

# FE&S PARTING SHOT



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*“Parting Shot” is a monthly opinion column written on a rotating basis by guest authors. The opinions expressed are not necessarily those of FE&S.*

## Short Cycle Ventilators — A System That’s A Thing Of The Past

Not long ago, building code officials were responsible for determining appropriate exhaust requirements over commercial cooking equipment, but their limited testing capabilities did not allow for accurate measurement of exhaust air. As a result, exhaust standards were set to provide an additional safety margin to ensure proper ventilator performance. Facilities designers were required to maintain 100- to 200-CFM of exhaust per square foot of hood capture area. This resulted in 350- to 800-CFM per linear foot of ventilator. This criteria has been contested by designers to be excessive in real world performance because it resulted in significant ongoing energy costs to the end user.

In an attempt to reduce the cost of ventilating cooking equipment, mechanical engineers and hood manufacturers introduced the “short-cycle” or “compensating” hood. The “short-cycle” concept attempted to reduce the supply air needed by bringing untempered outside air into the interior of the hood canopy and immediately exhausting it back out the hood. In essence, short-cycling is a device to “fool” the codes. While meeting the “letter of the law” by exhausting 100% of the required volume, you are actually only removing 20% of that volume.

For over a decade this seemed to be acceptable because the excessive exhaust air

requirements left enough actual exhaust to meet the intent of the code, i.e., to remove heat, smoke and grease produced in cooking processes.

However, with the introduction of “UL-listed hoods,” the fallacy of short cycling became exposed. UL-listed hoods are

factory manufactured and engineered to meet pre-approved exhaust levels that are significantly lower than the old codes required. At the same time, testing techniques became more sophisticated and gave code officials a higher confidence that exhaust volumes could be established with much lower margins of safety. Now when a short-cycled system is applied to a UL-listed ventilator, it is common to observe smoke outside the canopy, demonstrating that the exhaust system is not doing its job.

Today, we find few hood manufacturers endorsing the concept of short-cycled air. As foodservice consultants, our responsibility includes

working with engineers to deliver a safe, temperate and smoke-free kitchen environment. Unfortunately, some engineers continue to expect to heat or cool only 20% of exhaust air and are resistive to returning to the concept that a cooking facility has to “breathe,” and when it “exhales” air, it also must “inhale” an equal amount.

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