



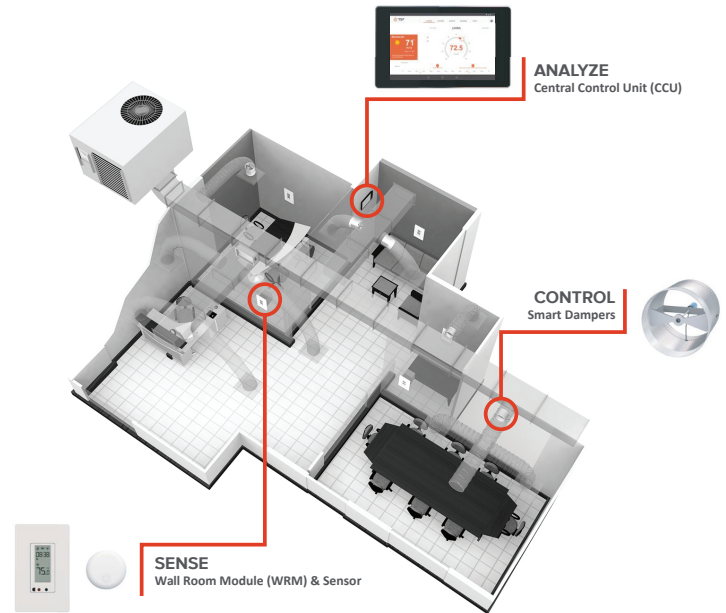
DYNAMIC AIRFLOW BALANCING

Save Energy and Provide Comfort

Be Proactive, Not Reactive

Traditional zone control systems are reactive, responding to errors after they occur and making frantic attempts to correct airflow back to desired temperature by fully opening or closing zone dampers.

The 75F Dynamic Airflow Balancing solution is predictive and proactive. Our Google Big Query Services run smart algorithms to model the thermal envelope of the building and predict heat loads based on the weather. With over 1.6 million lines of code, our model sends precise instructions to the system and proactively rebalances airflow to keep ahead of temperature drifts. You wouldn't drive your car while only looking in the rear view mirror and the same concept should apply to your HVAC system.



Sensors collect data from each room every minute. Each night, cloud computing algorithms analyze thousands of data points, including the weather forecast, enabling the system to predict future conditions. A new set of instructions are then sent to the Central Control Unit and the dampers are modulated a few degrees at a time to achieve the perfect balance. The system also factors in real time events, such as room occupancy, to make instant adjustments to the plan as needed.

Key Benefits



100%

MORE COMFORTABLE

Algorithms track weather, angle of the sun and room occupancy to proactively regulate the temperature and keep it stable despite the time, day or season.



up to **80%**

INSTALLATION SAVINGS

The wireless mesh network, intuitive wiring and a support team help make installation non-disruptive, fast and low-cost.



up to **70%**

ENERGY SAVINGS

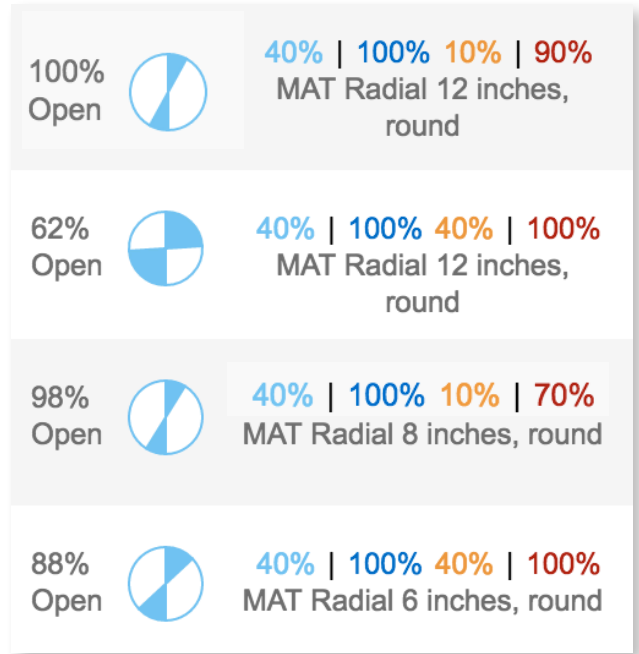
Multi-stage fan support, occupancy sensors and elimination of bypass dampers create an efficient system that saves energy.

- 1-3 year payback period: Energy efficiencies and low installation cost drive savings.

Continuous Commissioning

Imagine if a Test and Balance team were onsite making adjustments to your balancing dampers every minute of the day. 75F Smart Dampers do just that – we call it Continuous Commissioning. With proactive instructions provided by the machine learning benefits of cloud computing, each damper is adjusted a few degrees at a time, creating even temperatures in each space throughout your building. Each damper has a sensor so supply air temperatures are displayed in real time.

75F deploys automated balancing dampers on every supply, making it possible to achieve fine-grain zoning (MicroZones). This creates maximum comfort and energy savings and eliminates the need for bypass dampers.



Results

Energy Savings

In 2015, Gas Technology Institute began a multi-year comparative study commissioned by Nicor Gas to examine the performance of an up-to-date, optimally programmed thermostat relative to 75F's predictive, proactive system. Data shows 27% savings over the course of the study (during the 2015-2016 winter) using just Dynamic Airflow Balancing. Adding Outside Air Optimization provided additional energy savings of 35% to 55% as compared to Dynamic Airflow Balancing alone, for a total of 72% savings.

Comfort

The 75F system provides energy saving benefits while dramatically increasing occupant comfort and productivity. As seen in the heatmaps below, the temperature variations within the building were reduced from 8°F to under 2°F.

