staff shortages are forcing facility management departments to be more careful and creative in planning and prioritizing projects.

Deferring equipment service may be tempting as a short term solution but leads to greater costs in the long run. Airflow obstructions and debris buildup will impact all HVAC equipment's ability to work efficiently. Forced to run for longer cycle times and at reduced capacity, operating costs will escalate, breakdowns will occur and equipment life expectancy will decrease. According to EPA research, as little as 0.042" of dirt on an air conditioning coil can reduce its efficiency by 21%. Air intake filtration is a simple and cost-effective method of increasing an HVAC system's operating efficiency as well as reducing equipment maintenance expenditures. Contaminants are captured BEFORE they enter the system, making them easy to remove.

Typical equipment maintenance includes having to clean the delicate fins and coils with time consuming hand brushing and messy corrosive chemicals that can damage the system components and the environment over time. This is especially problematic when the fins and coils are located in hard to reach places, as illustrated in the following examples:



comes time for routine maintenance. The units needed to be thoroughly cleaned several times per year due to outdoor debris build up. The cost to the company is thousands of dollars annually in labor dollars.

Mike Burt, of Air Filter Solutions, was called to a major manufacturing plant in the Denver area where they make metal beverage containers. The facility uses two Liebert systems to keep their computer rooms cool. These units sit near the ground, elevated on 2-1/2' legs, with a high velocity air intake located beneath the unit. Along with fresh air, contaminants like cottonwood, grass clippings and dirt from the fields were also sucked up vertically and were clogging the units. With barely shoulder width space to work between the system and the concrete, cleaning was extremely difficult, messy and labor intensive. The units required approximately 5 hours of labor to clean and were cleaned five times during summer months. The process entailed hooking up water lines for a power sprayer, using corrosive chemicals (which are frowned upon in the environmentally conscious Rocky Mountain area), and nitrogen equipment for blowout. This company contracts out to a large Denver based HVAC contractor, also a customer of Air Filter Solutions. The contractor maintains their high end equipment under an annual service agreement and has a vested interest in controlling labor costs. Air Filter Solutions worked with both the facility manager and the contractor to come up with an effective filtration solution that would meet all their needs and resulted in a 2/3 reduction in labor.



The air intake fins on a Liebert are located underneath the unit, making cleaning access extremely difficult.

Permatron's PreVent® Equipment Protection Filters are custom manufactured for each application, ready in just days for easy installation and fitted to the individual equipment. The Carrier units required triangle shaped filters with a grommet attachment so that the filters could be zip tied to each removable steel grate. The filters are easily brushed clean, but can be removed quickly by cutting the tie's if necessary. The Liebert units, with their hard to reach underside air intake, required a "skirted" filter that includes a bottom pocket to hold weighted PVC piping. The piping hold the filters rigid at the bottom (against the high velocity air flow generated by the system) so that no debris or air bypass is allowed near the air intakes.

Permatron is the leading designer of equipment protection pre-filters for use on commercial and industrial air intakes. Since 1957 customized solutions have been our specialty. Visit our website www.permatron.com to see how you can cut costs with a PreVent Solution for your application.