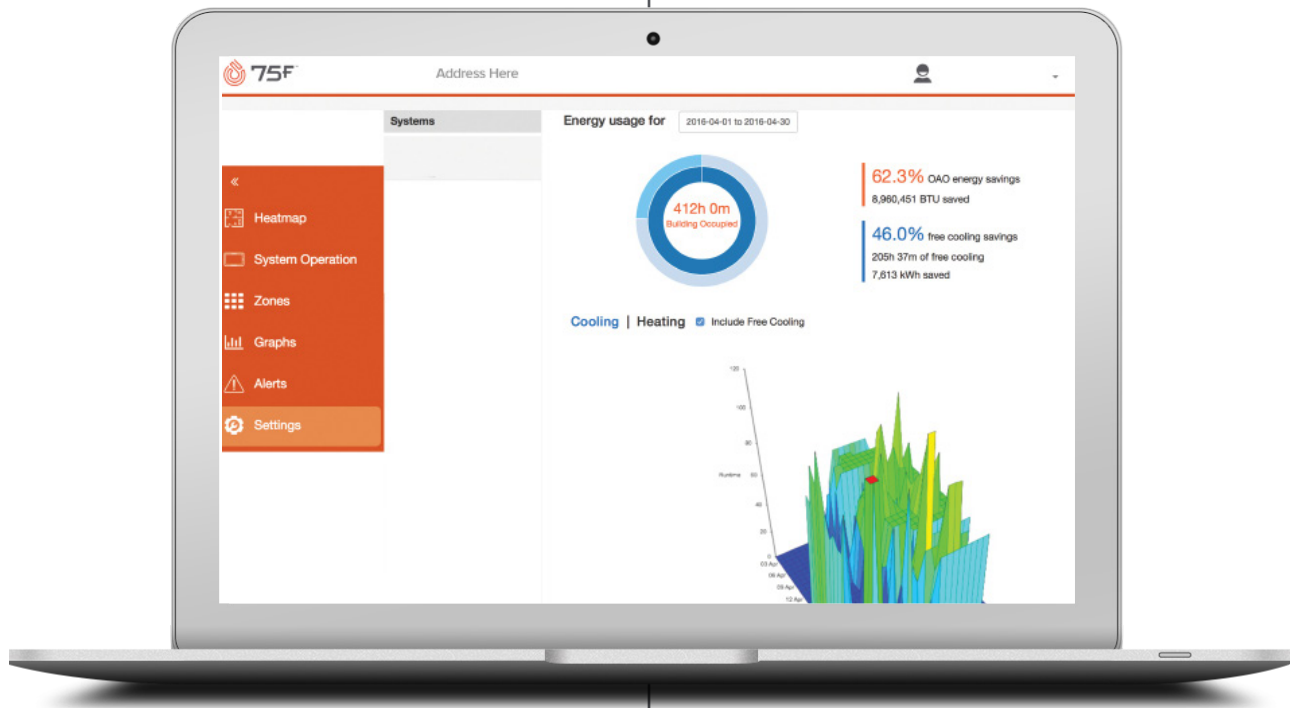




75F™

LEED CREDIT DESCRIPTION



LEED V4

DYNAMIC AIRFLOW BALANCING IS ABLE TO
CONTRIBUTE UP TO 38 POINTS & 11 CREDITS

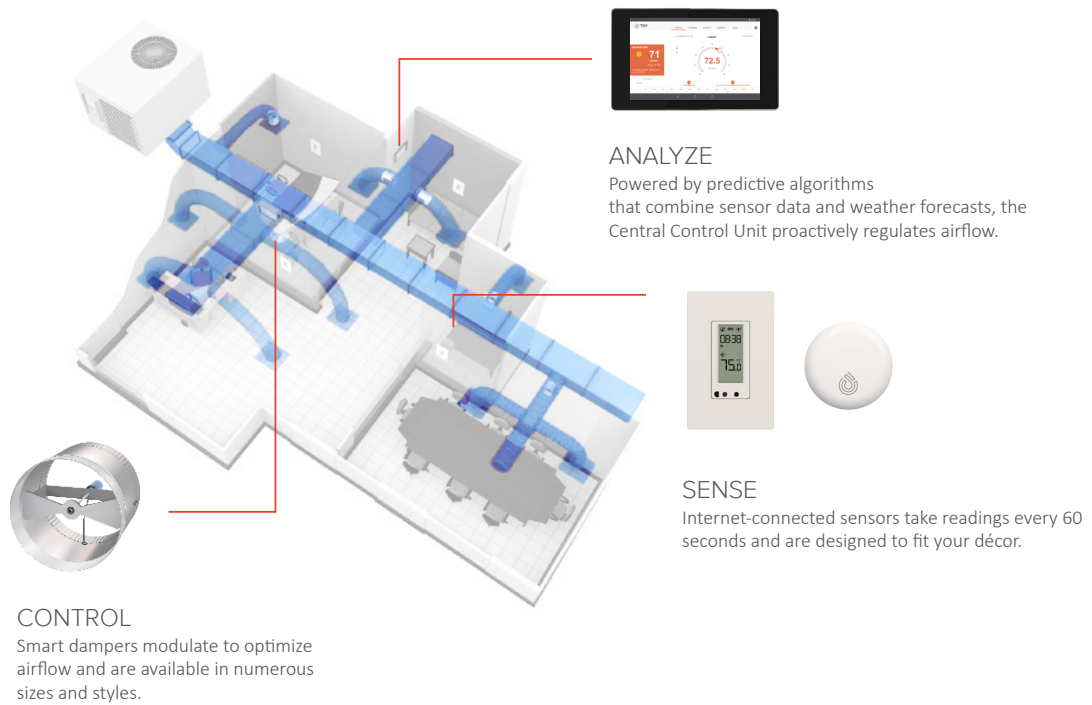
CONTENTS

Dynamic Airflow Balancing Overview 3
Possible LEED Credits 3
LEED Credit Detail: Energy and Atmosphere (EA) 4
LEED Credit Detail: Materials and Resource (MR) 6
LEED Credit Detail: Indoor Air Quality (EQ) 6
LEED Credit Detail: Innovation (IN) 8

DYNAMIC AIRFLOW BALANCING

75F harnesses the power of the cloud to create systems that predict, monitor and manage the needs of your building. Traditional zone control systems are reactive, responding to errors after they occur. The 75F award winning Dynamic Airflow Balancing solution is predictive. Our proprietary algorithms model the thermal envelope of your building and send out the optimal strategy to achieve the perfect balance. The system creates a continuous dialog between multiple Rooftop Units (RTUs) in your building, ensuring they work together to reduce energy usage.

Our Dynamic Airflow Balancing solution is made up of three components – Smart Sensors, Central Control Unit, and Smart Dampers. We build a vast data model by taking a reading of all the sensors every 60 seconds. Proprietary algorithms analyze and combine the data with weather forecasts in order to send the optimal control strategy to the Central Control Unit, which sends instructions to move smart dampers a few degrees at a time, creating even temperatures throughout your building. It's like have professional HVAC engineers adjusting your system every minute of every day.



75F can assist with

38

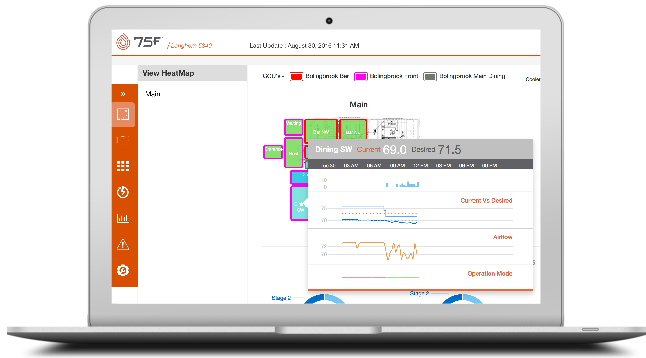
Possible Points!

11

Possible Credits!

| | LEED V4 Credits | Possible Points |
|---|--|-----------------|
| Energy & Atmosphere - EA | Fundamental Commissioning and Verification | Required |
| | Minimum Energy Performance | Required |
| | Enhanced Commissioning | 2 - 6 |
| | Optimize Energy Performance | 1 - 20 |
| | Advanced Energy Metering | 1 |
| | Demand Response | 1 - 2 |
| Materials and Resources - MR | Design for Flexibility | 1 |
| Indoor Environment Quality - IEQ | Indoor Air Quality Performance | Required |
| | Enhanced Indoor Air Quality Strategies | 1 - 2 |
| | Thermal Comfort | 1 |
| Innovation - IN | YES | 1 - 5 |

ENERGY AND ATMOSPHERE (EA)



Commissioning and Verification

Possible credit: Prerequisite

Description: Aid the Commissioning Authority with execution of the commissioning plan by providing access to data and verify the system is working.

75F Dynamic Airflow Balancing can significantly reduce the time required for on-site commissioning. The remote access portal can help the commissioning authority to log performance data, view trends, and track alerts from system controls or HVAC equipment, thus minimizing time required to collect data in the commissioning process.

The system will track energy use over time, making it easy to compare the building performance to the original design estimates.

The following system features can contribute to the commissioning of the building:

- View occupancy schedule
- View equipment runtime
- View set points for all HVAC equipment and Individual zones
- Receive reports to track any changes in schedules or set points for different seasons, days of the week, and times of day
- Receive and monitor system/equipment alerts

- Control smart dampers to run equipment tests and verify system validity
- Compare 75F predictive algorithms with real time data, easily visualized in the 75F Comfort Index

Minimum Energy Performance

Possible Credits: Prerequisite

Description: 75F Dynamic Airflow Balancing is designed to meet the mandatory and prescriptive requirements of ASHRAE standard 90.1.

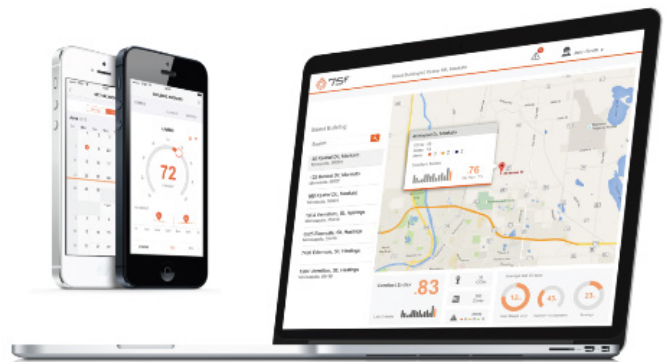
Enhanced Commissioning

Possible Credits: 2 – 6

Description: Aid the Commissioning Authority with execution of the commissioning plan by providing access to data and verify the system is working.

Note: The owner will need to hire a third party commissioning authority to perform additional commissioning tasks.

75F Dynamic Airflow Balancing can significantly reduce the time required for on-site commissioning. The remote access portal can help the commissioning authority to log performance data, view trends, and track alerts from system controls or HVAC equipment, thus minimizing time required to collect data in the commissioning process. The system will track energy use over time, making it easy to compare the building performance to the original design estimates.



The following system features can contribute to the building commissioning:

- View occupancy schedule
- View equipment runtime
- View set points for all HVAC equipment and individual zones
- Receive reports to track any changes in schedules or set points for different seasons, days of the week, and times of day
- Receive and monitor system/equipment alerts
- Control smart dampers to run equipment tests and verify system validity
- Compare 75F predictive algorithms with real time data, easily view in the 75F Comfort Index

I Optimize Energy Performance

Possible Credits: 1 – 20



Description: 75F Dynamic Airflow Balancing saves energy in the following ways:

1. Demand Control Ventilation (DCV) – Traditional HVAC systems bring in fresh air with a fixed-position outside air damper regardless of the air quality. When the return air quality is sufficient, it is wasteful to bring in outside air during extreme weather. DCV modulates the outside air damper so it is open only when the return air does not meet standards. A Department of Energy report estimates this can save an average of 24% in costs (up to 35% in a DOE study).¹

2. Variable Frequency Drives (VFD) – In commercial buildings a ventilation fan must be on during occupied hours to meet minimum airflow requirements. However, running the fan at full speed all the time wastes energy. With a VFD fan drive, the fan runs at a slower speed most of the time. It speeds up when the cooling or heating coils are active. DOE estimates on average this saves 12% in energy costs (up to 33% in a DOE study).¹

Note: 75F can support Variable Frequency Drives if installed but 75F does not require installing VFD into a constant volume system to install our system.

3. Comparative Enthalpy Economy (CEE) – optimizes the outside air damper position based on outside enthalpy (a measure of temperature and humidity) compared with calculated indoor enthalpy (the predicted enthalpy of discharge air based on psychometric effects of the RTU). When in cooling mode, 75F OAO will determine if weather conditions are right to allow outside air in for “free cooling,” instead of engaging A/C compressors. Cloud computing maximizes free cooling by predicting needs of internal load conditions and obtaining outside enthalpy via live weather data, instead of failure-prone hardware on the roof.

Furthermore, 75F OAO does not modulate to a fixed mixed air temperature (MAT) such as 55°, but rather calculates the ideal MAT based on the real load of the indoor zones, much like a cooling plant. This strategy significantly improves comfort by optimizing diffuser discharge air temperatures and reducing room temperature variations.

3. Occupancy Detection and Auto Away – Many offices have a schedule that varies (conference rooms or sales folks on the move). The system has an occupancy detection function that marks a zone as ‘away’. It will let the temperature drift from the desired temperature by up to 3 degrees – enough to save energy but not too far away to bring it back to desired temperature if the zone becomes occupied.

4. Eliminate the Use of Bypass Dampers – Traditional zone controls can shut off the airflow to a large part of the building. This can create back-pressure and damage the support fan. Bypass dampers bleed some of the supply air back into the return air and prevent an increase in back-pressure. However, doing so reduces the efficiency by up to 27%. 75F’s solution predictively re-balances the airflow so that there is always at least 75% opening of the ducts. In most cases, the pressure is actually reduced since the balancing dampers are fully open or eliminated.



5. System Schedule and Setback – It is easy to set when an office will be occupied or unoccupied through the intuitive interface on the Central Control Unit (CCU) or the remote-access portal. Effective use of this feature saves energy by only providing air to spaces that need it. Additionally, the system saves energy by reaching a setback point at night, before gradually reaching its desired set point again in the morning.

Note: 75F Dynamic Airflow Balancing is designed to meet the mandatory and prescriptive requirements of ASHRAE standard 90.1.

I Advanced Energy Metering

Possible Credits: 1

Description: Track energy use at the system-level (HVAC) to identify additional energy savings opportunities.

Check the system log to track equipment runtime and energy use. Access the data through the remote-access portal and report it hourly, daily, monthly, or annually.

I Demand Response

Possible Credits: 1 – 2

Description: The system is capable of limiting demand to reduce peak demand values. The system will adjust the duty cycle to minimize the number of devices on at the same time.

MATERIALS AND RESOURCE (MR)

I Design for Flexibility

Possible Credits: 1

Note: Credit only applies to: Healthcare

Description: The 75F Dynamic Airflow Balancing system creates fine-grain Personal Micro-zones, achieving more granular control than was ever before practical. Using interstitial space and the multi-zone capabilities of the 75F solution, the achieve one of three requirements towards the Design for Flexibility credit.

INDOOR ENVIRONMENT QUALITY (EQ)

I Minimum Indoor Air Quality Performance

Possible Credits: Prerequisite

Description: 75F Dynamic Airflow Balancing is designed to meet the minimum requirements of ASHRAE Standard 62.1. The system can monitor CO2 levels in the return air and modulate the outside air damper to meet standards.

I Enhanced Indoor Air Quality Strategies

Possible Credits: 1 – 2

Description: Ensure indoor air quality meets the standards set by the owner / commissioning authority and is designed to meet the minimum requirements of ASHRAE Standard 62.1.

1. Use the air quality sensor and the CO2 sensor to measure air quality (CO2 levels) in the entire building and/or room-by-room.

2. Install Demand Control Ventilation (DCV) to only add outside air only when it is needed.

I INNOVATION (IN)

Innovations

Possible Credits: 1 – 5

1. Eliminate the use of a bypass damper in constant volume systems.

2. Use of Demand Control Ventilation (DCV) to add outside air only when it is needed.

3. Predictively account for heat load requirements of a building in the following ways.

- Adjust for solar gain throughout the day to allocate airflow to parts of the building that need it
- Utilizing daily weather forecasts to adjust airflow to parts of the building that need it
- Compensate for humidity, to achieve desired comfort

4. The synchronization of sensors to ensure mechanical HVAC equipment work together instead of fighting against each other.

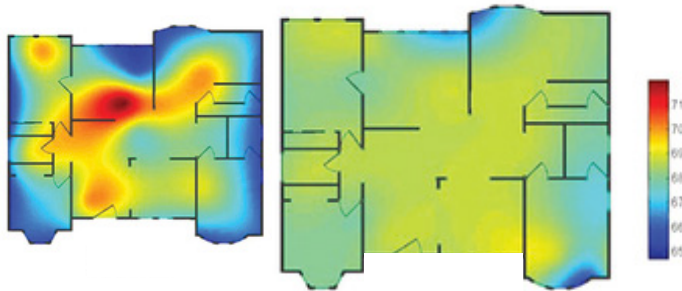
5. The 75F Dynamic Airflow Balancing system communicates over a wireless mesh network, reducing the cost of installation and minimizing material cost.

ABOUT 75F

75F creates solutions that predict building needs and manage them proactively, making spaces more comfortable, energy-efficient and cost-effective. Using the best in cloud computing and the Internet of Things, we deliver building intelligence, not just automation.

I Thermal Comfort

Possible Credits: 1



Before 75F

After 75F

Description: Provide desired comfort through individual comfort control.

75F Dynamic Airflow Balancing is designed to meet the requirements of ASHRAE Standard 55 and provide comfort in the following ways:

1. **Individual Room Comfort Control** – Each room has its own comfort controller, maximizing comfort of the occupant.

2. **Humidity Control** – 75F can adjust humidity for maximum occupant comfort.

3. **Humidity Compensation** – 75F can report perceived temperature by factoring in humidity and thermal radiation.

4. **Weather Based Tuning** – All objects radiate energy. 75F adjusts for solar gain using weather data to ensure you feel comfortable.

5. **Intuitive interface** – Easily adjust the occupancy schedule with an intuitive touch-screen interface.