

## **Homewood Schools Improve Indoor Air Quality, Turn a Cost Item into Cash Savings**

According to US Environmental Protection Agency, in terms of air quality, Jefferson County had the highest number of “unhealthy days” of any county in the state, in 2007. Residents also experienced the state’s highest concentrations of air pollutants associated with asthma and other lung diseases. At particular risk: older adults and children.

Dr. Bill Cleveland began his first year as superintendent of Homewood City Schools at the start of the 2008-2009 school year, before these comparisons were published. But he was well aware that indoor air quality, especially particulate pollution, was poor, and he was determined to improve it.

Dr. Cleveland was, prior to his appointment as superintendent, Homewood City Schools’ Assistant Superintendent for Business Operations – the academic equivalent of a CFO or Chief Financial Officer in business. So he understood that a solution should not worsen the budget deficit.

It seemed like a daunting challenge: improve the quality of air for children and staff, hopefully reduce absenteeism due to respiratory illnesses and asthma - and do so without adding to the budget deficit.

There was a third priority as well. Dr. Cleveland had previously been central to the certification by LEED, Leadership in Energy and Environmental Design, of Homewood Middle School. This is part of the Green Building Rating System™ a third-party certification program and nationally-accepted benchmark for the design, construction and operation of “green” buildings.

In fact, Homewood was the first middle school in America to become LEED certified. Homewood City Schools had long been committed to the principles of good environmental practices and was determined that the indoor air quality issue would be resolved in line with environmentally sound principles.

Dr. Cleveland began by consulting with one of his facility managers, Neil Long, in October, 2007. Earlier in his career, Long had worked for 15 years in the heating and air conditioning industry, and was well-versed in air filtration. He had served in facility management for UAB prior to being tapped for the top post at Homewood. Long had recently reviewed research data on a new air filtration technology that paid for itself almost immediately in direct savings as a result of reduced energy use, less-frequent filter changeouts, and other measurable metrics.

Trade named the “30/30” for its 30% higher dust holding capacity, and 30% greater efficiency, the filter is a radial pleat panel filter designed to be compatible with any filter bank used in business, schools, or health care facilities. Its manufacturer, Camfil Farr, was already an approved vendor for the school system. Chris Sheheane, Camfil Farr’s Birmingham’s Branch Manager, suggested a test bank be set-up where an “apples to apples” comparison could be made between the new filters, and those that were then in use.

“I attended Homewood City Schools for six years,” says Sheheane, “and really wanted to help my alma mater. I thought an on-site test would let us all see what was possible in terms of energy savings, filter life, and reduction in total cost to the district.”

The best opportunity, according to Neil Long, was the high school. "It had," he explains, "twin, identical, heating/ cooling units on top of the gym."

The 30/30 filters were set-up for a 6-month trial, alongside the filters that had been in use. The test period was slated to end in June, 2008. Four months into the study, however, the contrast between the original filters and the new 30/30 filter technology was so extreme, that the test was halted. Performance results, which were certified by an independent lab, were impressive. Rather than generate an expense, Homewood High School had a net cash savings of \$200 per filter. There are 144 filters, so the direct dollar savings were both immediate and substantial.

Additional savings would be realized from several other sources. First among those is labor costs. Since the new filters last twice as long, change-out is only half as frequent. Energy expense would also be reduced: the 30/30 filters are engineered for very low air resistance, therefore, less energy is required to move air through the filters. Disposal costs, and incidental expenses such as shipping, also contribute to cash savings.

Dr. Cleveland immediately authorized Neil Long to complete the conversion to the new filters. Shortly thereafter, Homewood High School became an ECI "5-Star" school. ECI, (Energy Cost Index) is a filtration designation determined by a filter's efficiency over its lifetime, and the energy required to move air through that filter. ECI compares filters of similar construction, under the same conditions of operation and provides an indicator of true performance. An ECI of five stars is the highest rating granted.

Also, Homewood High School was recently named as one of America's top 500 public high schools by *Newsweek Magazine* – a list is directly related to participation in advanced placement.

As the start of the new school-year approaches, discussions are underway regarding the changeover of other Homewood schools to the new filter technology. In addition, all schools in the Mountain Brook and Vestavia Hills are now using Camfil Farr air filters.

The 30/30 filters have particular advantages for schools and colleges, because they can be used as a “final filter” in areas such as classrooms, cafeterias and gymnasiums. Schools with laboratories and health care facilities can use the 30/30 as a “prefilter” to extend the life of the costly HEPA and ULPA filters typically used in those environments.



**Caption:** Chris Sheheane (Branch Manager, Camfil Farr); Neil Long (Homewood High School Facility Manager); and John Finlay (Assistant Principal, Homewood High School), at the presentation of Homewood's 5-Star Energy Cost Index Award.

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