



SIEMENS

Ingenuity for life

Optimize Energy Performance

Reduce the spread of airborne and surface contaminants

Improve air quality

Optimize energy performance

Enable social distancing in healthy environments

Provide real-time updates

Sustain healthy & safe environments

Defer capital budgets

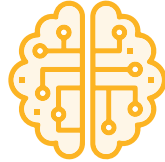
Introduction

Now more than ever, people are expecting safe and open indoor spaces where they can move forward to live, work, and play. Siemens Smart Infrastructure helps you transform the everyday by creating places that students, patients, and occupants can enjoy with confidence. And you can do it all while enabling future resiliency for your organization.

In this paper, we present one of our strategies to help organizations create safer, healthier buildings: **manage energy performance**. New HVAC strategies can be especially effective in helping to create safe and healthy indoor environments, but these changes may increase energy consumption. It is possible, however, to mitigate and offset these changes with technologies that balance the need for safe and healthy indoor environments with energy-efficient operations.

Objective	Approach
Embrace new guidelines in the most energy-efficient way possible	Optimization strategies powered by machine learning
Increase outdoor air without overtaxing cooling plants	Chilled water optimization strategies
Ensure underlying systems are in proper working order	Smart building commissioning

Optimization strategies powered by machine learning to enable energy-efficiency objectives



Emerging **machine learning-powered strategies**, such as Siemens **Dynamic VAV Optimization (DVO)**, enable organizations' energy-efficiency objectives even while they must embrace new building control guidelines that are associated with greater energy consumption.

Siemens solution, for example, offers **three modes of operation**, allowing building managers to intelligently follow guidelines automatically, without manual input or monitoring by building staff. These modes of operation include:



Green Mode – Control AHU fan speed and supply temperature to dynamically adapt to occupants' comfort requirements, minimize energy consumption and costs, and reduce hot/cold calls. DVO enables energy savings that can continue to provide value well beyond this recovery.



Defense Mode – Establish environmental conditions, pursuant to ASHRAE recommendations, that minimize virus transmission while still operating within acceptable comfort bounds.



Decontamination Mode – Assist in accelerating the rate of decay for viruses by using elevated temperature during unoccupied periods.

Increasing outdoor air doesn't have to overdrive cooling plants

Increasing outdoor air, though an effective method of improving indoor air quality, can present a challenge in buildings already struggling to meet existing cooling demand. Overextending cooling plants and sacrificing building comfort are often side effects of this strategy.

But with a chilled water plant optimization strategy like **Siemens Demand Flow®**, building operators can unlock untapped plant capacity that's often lost due to low chilled water delta-T and inappropriate system setpoints.



By optimizing system setpoints, the chilled water plant cooling output can potentially be increased, enabling buildings to increase outdoor air ventilation. When not at peak loads, the increased plant operational efficiency can help offset the additional operating costs that may be associated with increased energy consumption.

Reduce energy consumption by ensuring underlying systems are in proper working order



A range of technologies – from productivity tools for energy engineers to data-driven commissioning strategies – leverage building automation system data to identify systems and components that are not functioning properly. As a result, building engineers can implement targeted, smart building commissioning strategies, remote programming and configuration changes, high-value repairs, and other energy services that can help minimize energy consumption and operating costs.

Ready to learn more about how healthy buildings can create places for a safer, healthier, and more confident everyday?

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