



SIEMENS
Ingenuity for life

Continue with Confidence in Healthcare Facilities

© Siemens Industry Inc., Smart Infrastructure 2020

usa.siemens.com/buildinghealthcare

Unrestricted

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

SIEMENS
Ingenuity for life

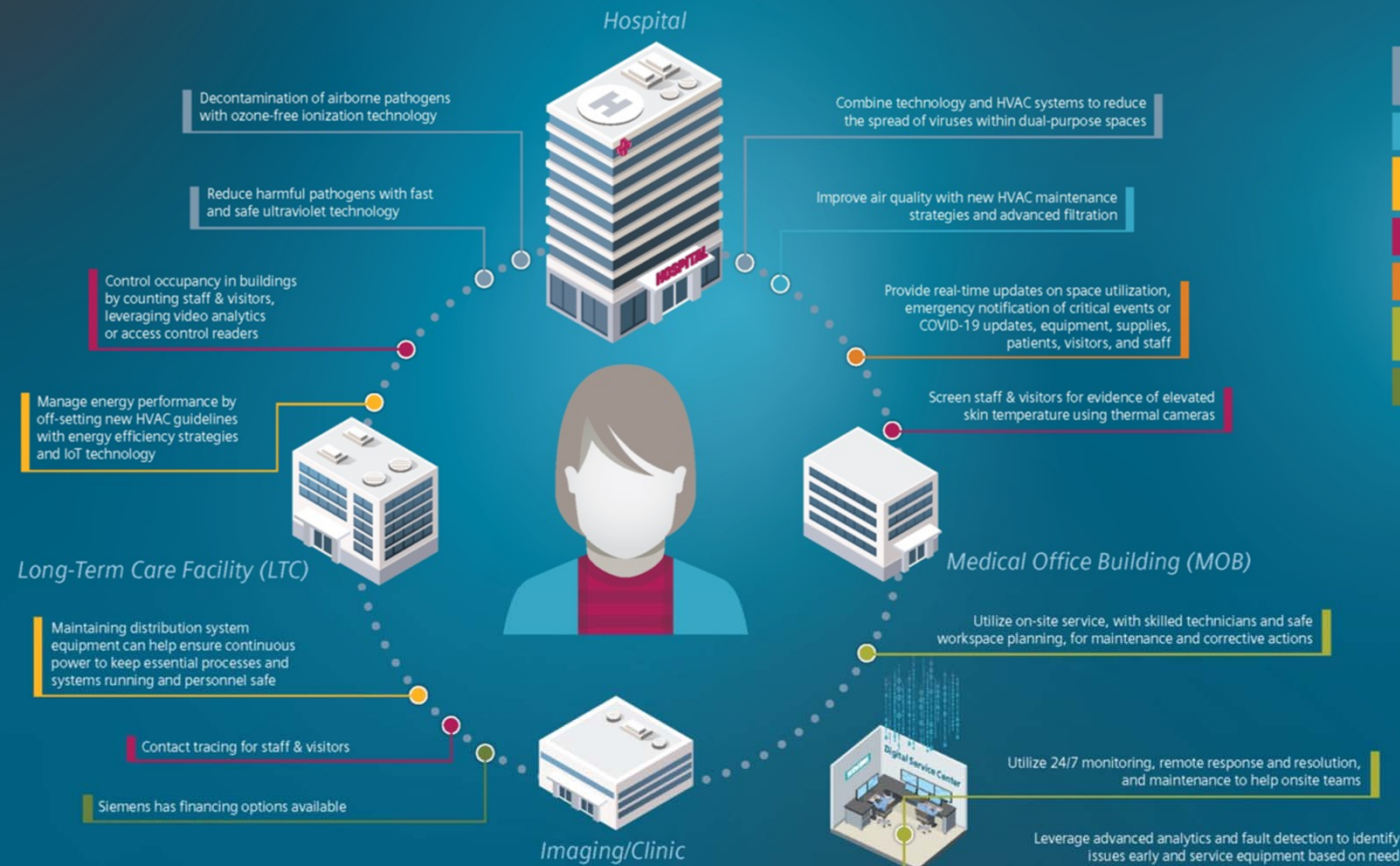
- Space flexibility
- Labor shortages
- Labor productivity
- Revenue shortfall & uncertainty
- Reduced cash flow & liquidity
- Patient confidence
- Compliance services
- Ramp up elective procedures
- Increase patient volume
- Cybersecurity
- Telehealth
- Increased borrowing costs
- Reassess real estate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

usa.siemens.com/buildinghealthcare

© Siemens Industry, Inc., Smart Infrastructure 2020

At a glance

Seven areas of focus

SIEMENS
Ingenuity for life

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

SIEMENS
Ingenuity for life



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

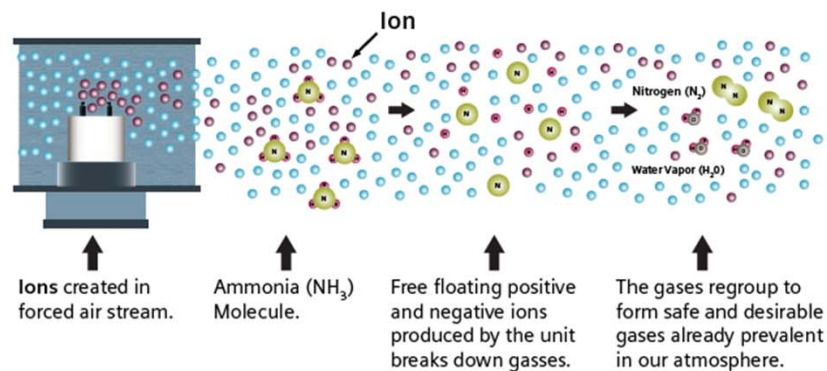
© Siemens Industry Inc., Smart Infrastructure 2020

Smart Infrastructure

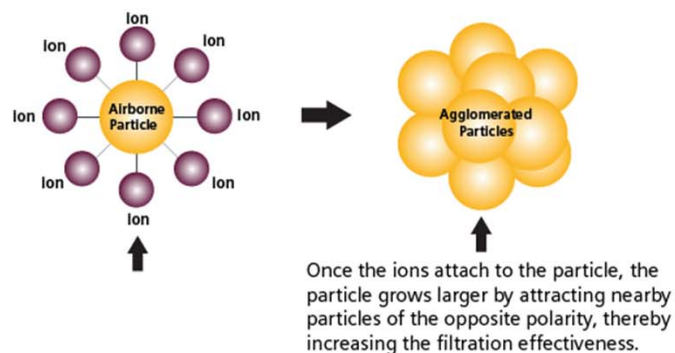
Needlepoint Bipolar Ionization Technology

SIEMENS
Ingenuity for life

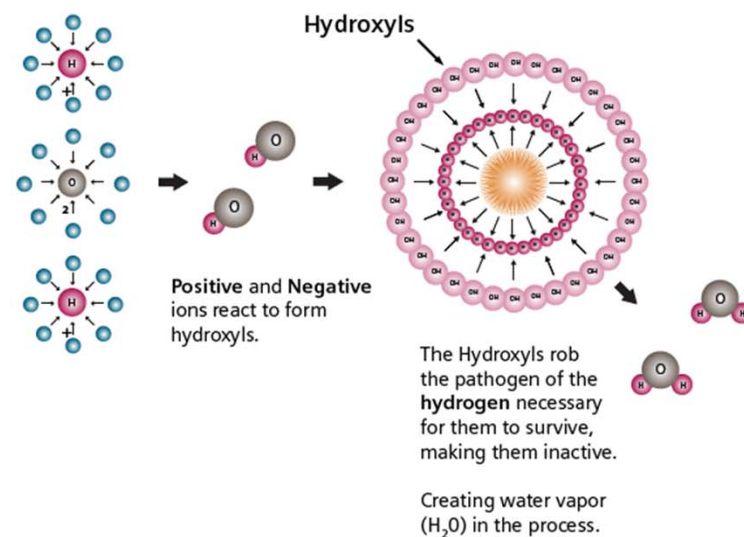
VOC Effects



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

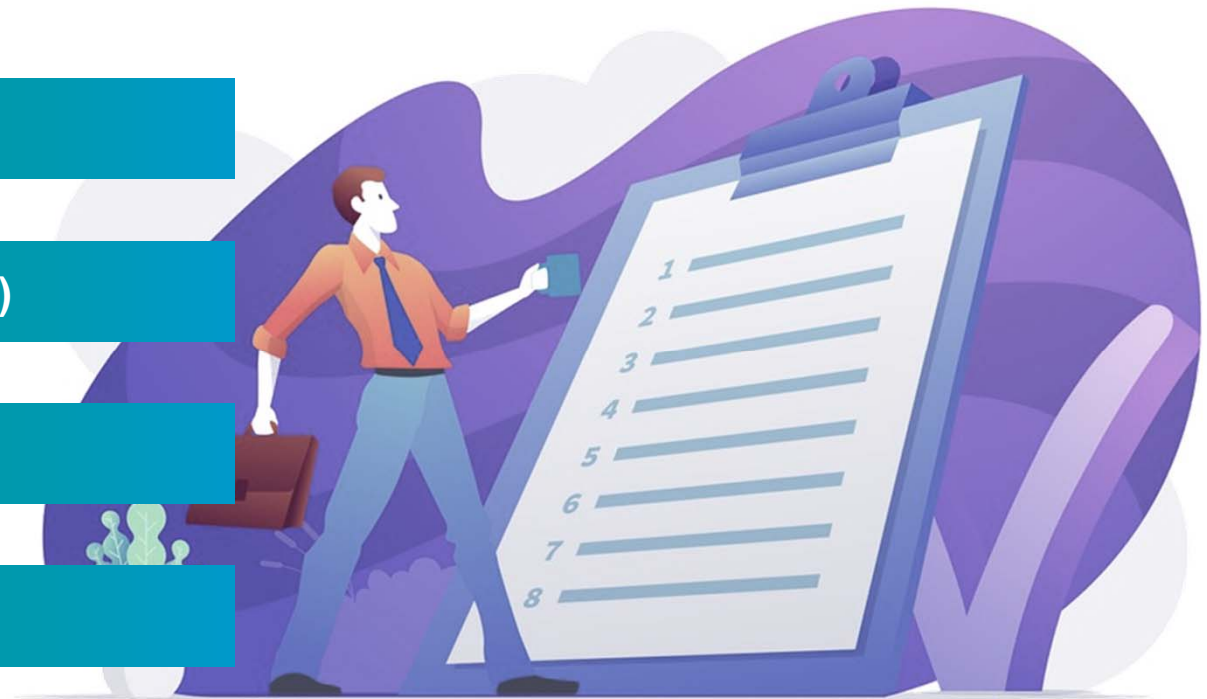
SIEMENS
Ingenuity for life

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



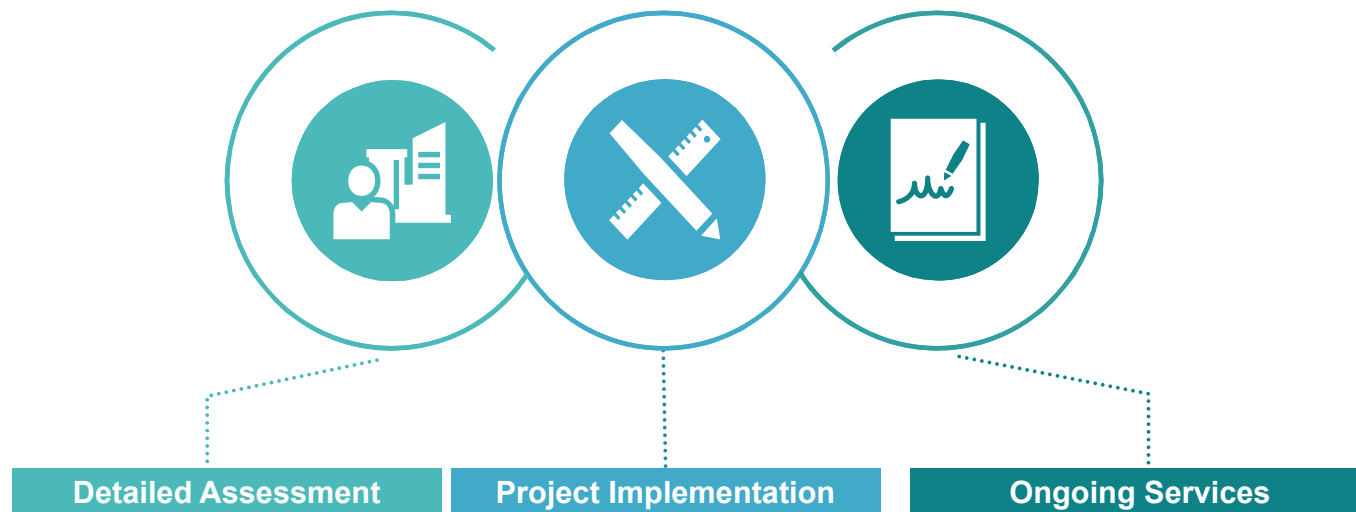
Combine technology with HVAC maintenance strategies to help reduce spread of pathogens

Precise System Control + Maintenance
Siemens Air IQ Program

Air IQ Program

A holistic approach to improving the indoor environment

SIEMENS
Ingenuity for life



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

SIEMENS
Ingenuity for life



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

SIEMENS
Ingenuity for life

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



Thermal Imaging Cameras

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



People Counting

- **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/s0508-covid-19-screening.html)

© Siemens Industry Inc., Smart Infrastructure 2020

Smart Infrastructure

Enlightened Building IoT

SIEMENS
Ingenuity for life



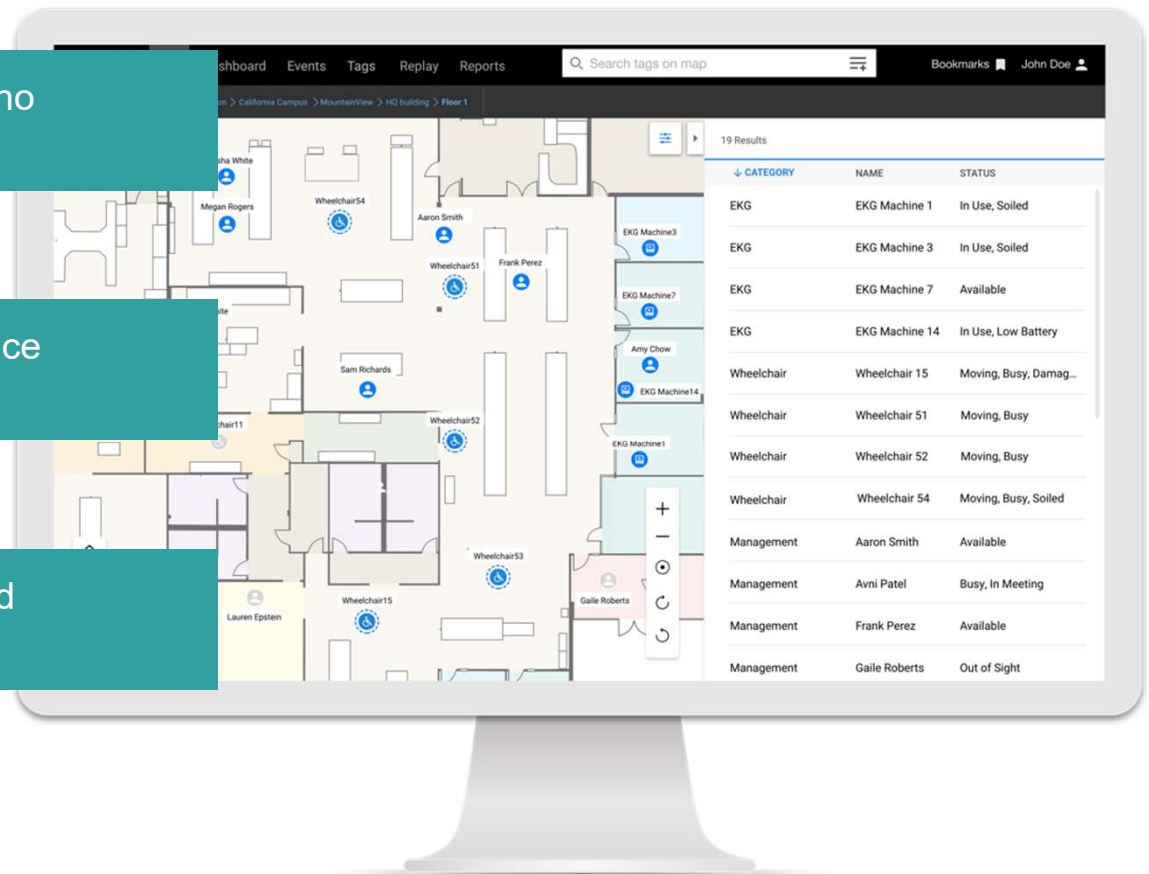
Enable contact tracing for individuals who tested positive



Create a targeted sanitization and surface disinfection strategy



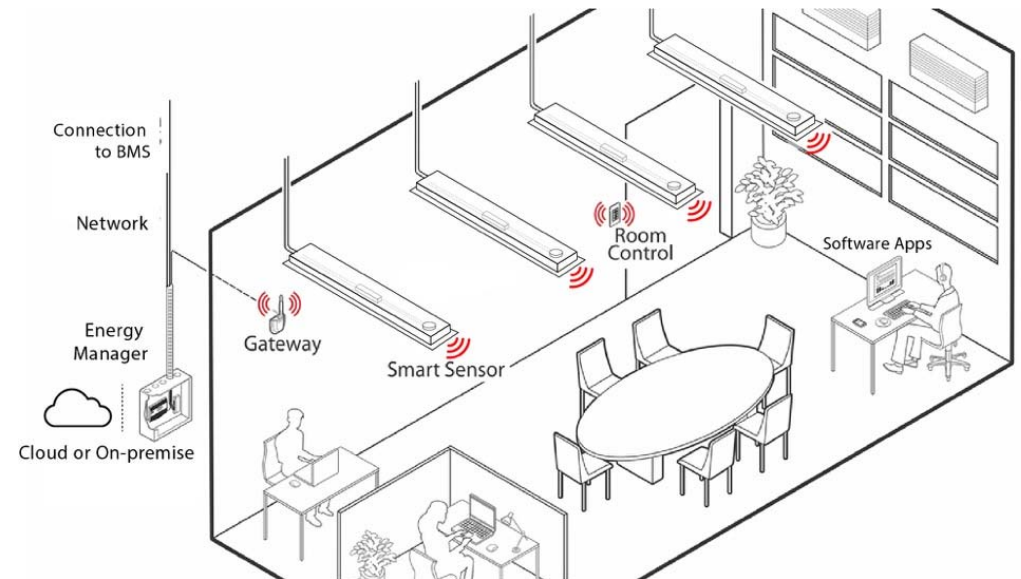
Monitor office occupancy for density and safe distancing



Enlighted Building IoT

How it works

SIEMENS
Ingenuity for life



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

SIEMENS
Ingenuity for life

Code red / blue / orange / silver

Nurse attack

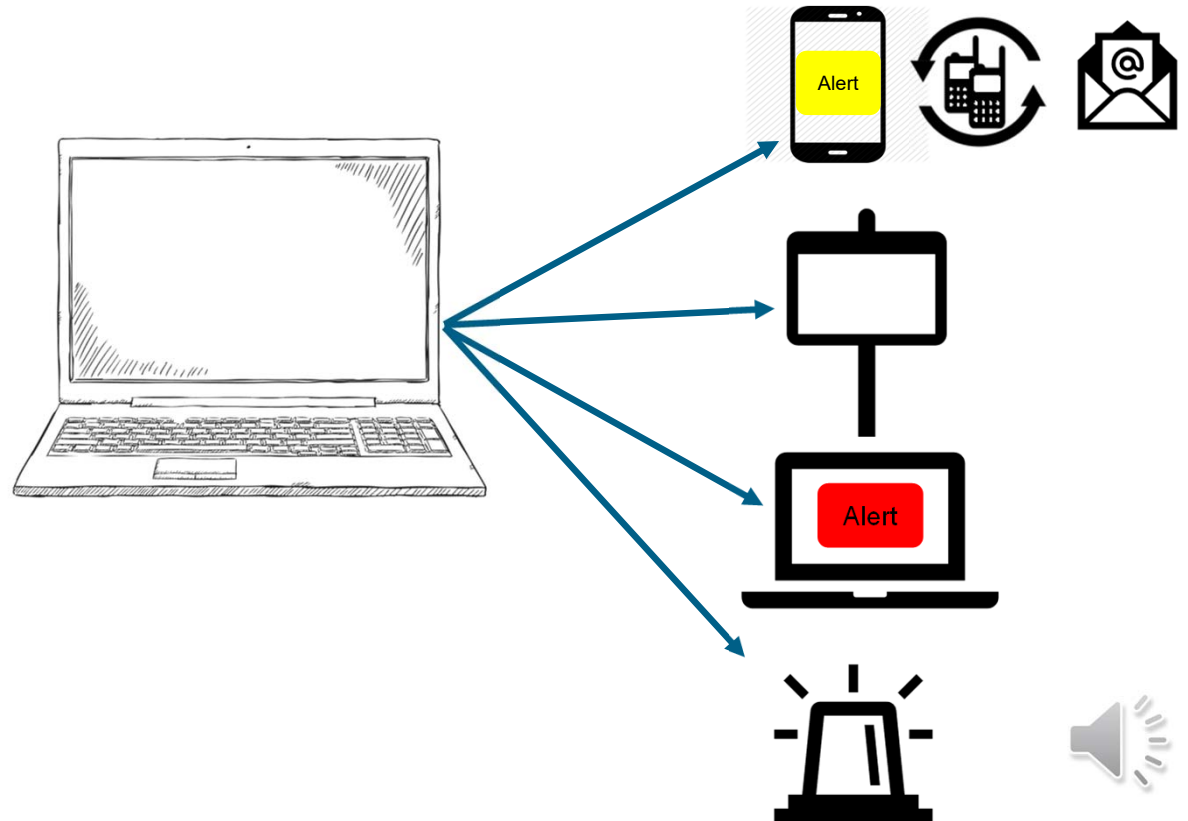
Active shooter

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

SIEMENS
Ingenuity for life

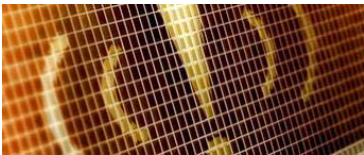
A reliable power system

...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

SIEMENS
Ingenuity for life



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**



SIEMENS
Ingenuity for life

Thank you

© Siemens Industry Inc., Smart Infrastructure 2020

usa.siemens.com