

BACKGROUND

Founders of a large church in south Florida wanted to ensure they were putting the comfort, health and wellbeing of their members and staff, first. With an existing Building Management System monitoring and controlling various sections of the facility, they wanted to integrate emerging technology to improve their occupant's experience.

CASE STUDY



THE CHALLENGE

In the large open area of the sanctuary, 17 air conditioning units have dedicated zone of control. Some of these units have traditional wall thermostats and the others are using return air sensors at the unit for temperature control. The challenge is the traditional wall thermostats are too far away from the controlled zone, and there was zone overlap from the area the stat was located. This resulted in the units using too much energy to get to the desired temperature. This was effectively overcooling the space to get the return temperature to the user's desired value.

Sound level in certain areas of the sanctuary were not adequate. Members of the church had challenges hearing worship in certain areas when social distanced because of the COVID-19 pandemic.

The facility staff did not have a way to accurately measure sound in various areas.

Installing three of the O3 Sense in the open area of the sanctuary provided the optimal vantage point for more accurate sensing and control of the environment.



► Delta Controls Finds The way to "Do it Right"

Find out how Delta Controls was able to overcome this challenge.



THE SOLUTION

Installing three of the O3 Sense units in the open area of the sanctuary provided the optimal vantage point for more accurate sensing and control of the environment. Air conditioning units in this area were using return air temperature as their process variable, so the three occupant temperatures from the O3 Sense were shared with all the units controlling that area.

O3 Sense were installed over two balcony areas to overcome an overlap in control zones in both the balcony and the lower bowl. The existing air conditioning units had tradition temperature sensors on the wall but located extremely far away from the area they are responsible for controlling.

Every O3 Sense is monitoring the sound decibel level in each of the five areas simultaneously. The facility staff is able to accurately see in real time the effects of certain sound equipment in the space and will be able to make better decisions on where sound upgrades will be needed.

THE BENEFITS

After installing the Delta Controls O3 Sense, controlling and maintaining optimal temperature in the sanctuary enhanced occupant comfort and delivered energy savings.

- ▶ With more accurate temperature sensing and a better vantage point of the area under control, occupant comfort in the space has improved dramatically. There are no longer cold spots and all the units in the zone are able to run and a single unique setpoint.
- ▶ The O3 wireless configuration allowed devices to be set up ahead of time for ease of commissioning on site via the mobile app with minimal disruption. As the O3 uses open protocols and is BACnet native, it seamlessly integrated into the existing BMS.
- ▶ The user is now able to use the on-board occupancy sensor on the O3 Sense to put the units in temperature setup and trust when the area isn't occupied that the temperature can still be maintained. This allowed for a 15% reduction in kWh usage in the sanctuary area.
- ▶ Being able to accurately measure sound levels in the entire space allowed the facility staff to only add sound equipment in the certain areas that were lacking sound distribution. Originally, the facility was upgrading far more equipment than they needed.

THE RESULTS

All five O3 Sense were installed on the existing BACnet IP daisy chain of the BMS system. The installer used the O3 Setup App from the Apple App store and configured the O3 Sense for BACnet IP and DHCP from the BMS IP controller.

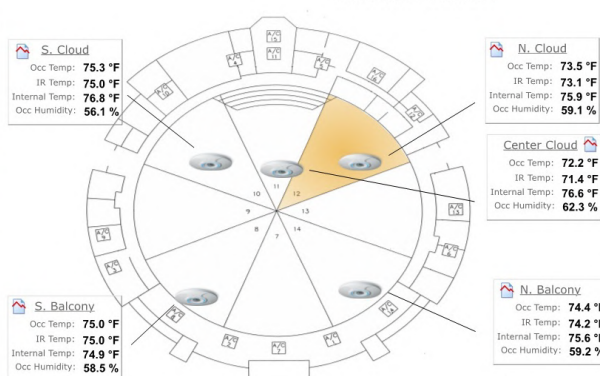
15% kWh

Usage reduction
in the sanctuary area.

Protocol/BACnet

Integrated into the
existing BMS

SANCTUARY FLOORPLAN



RTU01 Temp: 68.0 °F Setpoint: 68.0 °F Status: ON Fan Fail: NORMAL	RTU05 Temp: 73.0 °F Setpoint: 72.0 °F Status: ON Fan Fail: NORMAL	RTU09 Temp: 71.4 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	RTU13 Temp: 69.5 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	RTU17 SA Temp: 60.0 °F RA Temp: 70.8 °F
RTU02 Temp: 68.1 °F Setpoint: 68.0 °F Status: ON Fan Fail: NORMAL	RTU06 Temp: 68.8 °F Setpoint: 72.0 °F Status: ON Fan Fail: NORMAL	RTU10 Temp: 72.5 °F Setpoint: 76.0 °F Status: ON Fan Fail: NORMAL	RTU14 Temp: 70.7 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	
RTU03 Temp: 70.7 °F Setpoint: 71.6 °F Status: ON Fan Fail: NORMAL	RTU07 Temp: 72.0 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	RTU11 Temp: 72.4 °F Setpoint: 76.0 °F Status: ON Fan Fail: NORMAL	RTU15 Temp: 74.7 °F Setpoint: 74.1 °F Status: OFF Fan Fail: NORMAL	
RTU04 Temp: 71.6 °F Setpoint: 72.0 °F Status: OFF Fan Fail: NORMAL	RTU08 Temp: 71.9 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	RTU12 Temp: 72.8 °F Setpoint: 71.0 °F Status: ON Fan Fail: NORMAL	RTU16 SA Temp: 0.0 °F RA Temp: 0.0 °F	

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