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# Continue with Confidence in Healthcare Facilities

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Unrestricted

## Addressing Key Challenges with Business Continuity & Strategic Planning (next 12-18 months)

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- Space flexibility
- Labor shortages
- Labor productivity
- Revenue shortfall & uncertainty
- Reduced cash flow & liquidity
- Patient confidence
- Compliance services
- Ramp up elective procedures
- Increase patient volume
- Cybersecurity
- Telehealth
- Increased borrowing costs
- Reassess real estate portfolio

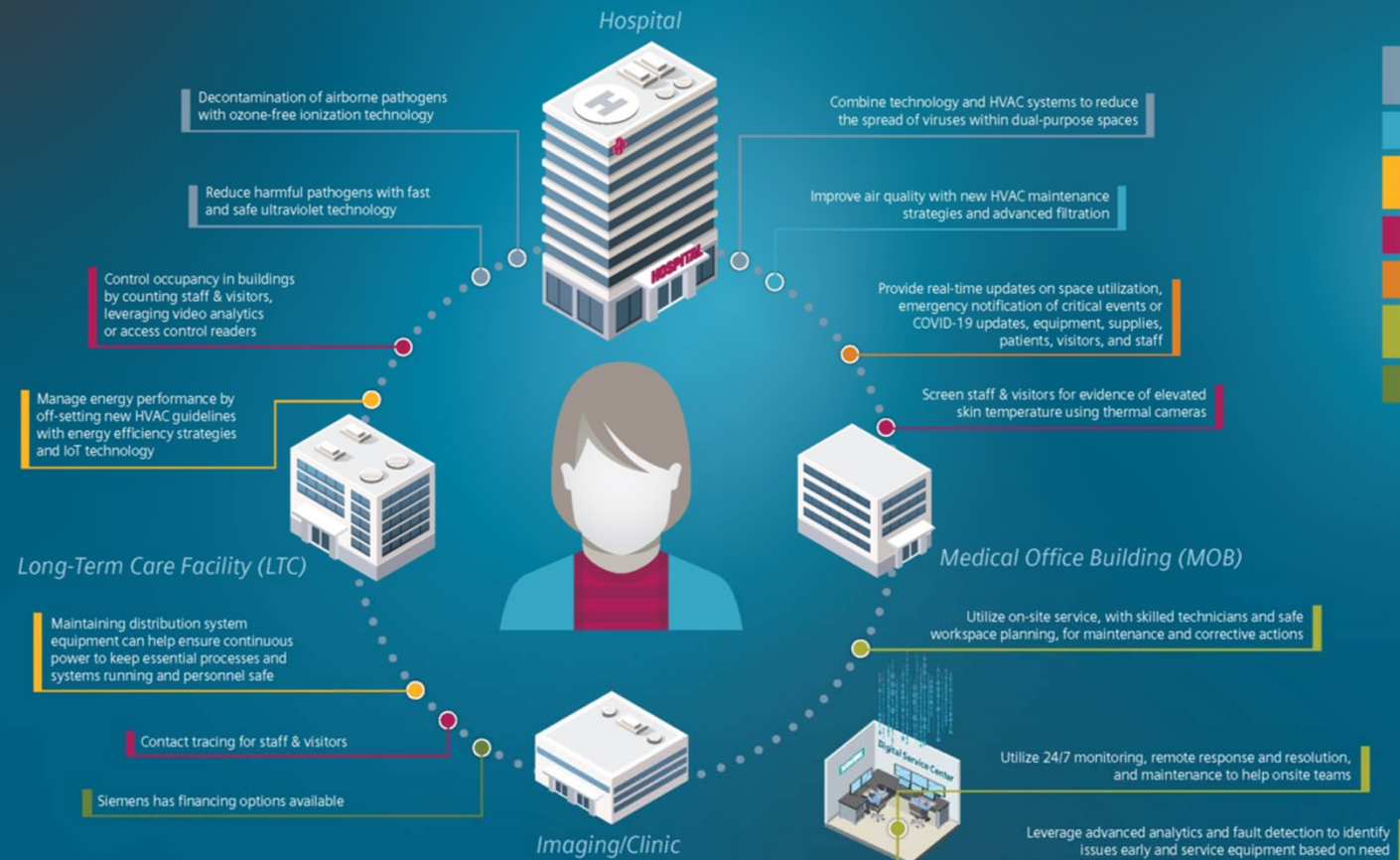






**How can Siemens help maintain safe, healthy, and clean environments?**

# Continue maintaining safe, healthy, and clean healthcare facilities with confidence



- Reduce the spread of airborne and surface contaminants
- Improve indoor air quality
- Manage energy performance & power reliability
- Enable social distancing
- Provide real-time updates
- Sustain healthy & safe environments
- Defer capital budgets

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## At a glance

### Seven areas of focus

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1

#### Reduce the spread of airborne and surface contaminants with a holistic approach

- Room pressurization and precise system control
- Violet Defense – ultraviolet light technology eliminates viruses, etc.
- O2 Prime – ionization renders contaminants harmless
- Baseline maintenance and compliance services

2

#### Improve air quality

- CloudOps – cloud-based analytics monitor customers' systems and notify when a critical fault occurs
- System Performance Monitoring – ensure mechanical and automation systems deliver a healthy building
- Air IQ Program – take a holistic approach to the indoor environment

3

#### Manage energy performance by off-setting new HVAC guidelines

- Demand Flow Chilled Water Optimization – efficiently achieve industry recommendations for outdoor air ventilation
- Energy Dashboards
- Digital Service Center

4

#### Enable social distancing

- FDA-cleared thermal cameras to detect people with EST
- Video Analytics + Access Control – people counting to control occupancy
- Enlighted – enable contact tracing and identify high-traffic areas to adapt cleaning and sanitation, monitor occupancy, reconfigure spaces

5

#### Provide real-time updates

- Desigo MNS – timely, targeted emergency messages to occupants
- Enlighted Building IoT

6

#### Sustain healthy and safe environments

- Monitoring services – 24/7 response to critical alarms
- Remote services – proactive maintenance approach
- Analytic services – leverage analytics and fault detection
- Security + fire alarm central station monitoring services
- Compliance services – automation + fire accreditation programs
- Onsite skilled service – only as needed with safe workspace plans

7

#### Siemens has financing options available



## **Reduce the spread of airborne and surface contaminants with a holistic approach**

# Reduce the spread of airborne and surface contaminants with a holistic approach



## How do we accomplish this?



Reduce bacteria, fungus, and some viruses with fast and safe ultraviolet (UV) technology

Pulsed Xenon Ultraviolet Light  
**Powered by Violet Defense Technology**



Render molecules in contaminants harmless with non-ozone producing ionization technology

Needlepoint Bipolar Ionization  
**Powered by O2 Prime Technology**



Combine technology with HVAC maintenance strategies to help reduce spread of pathogens

Precise System Control + Maintenance  
**Room Pressurization + Compliance Services**

# Pulsed Xenon Full Spectrum UV Solution

## Benefits of UV light

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### Chemical-free

- Eco-friendly
- Kills harmful germs indoors
- Reduces contamination in the air and on surfaces
- Reduces risk of infections

### Rapid + targeted

- Kills rapidly
- Targets DNA and RNA of microbes
- Results in inactivation and failure to reproduce

### Effective

- Kills up to 99.9%\* of harmful pathogens.

### Proven

- Microbial cells cannot develop a resistance to this technology
- Proven over 100 years of industrial use

\*Source: violetdefense.com

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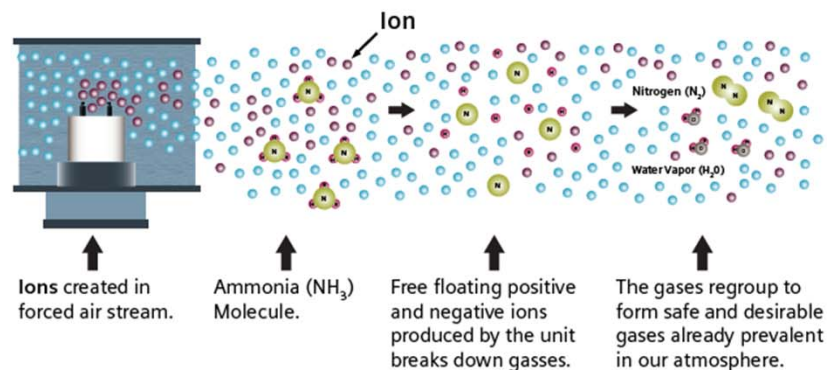
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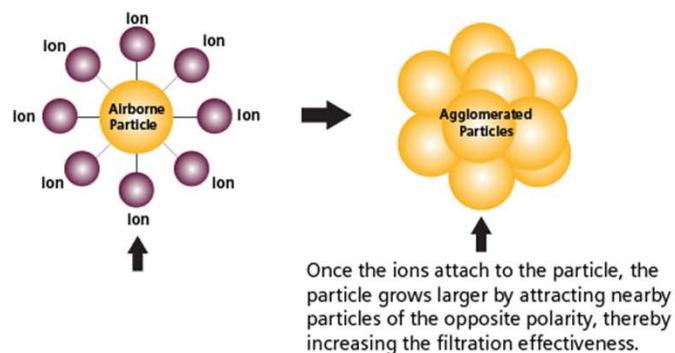
# Needlepoint Bipolar Ionization Technology

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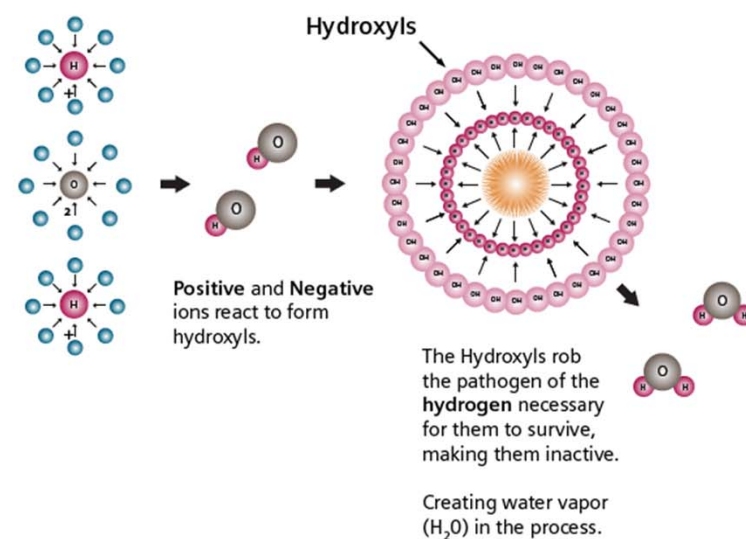
## VOC Effects



## Airborne Particle Effects



## Bacteria and Pathogen Effects



Ozone-Free Needlepoint Bipolar Ionization artificially creates millions of positive and negative ions and releases them into the forced air circulation of an HVAC system travelling into spaces inside building(s).

## Room pressurization



**ASHRAE** Recommendations: All hospitals should evaluate accuracy of space pressure relationships, especially in Airborne Infections Isolation (AII) rooms.

**ASHRAE** Recommendations: Each AII room should have a permanently installed device to continuously monitor differential pressure when patients are present.



## Siemens offers compliance services for a range of accreditation programs

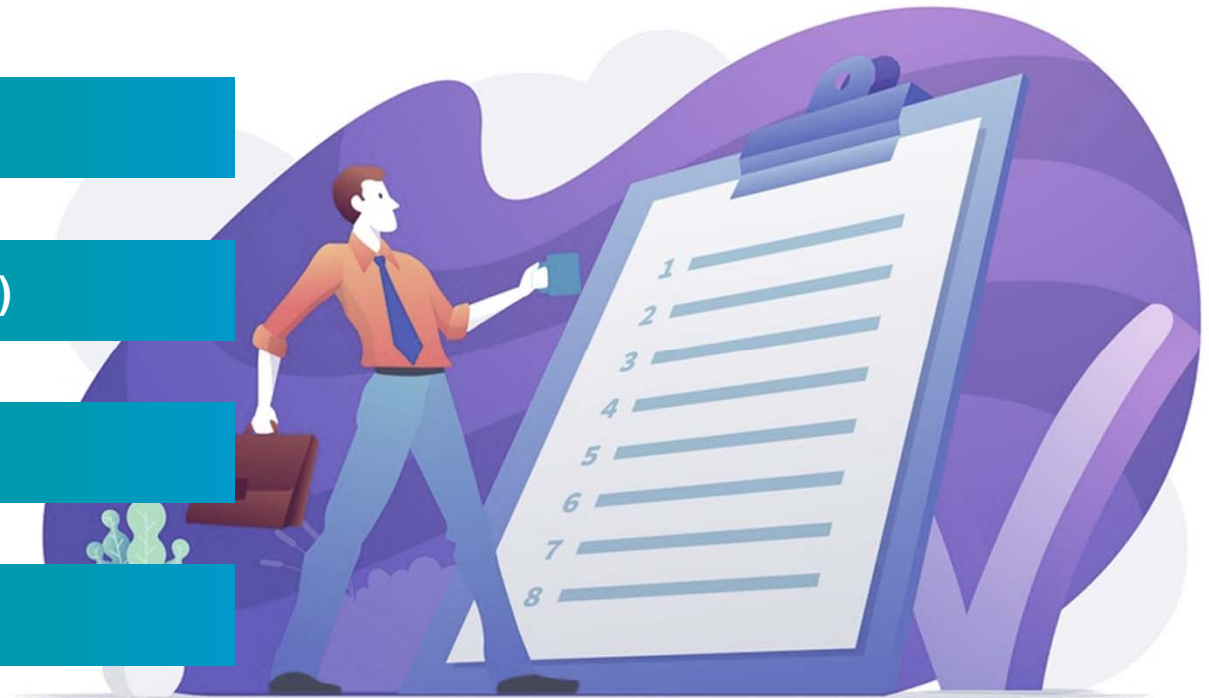
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The Joint Commission (TJC)

Det Norske Veritas Healthcare (DNV)

\* Fire Services

\* Automation Services



## Improve air quality



# Improve air quality



## How do we accomplish this?



Upgrade the level of filtration

Advanced Filtration Strategy  
**Mechanical Services**



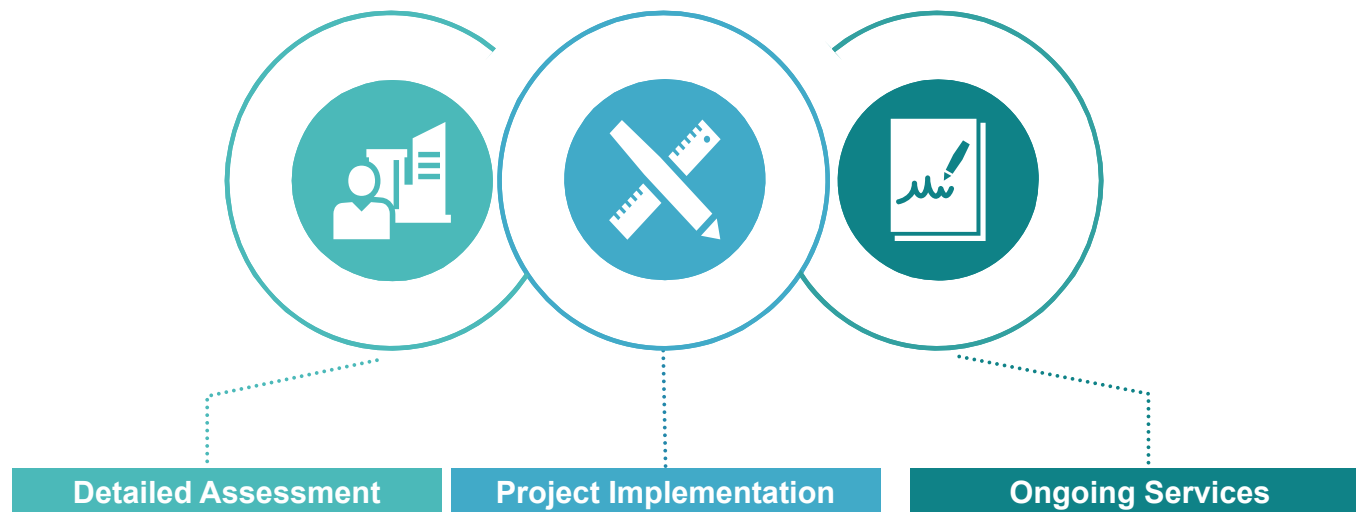
Combine technology with HVAC maintenance strategies to help reduce spread of pathogens

Precise System Control + Maintenance  
**Siemens Air IQ Program**

## Air IQ Program

A holistic approach to improving the indoor environment

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## Manage energy performance

# Manage energy performance



## How do we accomplish this?



Increase outdoor air without overtaxing cooling plants

**Demand Flow Chilled Water Optimization**



Gain visibility into facility performance

**Energy Dashboards**



Ensure underlying systems are in proper working order

**Digital Service Center**



## Demand Flow Chilled Water Optimization

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### Unlock untapped capacity in chilled water plants

By optimizing temperature and humidity setpoints, plant cooling output can be increased, allowing operations to increase outdoor air ventilation without **overtaxing equipment** or **sacrificing facility conditions**.

## Energy Dashboards

Providing visibility into facility performance



### Energy Dashboards

- Utility usage breakdown
- Time of day analysis
- CO2 emissions

### Demand Flow Dashboards

- Understand energy performance of chilled water plants
- Help predict changes in future costs



## Siemens Digital Service Center

Ensure underlying systems are in working order

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### Remote Diagnostic & Resolution Services

- No need for technician to travel to site in many cases
- If a technician is needed on-site, diagnostics can be completed to better inform of issue and potential parts
- 24x7x365 remote service availability; national capacity and expertise to scale
- Faster resolution of issues resulting in reduced impact to patients, families, clinical teams, and operations staff

### Remote Preventive Maintenance Services

- Server maintenance, online database backup, building management system maintenance
- cRSP (Common Remote Service Platform) verification, BACnet network analysis
- CAP+ analysis, automation health reporting



## Enable social distancing



# Enable social distancing



## How do we accomplish this?



Screen occupants for evidence of elevated skin temperature (EST)

Security Offerings  
**Thermal Imaging Cameras**



Control occupancy in building by counting people coming in and out

Security Offerings  
**Video Analytics** and **Access Control**



Enable contact tracing for individuals who tested positive

**Enlighted Building IoT**



Create a targeted sanitization and surface disinfection strategy

IoT Solutions and Platforms  
**Enlighted Building IoT**



Monitor office occupancy for density and safe distancing

IoT Solutions and Platforms  
**Enlighted Building IoT**

## Security offerings that enable social distancing



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### Thermal Imaging Cameras

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- Detect employee's elevated skin temperature
- Assess symptoms prior to starting work
- Temperature checks should happen before the individual enters the facility\*



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### People Counting

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- **Video Analytics:** apply analytics that enables people counting and supports safe distancing
- **Access Controls:** "Read in/read out" capabilities help manage occupancy



\*Source: [Centers for Disease Control and Prevention](https://www.cdc.gov/media/releases/2020/s0501-covid-19-screening.html)

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# Enlightened Building IoT

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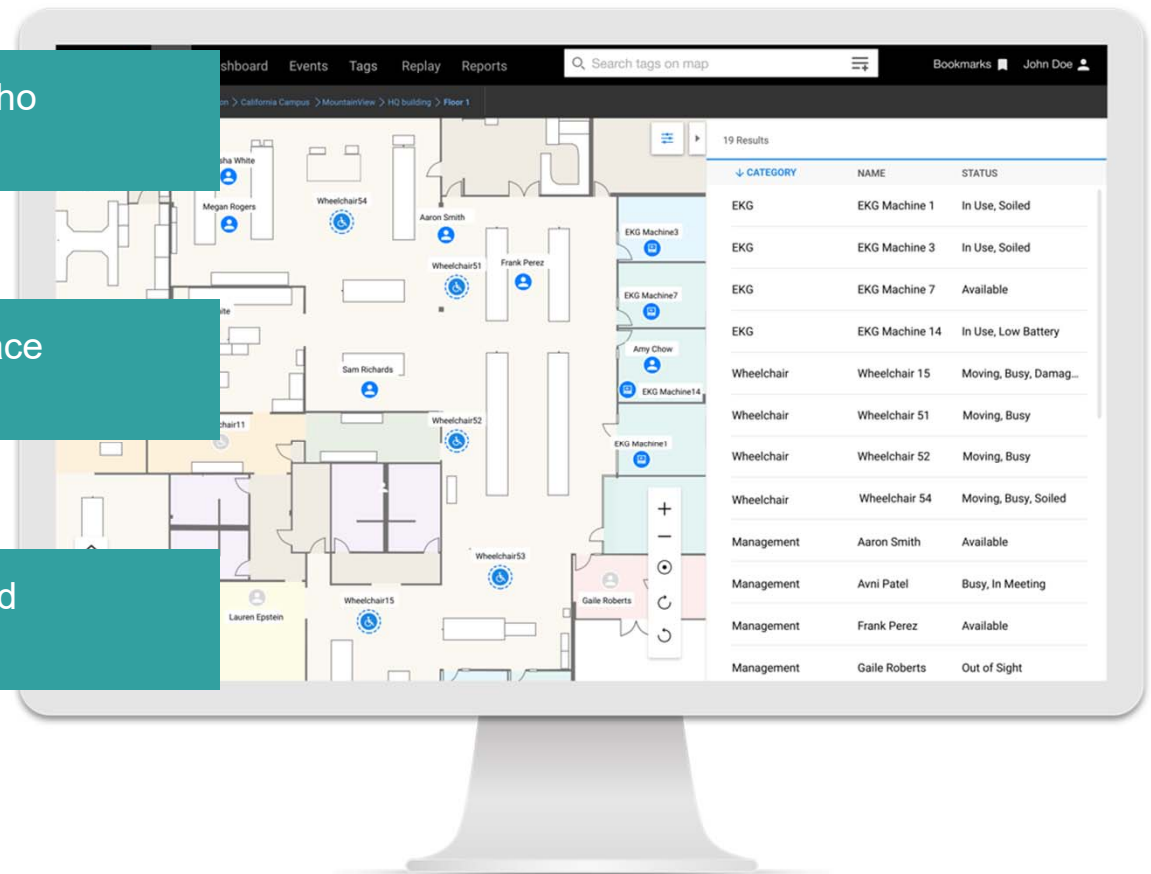
Enable contact tracing for individuals who tested positive



Create a targeted sanitization and surface disinfection strategy



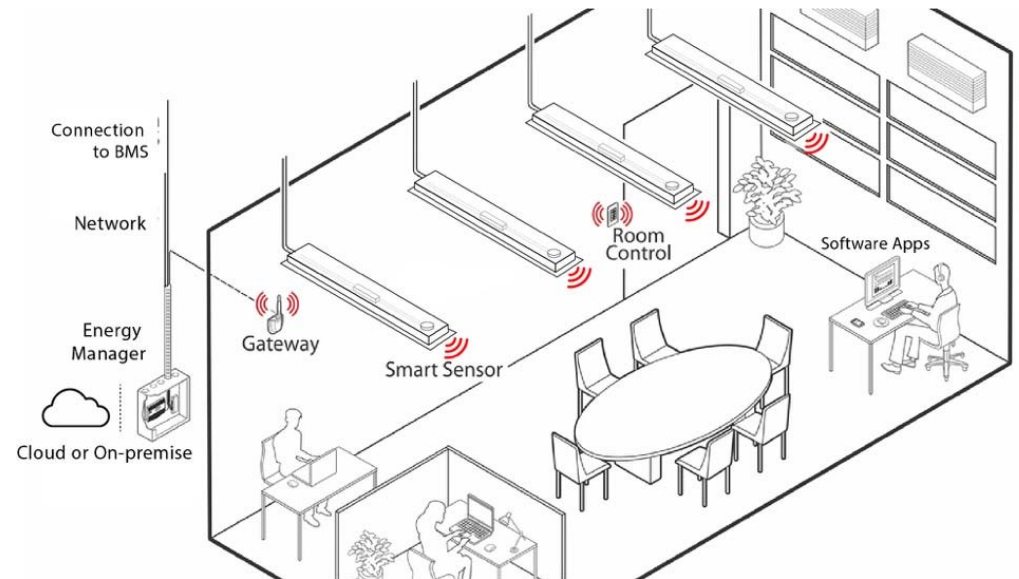
Monitor office occupancy for density and safe distancing



# Enlighted Building IoT

## How it works

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## Provide real-time updates

## Provide real-time updates



### How do we accomplish this?



Enable notifications for critical events

**Designo® Mass Notification System**



Keep employees informed of space utilization, health and wellness updates, and more

**Enlighted Building IoT**



# Use Case Examples

## Desigo® Mass Notification System

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Code red / blue / orange / silver

Nurse attack

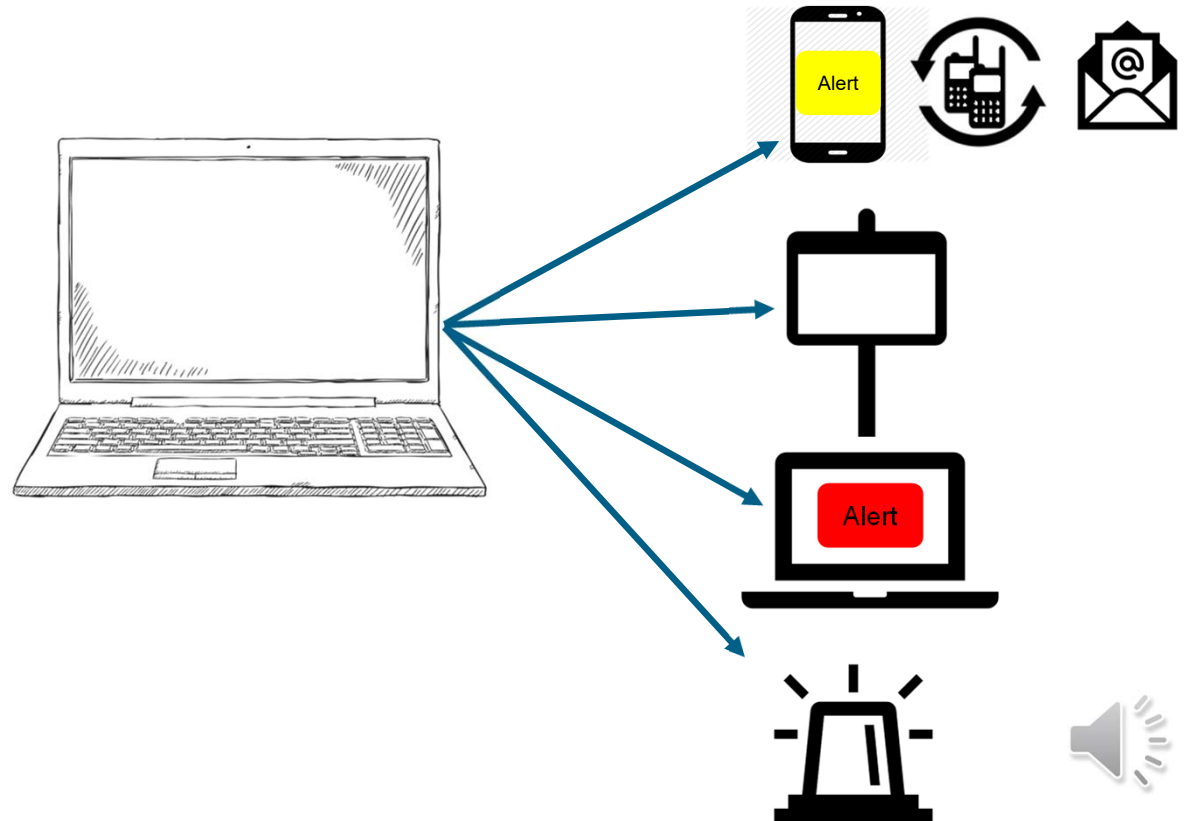
Active shooter

Severe weather

Gas leak

Health and safety

Local alerts



## Sustain healthy and safe environments

# Sustain healthy and safe environments



## How do we accomplish this?



Utilize 24/7 monitoring, remote response and resolution, and maintenance to help onsite teams

**Digital Services**  
**Remote and Monitoring Services**  
**System Performance Monitoring**  
**Electrical Services**



Leverage advanced analytics and fault detection to identify issues early and service equipment based on need

**Siemens Analytic Services**



Utilize onsite service as needed with skilled technicians and safe workspace planning

**Local Onsite Service**



## Siemens Electrical Services

Improve reliability of your power supply

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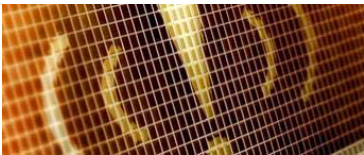
### A reliable power system

...is critical for any healthcare facility's success. From planning and design through construction, installation, and commissioning, Siemens can provide complete lifecycle support for all your **electrical service** needs.

## System Performance Monitoring

Help reduce time to resolution, reduce staff workload, and improve uptime

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**Critical points and alarms** in the Insight or Desigo CC database to analyze if services and applications are running in their defined states



**Server health** and operating systems are monitored to verify that hardware components have sufficient resources



**Applications monitoring** of Insight and Desigo CC services, cRSP, peripherals, field panels, and terminal controllers



**Network hardware** monitoring will cover the routers, switches, network drives, and printers that support intelligent infrastructure

## Defer capital budgets through financing options

**Contact your  
finance partner**

A low-angle, upward-looking shot of a modern glass and steel staircase. Several people in medical scrubs are visible on different levels of the stairs, looking upwards. The architecture features large glass panels and metal railings, creating a sense of height and openness. The lighting is bright, and the overall color palette is dominated by the teal of the scrubs and the clear glass.

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**Thank you**

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