



Seattle's Historic 5th Avenue Theatre identifies a spike in less than a day after installing Buddy Ohm

Overview

Seattle's 5th Avenue Theatre was built in 1926 and serves as the nation's premier incubator for new musical theatre. Since 2001 the theatre has produced 17 musicals, with nine moving on to Broadway premieres, earning a combined 15 Tony Awards, including two for Best Musical. Given the 5th Avenue Theatre is a non-profit organization, every dollar saved goes directly to achieving their mission, "to nurture, advance and preserve all aspects of America's great indigenous art-form: The Musical. Achieving this by creating extraordinary theatrical experiences that enrich, entertain, and inspire current and future audiences everywhere."

Energy and resource costs make up the vast majority of monthly spend for venues like the 5th Avenue Theatre. This is especially true in older and historic buildings where infra-structure was installed across a

number of decades, representing many generations of technology. Gaining an accurate view of what exactly is coming into the building, and what is going out can seem impossible, especially for organizations that don't want to spend hundreds of thousands of dollars to install advanced building management systems. It's also difficult to monitor environmental aspects of the building and identify correlations with aging or malfunctioning building infrastructure. For example, the heavily used theatre dressing rooms had temperature control issues. Year-round, temperatures were too warm each morning, requiring mobile air conditioners to be brought in during the summer months to keep temperature comfortable for production cast and staff.

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Goals

The 5th Avenue Theatre was looking for a few key outcomes:

Production cast comfort: Monitor temperature and humidity to improve comfort for cast and crew who use the theatre's dressing rooms during rehearsals and show time

Avoid energy waste and associated cost: Monitor real-time energy use and identify potential inefficiencies to help prioritize infrastructure improvements.

Baseline current energy consumption: Determine current energy consumption for various sub-loads like HVAC and lighting in order to determine potential energy savings and ROI to support the purchase of new equipment.

Solution

To get started we installed the following Buddy Ohm system components:

- Ohm monitoring device, Current Transformer (CT) sensors and wired temperature sensor at the electrical panel box for dressing room circuits
- Ohm Sense wireless temperature and humidity sensors in the dressing room
- Ohm View Dashboards for displaying real-time and historic energy usage, environmental data
- Threshold-based real-time alerting.

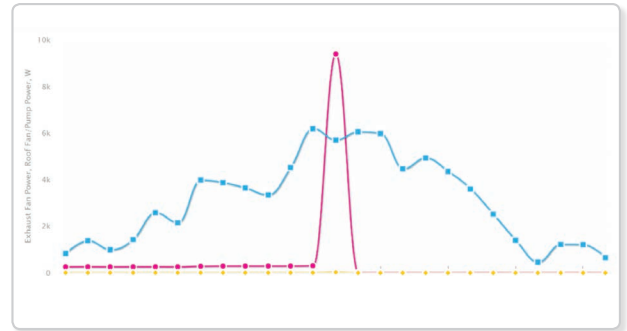
Advantages

- Buddy Ohm's out-of-the-box cellular connection to the Buddy cloud and internal radio frequency (RF) wireless network capabilities allowed it to be installed and operated completely separate from the theatre's internal WiFi networks, avoiding conflict with critical existing wireless equipment
- Installed in less than one hour without any modification to the facility, interruption of any of the theatre's activities, and with no power disconnect
- Buddy Ohm's use of industry standard cellular and wireless standards avoided possibility of interfering with the theatre's wireless stage microphone system
- Intuitive Ohm View management portal and occupant-facing dashboards make gaining and sharing new insights easy for cast and crew as well as patrons.

Initial Findings

Within 24 hours of the installation of Buddy Ohm system:

- Found spike in energy consumption to 9,400kW starting near midnight when nobody occupied the dressing room



- Although the thermostat was set to fluctuate temperature throughout the day, the temperature in the dressing rooms did not go below 71 degrees Fahrenheit
- Dressing room temperature control system was not adapting to daylight savings time changes.

Benefits

- Immediately altered HVAC system to eliminate nighttime spike in energy consumption and related cost
- Eliminated energy consumption resulting from system conflict of duct heaters running at the same time the HVAC system was trying to cool spaces
- Normalized dressing room temperature after powering off duct heaters
- Increased visibility and accountability for the theatre's operations staff on energy usage and environmental conditions of their facility
- Created a baseline of the energy use of the theatre and critical infrastructure prior to future energy system upgrades
- The energy savings found as a result from the nighttime spike benefited the theatre by reducing their monthly energy bill and allowing them to redirect those savings to support the theatre's mission.