

The Siemens logo is displayed in a bold, teal, sans-serif font. It is positioned in the upper left corner of the page, set against a white rectangular background. The background of the entire page is a photograph of a modern HVAC plant with large, silver-insulated ductwork and a green floor.

SIEMENS

Ingenuity for life

Demand Flow[®] Optimization for Variable Air Volume Systems

Intelligent. Powerful. Proven.

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It's no secret that buildings consume a lot of energy, but reducing energy costs is not the only concern that a building owner may have. Maximizing building occupant comfort and staff productivity are also critical objectives. Combined with achieving sustainability targets, improving overall building performance can help overcome the challenges today's building owners face.

Likewise, the facility operations team has its own set of building performance concerns, which often include improving the reliability of the HVAC system as a whole, and the air distribution system in particular, as well as reducing the number of trouble calls associated with those systems.

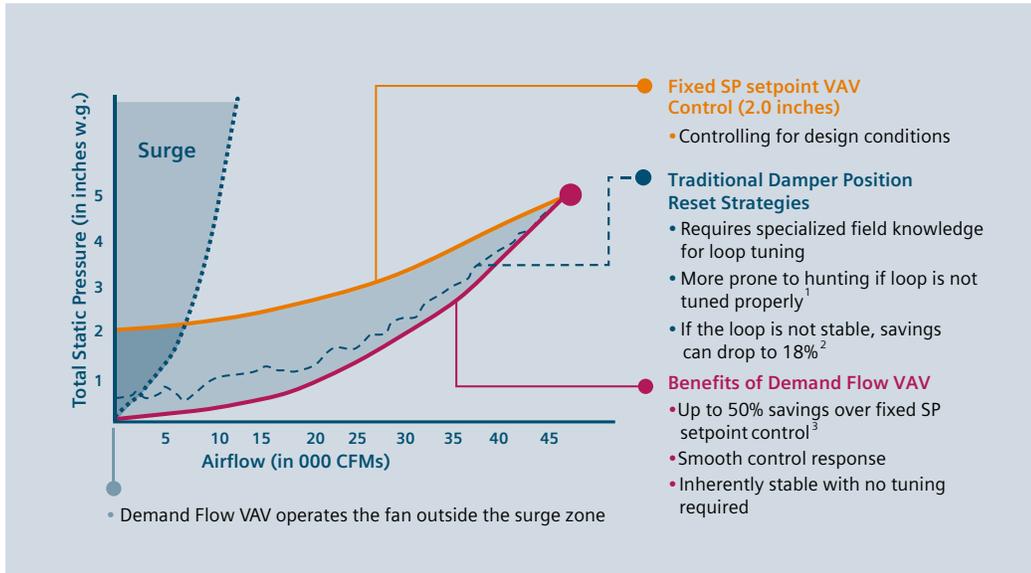
Demand Flow Optimization for Variable Air Volume (VAV) Systems from Siemens offers a unique approach to addressing these challenges and putting today's smart building owners on the path toward improved building performance and sustainability.

Siemens Demand Flow provides a holistic approach to optimizing both your chilled water and air distribution systems – all without sacrificing savings or building comfort.

With Demand Flow you benefit from:

- Reduced energy consumption
- Extended useful equipment life
- Improved building comfort
- Continuous performance monitoring

A traditional VAV system is inherently reactive to changing space conditions. Whereas with Demand Flow VAV, Siemens models the system to proactively control for maximum efficiency, without sacrificing comfort.



Sources: 1 "Demonstration of Tiered Trim and Respond Method." Xiaohui Zhou. Iowa State University. September 2013.
 2 "A Study on Static Pressure Reset and Instability in Variable Volume Systems," Iowa Energy Center. December 2011.
 3 Pankaj Kalore, Osman Ahmed, and Mark Cascia, "Dynamic control of a building fluid distribution system". Control Applications, 2003. CCA 2003. Proceedings of 2003 IEEE Conference on Control Applications. Istanbul, Turkey.
 3 Mark Cascia. A Method of Optimizing VAV Fan Static Pressure Setpoint Using Model-Based Control. Dallas ASHRAE Winter Meeting. January 2007.

Defining Demand Flow VAV

Demand Flow VAV is a control solution that models the air distribution system and proactively controls it to achieve maximum system and energy efficiency while significantly reducing operating costs.

By implementing Demand Flow VAV, building owners can not only achieve their building performance and sustainability goals, they can also achieve:

- Fan energy savings of **20% to 50%** compared to using a fixed static pressure set point
- Operational improvements
 - Identification of "critical" zones that drive the system
 - Identification of "rogue" zones
 - Provides inherent stable control
 - Reduces excessive diffuser noise
 - Extends equipment life
- Does not sacrifice comfort
- Meets ASHRAE 90.1 requirements
 - One damper 100% open at all times

Optimization & Savings

The underlying principle of Demand Flow VAV is that it first develops a duct pressure model, which predicts the fan pressure required to meet the flow setpoint of each VAV box.

Demand Flow VAV offers an end-to-end package solution that ensures you achieve maximum operational savings, improved building and occupant comfort, and maximized equipment uptime. And because Demand Flow VAV creates a predictive model of your system, the need to continually fine-tune and modify your system is diminished. Demand Flow VAV is a turnkey solution that's easily implemented, minimizing overhead and generating a quick payback.

Siemens Industry, Inc.
 Building Technologies Division
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 Buffalo Grove, IL 60089

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