ENERGY.GOV
Office of
ENERGY EFFICIENCY & RENEWABLE ENERGY

Power over Ethernet (PoE) Technologies in Hotels

Scaling Up the Next Generation of Building Efficiency Packages

The Sinclair, Autograph Collection hotel looks forward by returning to DC electricity.

On October 31, 2019, The Sinclair, a Marriott Autograph Collection hotel in Fort Worth, TX opened its doors to guests. Built in 1929, Sinclair Holdings LLC remodeled the 16-floor office building into a DC-powered, 164-room luxury hotel. Each guest room is equipped with low voltage DC-current Power over Ethernet (PoE) technologies, including:

- NuLEDS systems,
- Somfy motorized window treatments,
- Electric Mirror Savvy™ SmartMirror™,
- Kohler DTV+ digital shower system,
- Dometic minibar,
- Ivani occupancy sensor, and
- Assa Abloy door lock.

Igor PoE lighting systems are also installed in the hallways and common areas of the hotel. Additional PoE devices in the hotel include the IP phones, Wi-Fi access points, security cameras, and hotel sound system speakers. Cisco Digital Building Switches power and control all the PoE devices.

The Sinclair Hotel employs the VoltServer Digital Electricity™ system to deliver high voltage DC-power to the Cisco CDB network switches in the guest rooms and common areas throughout the building. The hotel also employs the world's first UL924 lithium ion battery energy storage system.

Honors

The hotel received a number of awards including the 2020 IBcon Digie Award: Most Intelligent Building Project: Specialty, the 2020 TEXO Distinguished Building Award, Historic Renovation, and the 2020 Superior Essex Sustainable Intelligent Building Award.

"The use of PoE at the Sinclair Hotel allowed us to reduce our carbon footprint, lower our electrical consumption, and create a truly connected building with power and data across the same cable."

—Farukh Aslam, CEO of Sinclair Holdings LLC

The Sinclair, Autograph Collection. Image courtesy of Fort Worth Business Press.

Project Results	
Total Area of Project	164,000 ft^2
Number of Guest Rooms	164
Source EUI ($kBtu/ft^2$)	148.3
Site EUI ($kBtu/ft^2$)	53.0
ENERGY STAR Score	70

Upgrades

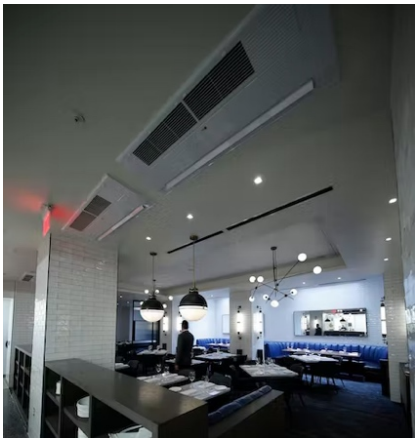
In 1992, the Art-Deco landmark in Fort Worth, Texas, the Sinclair building was designated as historically significant by the National Register of Historic Places and in 1994 designated as a Texas Historical Marker by the Tarrant County Historical Commission. Consequently, historic preservation guided the renovation. The exterior, including the original single pane windows, were preserved. The building's original hydronic heating and chiller cooling system was replaced with an LG variable refrigerant flow (VRF) heat pump system with a ductless split distribution system installed throughout the building.

Energy Efficiency

ENERGY STAR™ Portfolio Manager was used to benchmark the hotel's energy use based on utility bill data from May 2021 to April 2022. The hotel received an ENERGY STAR score of 70. This is twenty points greater than the ENERGY STAR median score for hotels. The calculated weather-normalized site EUI for the Sinclair Hotel was 53.0 kBtu/ft^2. This compares to the median Site EUI for hotels reported by the Commercial Building Energy Consumption Survey (CBECS) of 63.0 kBtu/ft^2, a savings of 10.0 kBtu/ft^2.

Cisco CDB UPoE network switch powering the PoE devices in a guest room at The Sinclair.

A PoE-powered guest room at The Sinclair.



Condensing units of the VRF System and VRF Cassettes in the hotel basement retaurant.

Tips and Best Practices

- Repurposing older buildings into hotels can be a cost-effective and environmentally sound option.
- Each PoE device is networked with its own IP address, allowing individual device control and monitoring to manage building energy consumption.
- A dedicated IT staff assists in the operation and maintenance of the PoE and DC system.
- Using DC electricity to power the lighting, heating, and cooling in the hotel provided ease, affordability, and sustainability.