

RESTAURANT SPACE PRESSURE CONTROL THROUGH HVAC UPGRADES

It's long been felt that quick-serve and full-serve restaurants cannot take advantage of certain energy saving control technologies for HVAC systems out of concern that the restaurant atmosphere would be jeopardized, especially when it comes to customer comfort and building pressurization. That's no longer the case. HVAC control technology can help restaurant operators save thousands of dollars per year, but also reduce maintenance costs, ensure indoor air quality, and maintain proper building pressure control, all without compromising customer comfort.

Commercial kitchen exhaust hoods and fan systems are required to capture smoke and fumes from cooking appliances. There can be unintended consequences if these systems are not properly balanced with an appropriate source of replacement, or make-up air. Exhaust fans need a source of air from outside the enclosed building. Proper restaurant design will include dedicated make-up air units and/or properly configured cooling and heating systems to be the source of this outside air. If the mechanical equipment fails to provide sufficient make-up air, the exhaust systems will find it through building openings such as entry doors, drive-through windows, and roof penetrations. These are not the appropriate sources of outside air because they have no ability to temper or cool this air. This is the proper domain of the HVAC equipment, not window and doors. The uncontrolled introduction of outside air when it is hot, humid, or cold outside results in discomfort for workers and guests as well as higher energy bills.

Additionally, when there is an inadequate supply of make-up air, the building will experience negative pressure when the windows and doors are closed. This is why it is not uncommon for customers to struggle to open the front door to many restaurants and when they do, they feel the influx of outside air rushing past them.

Operators struggle to maintain the original air balance as buildings age and equipment behavior changes. It is now possible to retrofit HVAC systems with advanced control technologies that can solve this problem by dynamically adjusting the amount of outside air to satisfy the exhaust needs while varying the blower speeds to meet the true needs of the space (Figure 1).

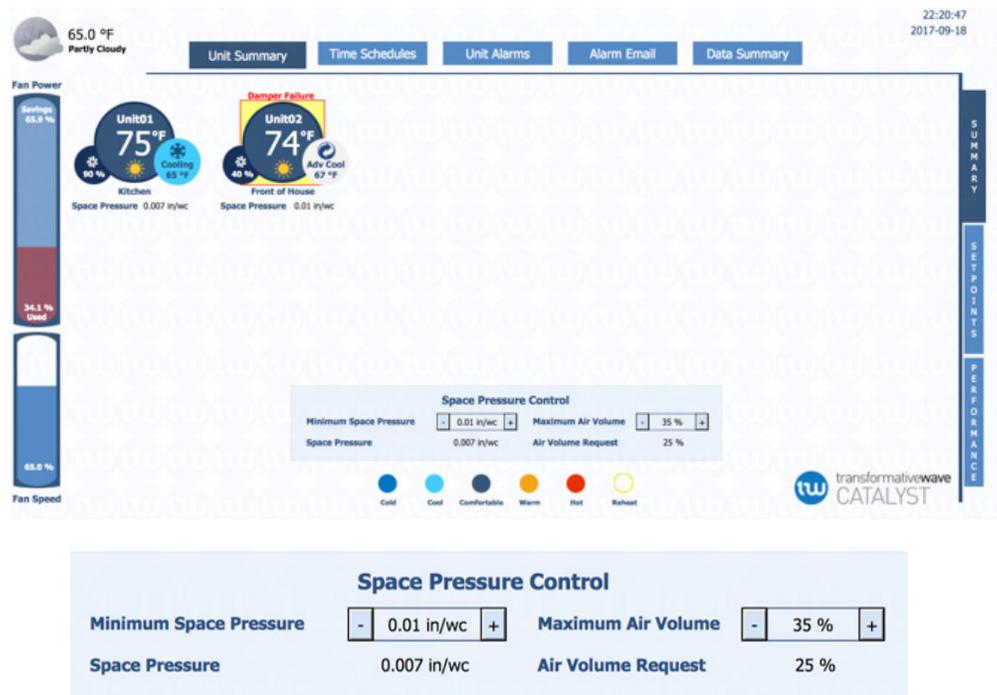


Figure 1. Advanced Space Pressure Control Technology