



# Hotel Marcel & Sinclair Hotel

A case study on Hotel energy efficiency

# Today's presentation

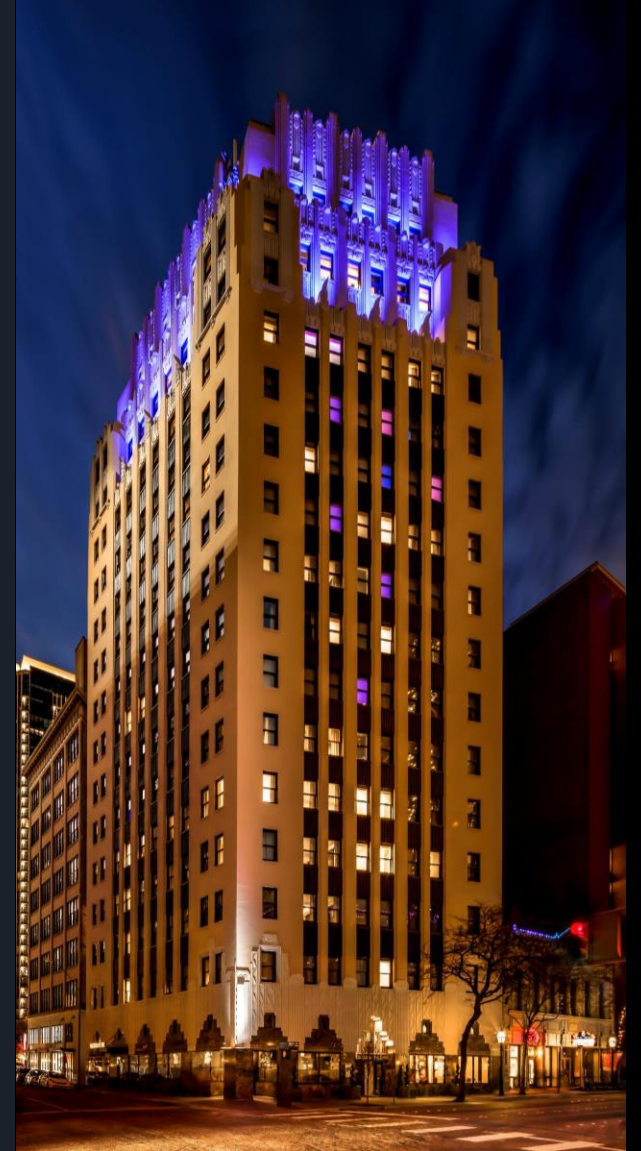
- History of the 2 Hotels
- The Construction Processes
- New Technology used
- The Results Today





## Construction challenges for both facilities

- Constructing the first Net Zero Energy Platinum Hotel
- Remodeling designated historical buildings
- Both were prior office buildings, converting to hotels
  - Accommodate new energy efficient technologies for power
- Tight time frame for construction





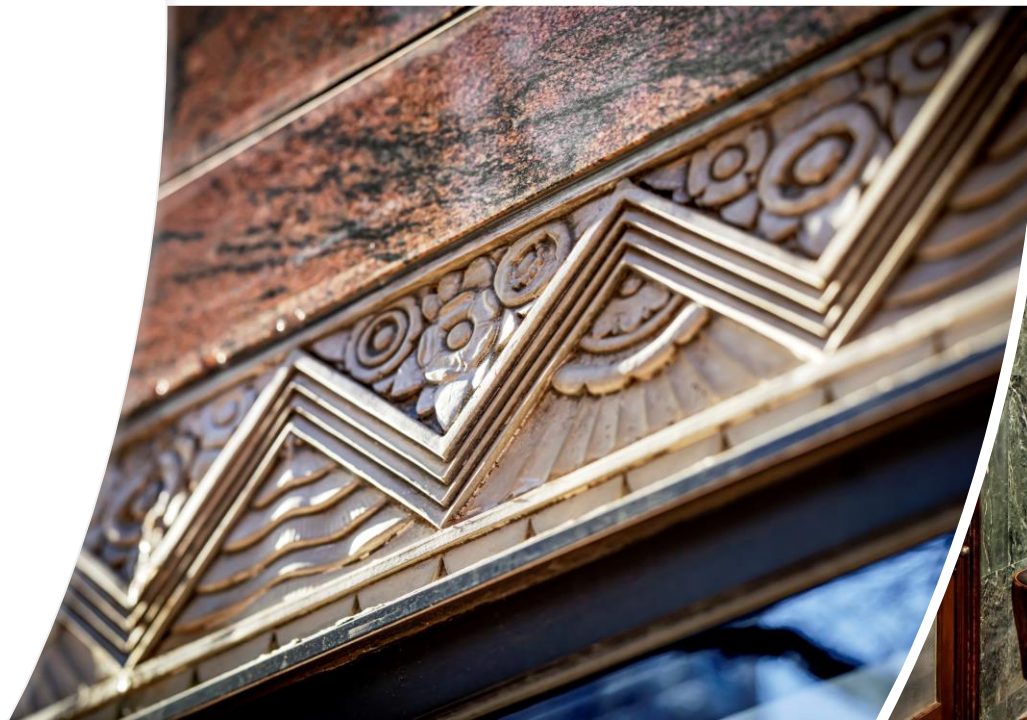
# Sinclair Marriott Autograph Hotel History

Ft. Worth, Texas



# Sinclair Office Building

- Completed in 1930
- Wiley G. Clarkson original Architect for owner Richard Dulaney
- Sinclair-Prairie Oil Company Headquarters during the "Oil and Gas Golden Era"
- Building features Zig-Zag Motif, Mayan Accents and Terra Cotta Detailing
- Now a Marriott Autograph Hotel
- Made a historic landmark 1993





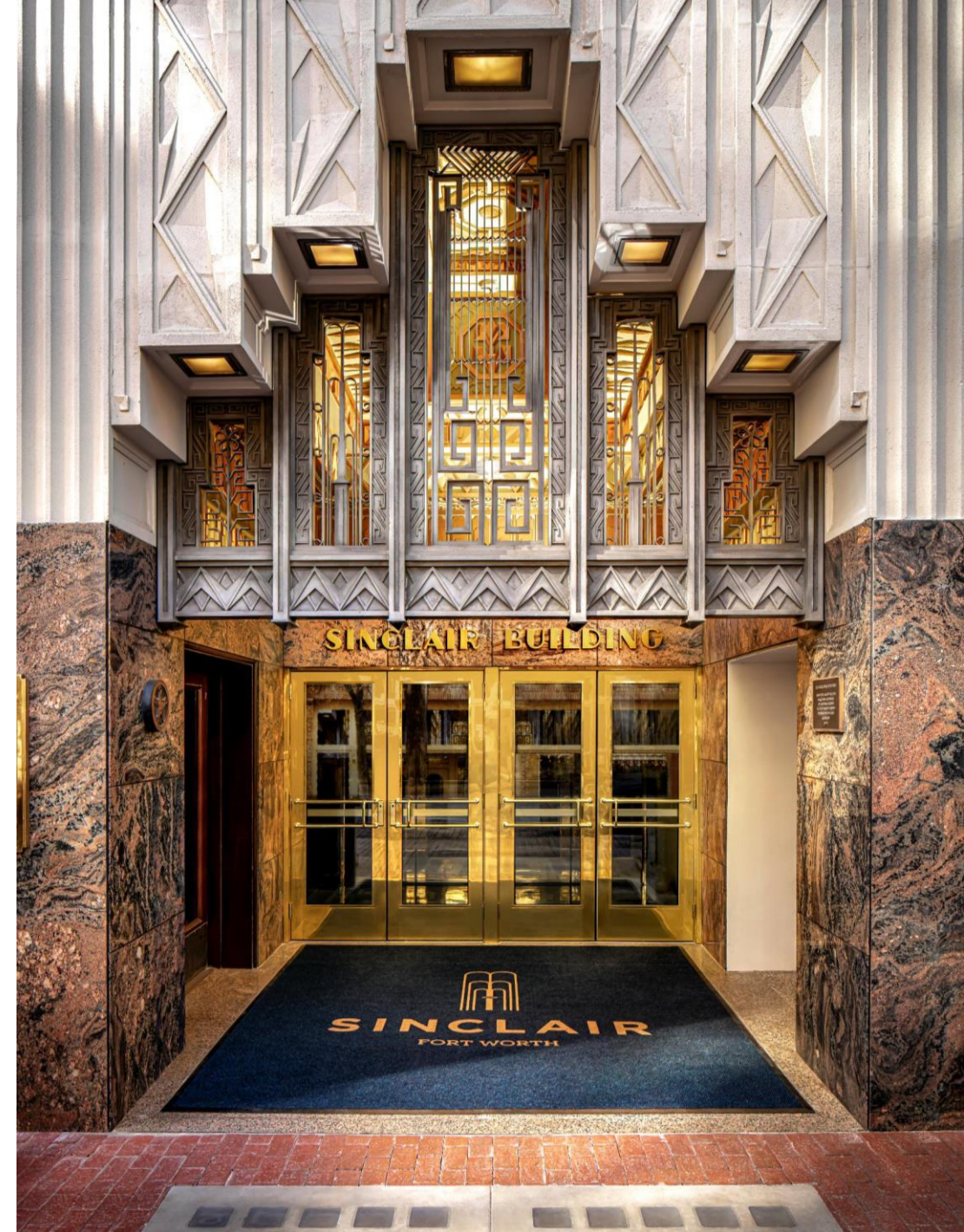
# Hotel Marcel History New Haven, CT

- Built in 1969 by Marcel Breuer & Robert Gratje for the Armstrong Rubber Company
- Unoccupied from the 1990's until 2021
- Now part of the Hilton Tapestry Collection
- Threatened for demo for 2 decades





# The Construction Processes Sinclair Hotel







# Existing Technology?

Previous electrical panels



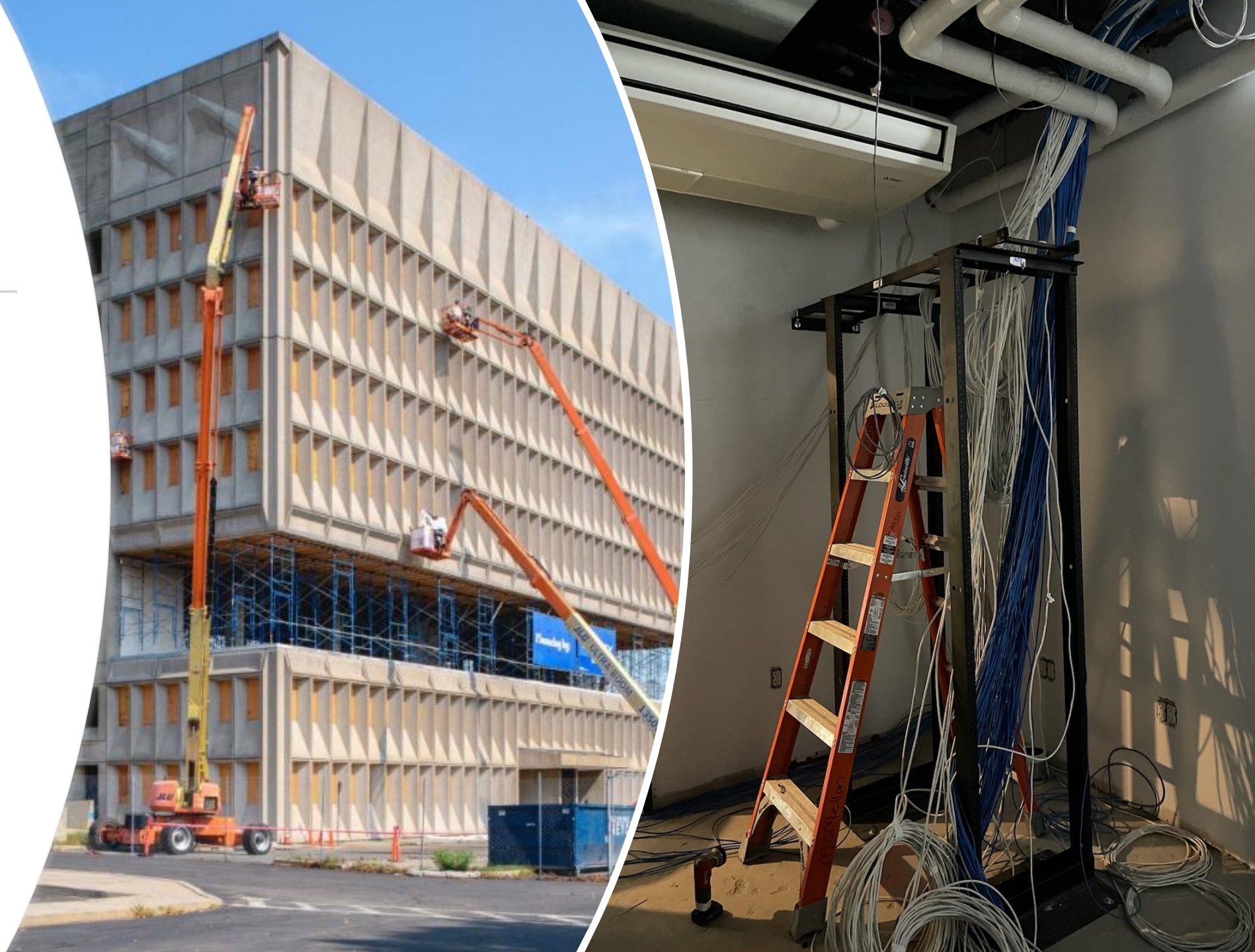
# The Construction Processes Hotel Marcel





# Construction Difficulties

- Historic building
  - Why this was a big issue over new construction applications
  - The effects of this and how it was worked around
  - Lingering effects: Future operational challenges





Poll-

Are your clients asking for smart building-energy efficient designs?

- Yes
- No



# Hotel Marcel Construction





# 9<sup>th</sup> Floor Renovations-Before





# 9<sup>th</sup> Floor Renovations-After

Meeting and Event Facilities

A black and white photograph of a modern interior space, likely a lobby. The room features a long, low, tufted sofa on the left, a white armchair in the center, and a long, rectangular table on the right. A large, dark, curved wall or partition is visible in the background, adorned with a pattern of white stars and a crescent moon. The ceiling is high with recessed lighting. A staircase is visible on the far right. The text "Main Lobby Before" is overlaid in the center.

# Main Lobby Before



# Main Lobby After





# Office Space-Before





# Hotel Suite- After

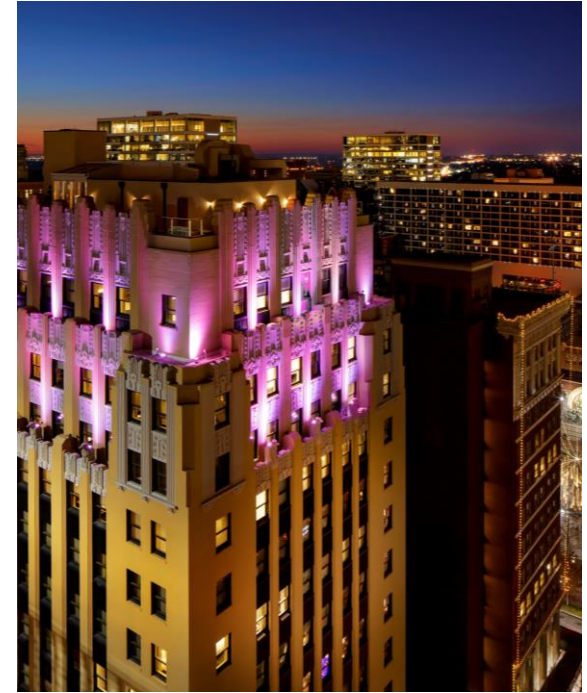




# What the properties have in common

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- Sinclair Holdings
- Sinclair Digital is a Design consultant
- PoE Technology
- Battery back up systems





# AC power vs DC power

- Smaller space for power requirements
- Greatly reduced operating cost
- Less heat issues
- Not paying for maximum required building power
- Less steel and copper installation costs
- Battery backup is an option because of the low voltage systems











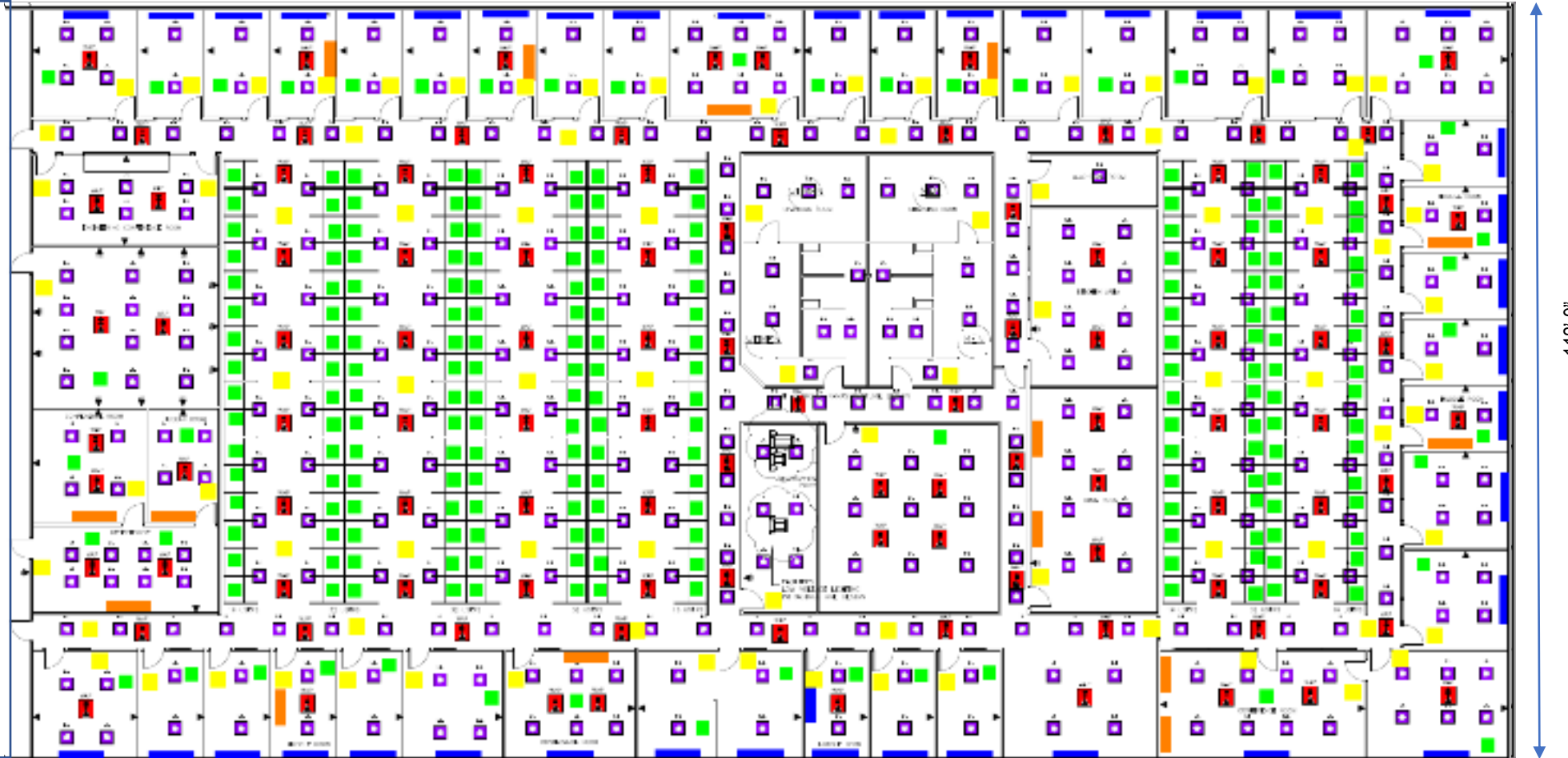
# PoE - Commercial Building Applications

25,000 SQ Feet

222'-10"

## PoE Infrastructure

	LED Lighting	389
	Phone, Client, Monitor	470
	Display	15
	Occupancy Sensors	89
	WAP	102
	Shade Control	40
Total		1093



112'-9"

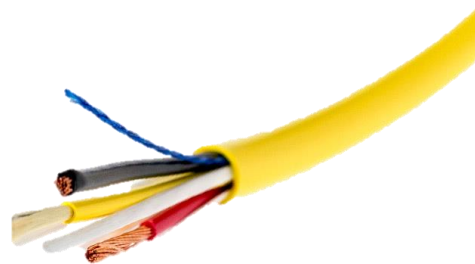


# Why PoE lighting?

- Low voltage lighting greatly reduce manhours for installation and operation expenses
- Pre terminated connections increase installation speed
- Not using conduit and lower cost of cabling/copper equals a very large CAPEX difference
- NEC- class 2 wiring nationally accepted
- Light harvesting sensors control light output







# Digital Electricity & PoE

- Digital Electricity -- a packet-based energy transmission from AC to DC through copper cabling as a backbone
- Singlemode fiber-based Passive Optical Network for in-room lighting backbone
- 22 AWG Category 6 cable to deliver 60W of power to connect the Cisco Digital Building switch with the nodes/control boxes and to each device:
  - Bathroom & vanity lights
  - Color changing shower lights
  - Headboard lights & desk lamps
  - Ceiling & Hallway lights

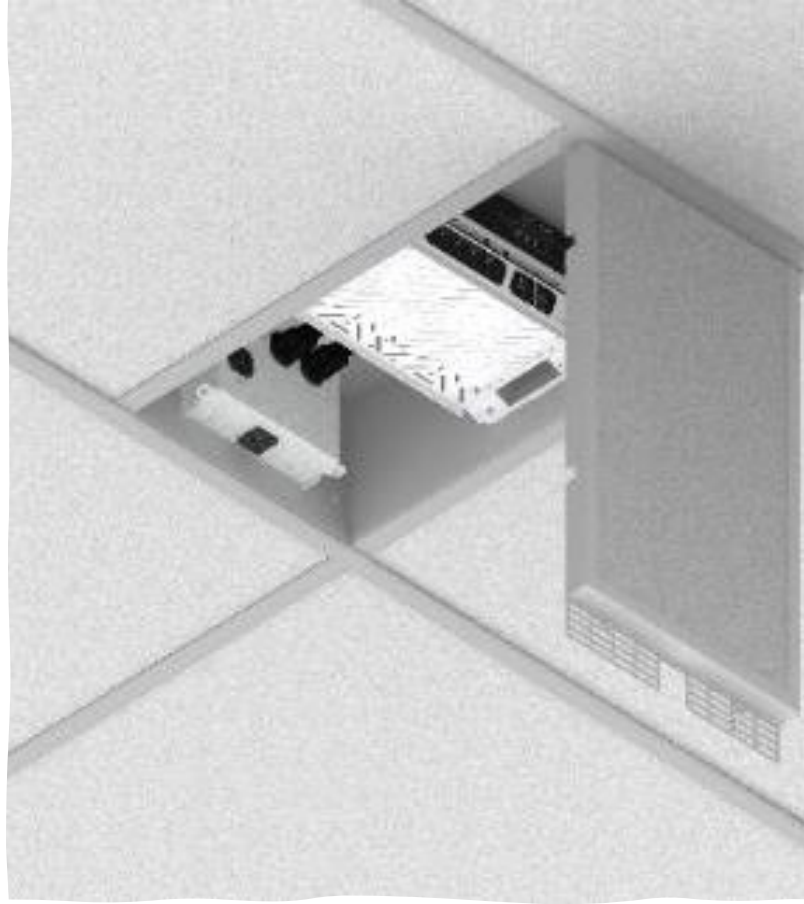


# Digital Electricity

- Voltserver Manufacturing
- Sending electricity over 18/2 wire instead of much larger AC wire
- Delivers DC power at greatly reduced energy over traditional AC power
- Up to 450 volts AC or DC







## Infrastructure Locations for New Technology

- PoE switches
- PON control
- Bluetooth
- Controllers





# Innovative Technology

- PoE Everywhere – LED lighting (interior and exterior)
- Bluetooth® Wireless Technology
- Digital Electricity
- Lithium ion back-up batteries





# Back-up Batteries vs Diesel Generators

- Alternative power source - more energy efficient, more reliable and more compact (one-tenth footprint of diesel generator back-up)
- Housed in telecom cabinets
- First UL924-rated batteries (LG Chem, Ltd., Seoul Korea)



VS.





# Hotel Marcel back up power

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- Housed indoors in telecom rooms
- Certified to UL 924: standard for emergency lighting and power equipment





# Rooms before and after





# Rooms Before and After







# The New Technology - Sinclair Hotel



# PoE Power Mini Bar

- Solid state coolers allow you to eliminate the **refrigerant**, **compressor**, and **evaporator** that normally goes into a mini bar
- By eliminating those elements, you **reduce the power consumption** to a level which can be run with low voltage PoE
- It also provides more even cooling, eliminates all noise and vibration, and offers more usable space.





# Cordless Hair dryer

- By using a *cordless* hair dryer, we can eliminate the need for higher wattage outlets that take an extra circuit into the room.
- Volo boasts their hair dryer using *infrared technology* dries hair *faster* with *less damage* with enough battery life to dry a full head of hair.
- Lithium ion technology in this application can also be applied to flat irons to further reduce the electrical load in the room.







# Kohler DTV+ Digital Shower

- The Kohler Digital Shower will give the guests a *multi-sensory* experience by combining different aspects of water, light, sound, and steam.
- This shower has a PoE powered Touchscreen control display that will allow you to change the exact water temperature that you desire.





# Assa-Abloy Door Locks

## Key features:

- Mobile Access Compatibility
- **Wireless** online compatibility
- RFID reader with improved reading distance
- Allow for access into room during absence
- Works with most door materials
- **Minimalistic design** allowed by electronics being placed inside the door



# Savvy Electric Mirror

- This product by *Electric Mirror* will give every guest room an extremely high tech edge. Some of it's features include
  - Watching Television
  - Ordering Room Service
  - Color Changeable Lights
  - Bluetooth Technology to connect to your phone
  - Checking the weather
  - Calling for your car



# The new technology used- Hotel Marcel

- Brutalist concrete structure
- 1,000-plus solar panels installed atop its rooftop and parking canopies
- On cloudy days or at nighttime, the hotel pulls power from the grid or from its on-site battery, which has a 1 MWh capacity
- Through net-metering, the hotel will push excess power it generates back into the grid.





# Sinclair Hotel success highlights

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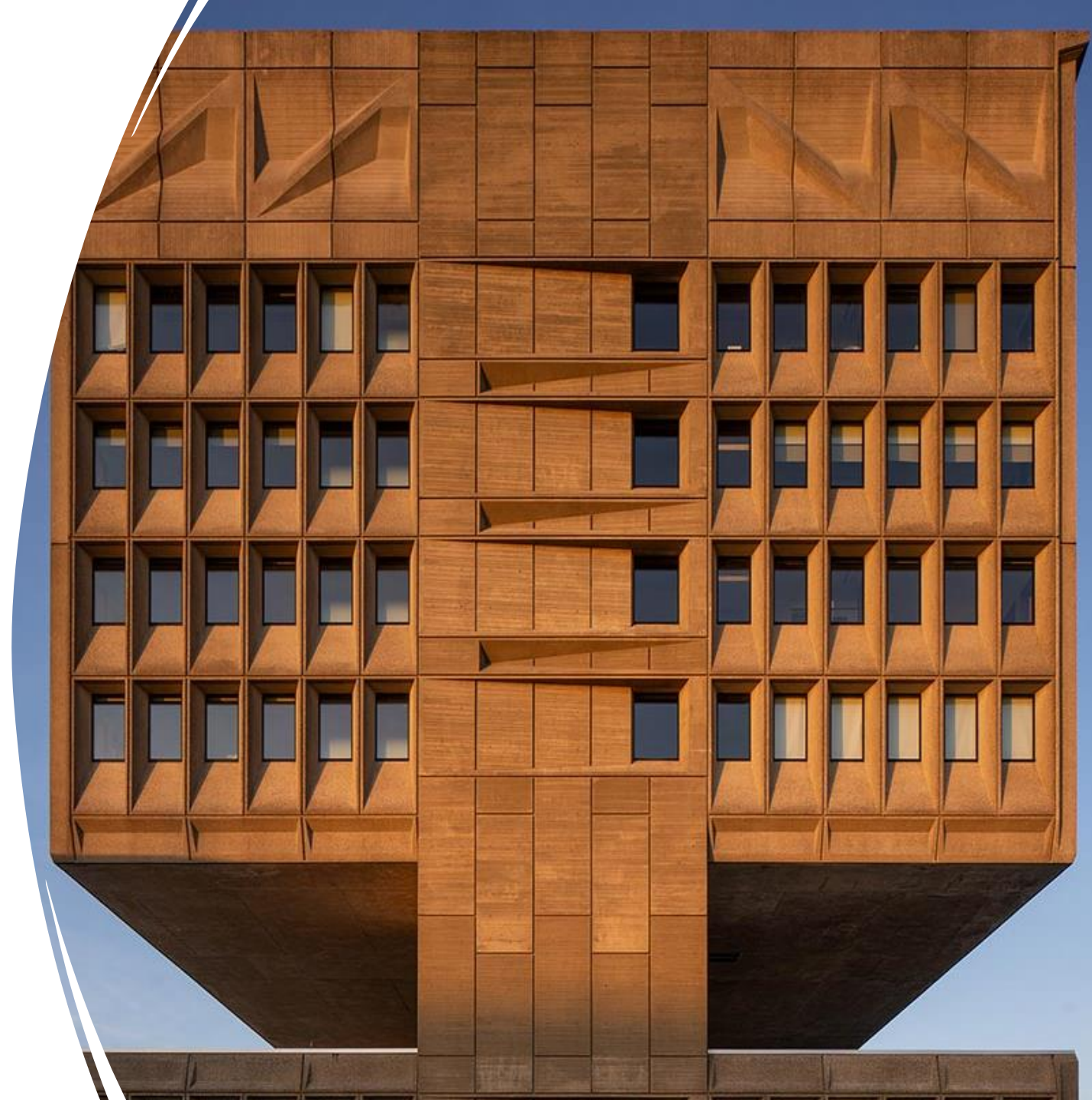
- 40% reduction in power usage
- Over 2000 lights and amenities on a powered & controlled over a network
- Battery backup system keeps hotel operational during power outages
- Greatly reduced energy consumption and costs
  - Major Decreases in greenhouse gas emissions



# Hotel Marcel success highlights

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- Net-Zero Energy Platinum Leed Hotel
- Supports 100% net-zero energy capability
  - Keeps hotel operational during power outages
  - Reduces energy consumption and costs
  - Decreases greenhouse gas emissions





# Summary

## Importance of Pre-Planning the Infrastructure

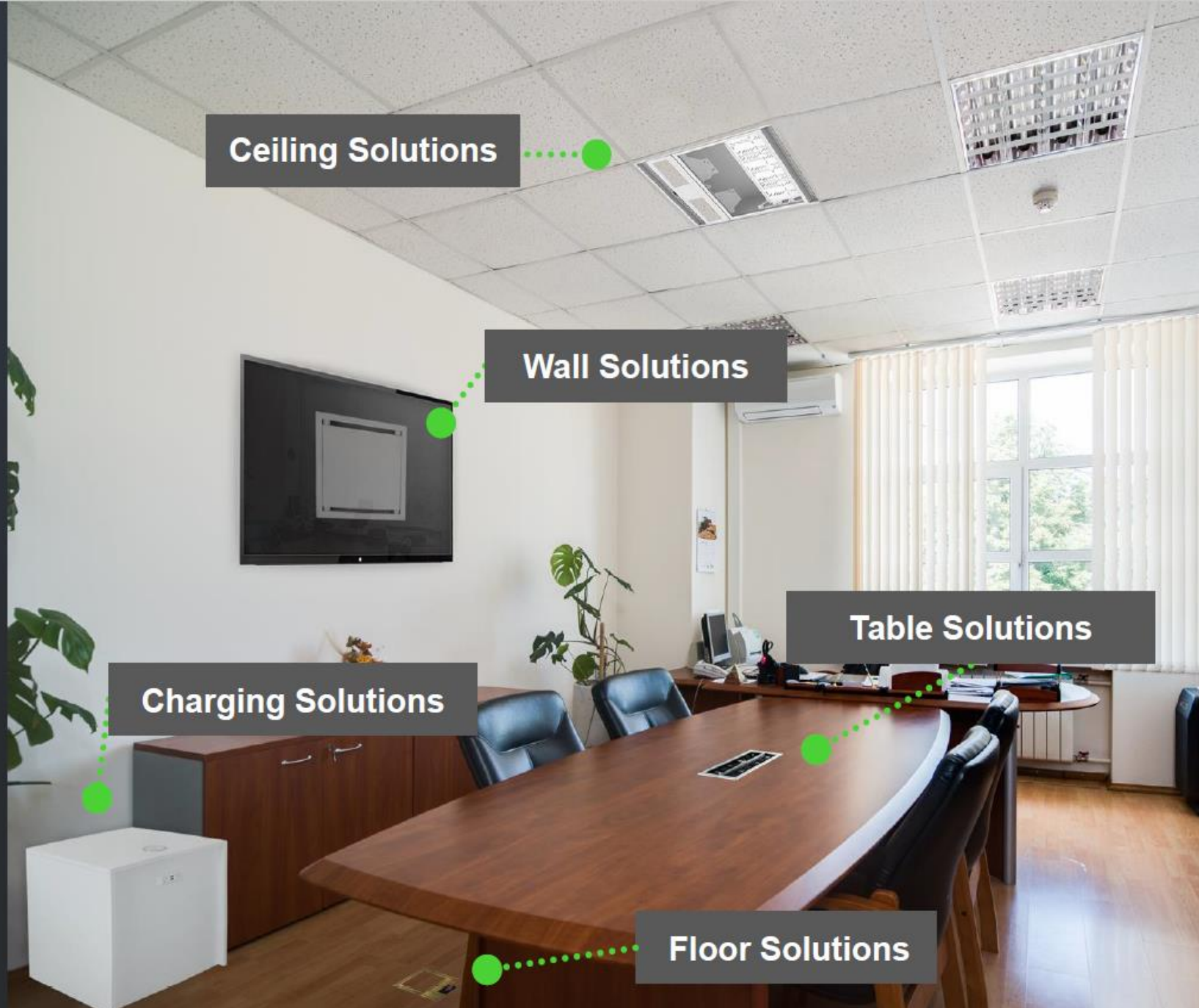
- Technology applications planning needs to occur during the earliest facility design phases
- Including a design team current with today's low voltage technologies
- Understand the requirements (data and power) of the applications, challenges of pathways and spaces and locations of these devices





# Products

- Infrastructure Boxes
  - Floor Boxes
  - Wall Boxes
  - Tables Boxes
  - Ceiling Boxes
- Fire rated infrastructure Boxes
- Furniture connectivity
- Collaboration Systems
- HDBaseT
- Room combining systems



Ceiling Solutions

Wall Solutions

Table Solutions

Charging Solutions

Floor Solutions





**THANK YOU!**

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