

The background of the advertisement features a city skyline at sunset, with several prominent skyscrapers. A glowing blue digital network of lines and dots is overlaid on the right side of the image, suggesting smart technology and connectivity. The Siemens logo is positioned in the top left corner.

**SIEMENS**

**BUILDING AUTOMATION SOLUTIONS**

# **Making Smart Buildings Real**

[usa.siemens.com/bas](http://usa.siemens.com/bas)

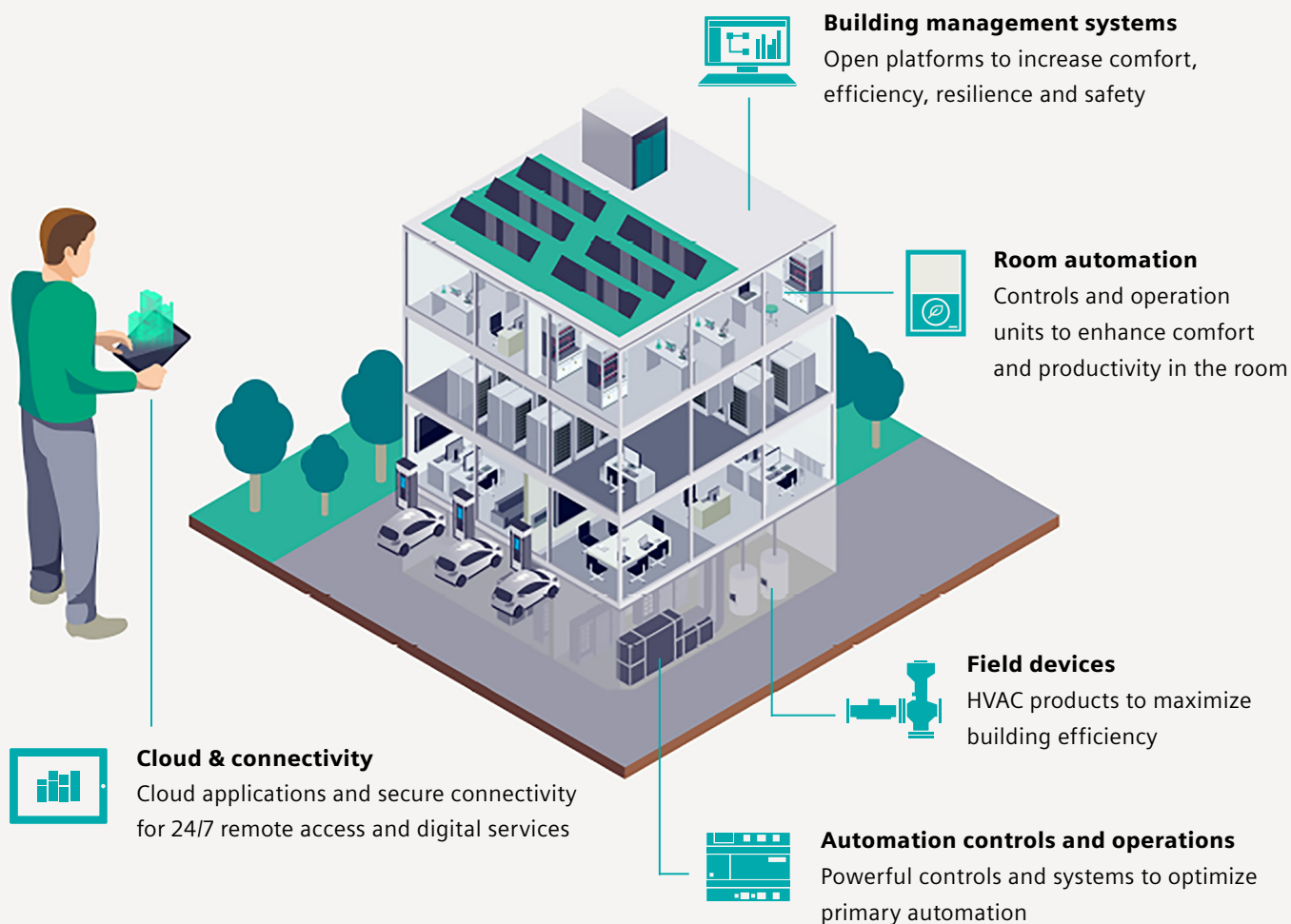


# Solutions to deliver smart, adaptable buildings

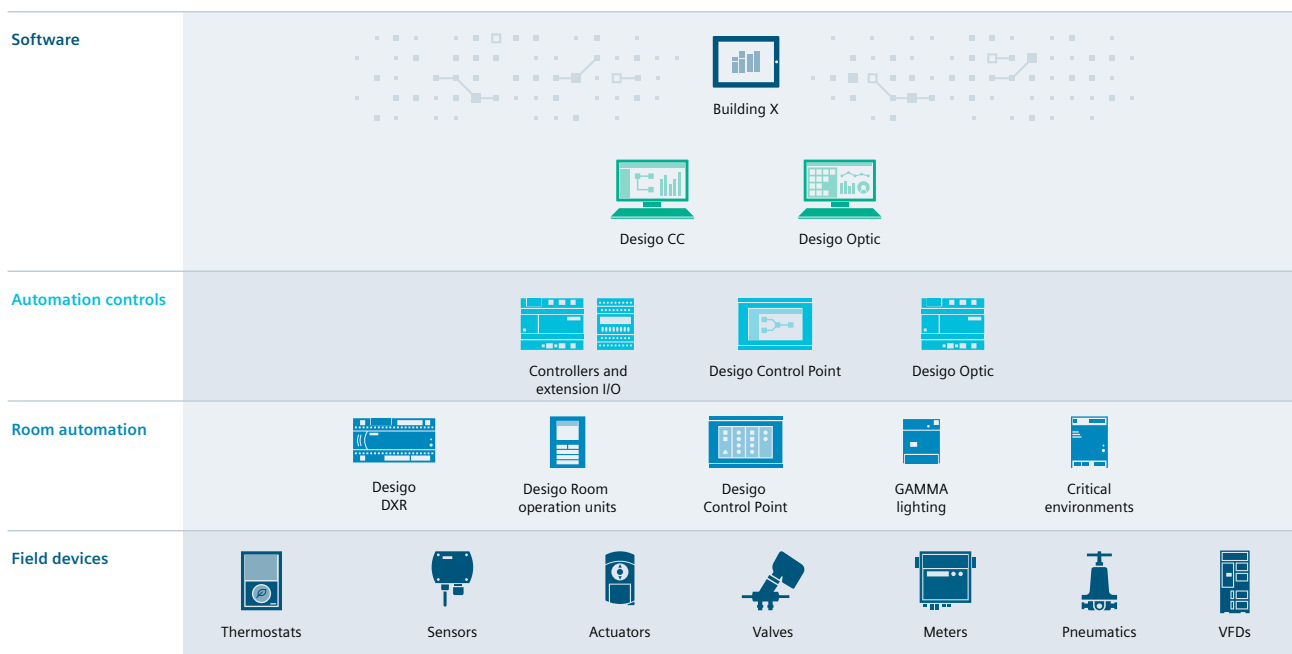
Buildings face a wide range of demands and Siemens offers fully-integrated solutions to help achieve your building's desired performance. Siemens building automation can be tailored any way needed to connect HVAC, lighting, shades, safety, security, fire systems and more for any building type from school campuses and hospitals to hotels, airports, museums, commercial buildings, manufacturing plants, etc.

Realize unmatched configuration flexibility with a variety of user interfaces, network managers, controllers and field devices. The open architecture puts you in command of all systems and equipment, remotely or onsite, for the access to achieve optimum building efficiency.

Energy efficiency, productivity and well-being...Siemens supports what buildings require today and in the future.



Explore a complete suite of building automation software and controls, room automation and field devices to perfectly tailor a solution to any building's needs.



Rely on Siemens for innovative, open solutions that operate with BACnet, Haystack, Modbus and other communication protocols for easy system integration and future upgrades.

#### Centralize and streamline control of HVAC equipment.

- Chillers
- Air Handling Units (AHUs)
- Fan Coil Units (FCUs)
- Variable Air Volume Boxes (VAVs)
- Boilers
- Rooftop Units (RTUs)
- Heat Pump Units (HPUs)

# Connect, monitor and operate facilities **with ease**

Digitalization is driving buildings to become more and more connected with an increasing need to have all building data easily in sight. Ensure comfortable, safe, secure and efficient facilities with building management software solutions to meet any need.

Unlock the power of data with Building X cloud-based artificial intelligence.

Optimize smart building systems on a platform that enables digital services to protect people and assets, monitor energy consumption and costs, and improve remote building operations.

The Building X open platform provides a suite of artificial intelligence (AI)-enabled applications and vendor-agnostic connectivity. Building owners and managers can connect real estate assets in the cloud to form a silo-free environment. It accelerates the sustainability and performance of these smart and networked properties and enhances the experience of the people who work in and for them.

## Applications

- **Energy Manager** – monitors, analyzes and predicts energy efficiency KPIs, associated CO<sub>2</sub> emissions and related expenses in near real time.
- **Security Manager** – monitor and manage physical access to buildings, tracks utilization, security alarms, incidents and expenses in one place.
- **Operations Manager** – monitor and control HVAC equipment to the data point remotely, 24/7.
- **360° Viewer** – explore photo-realistic virtual representations of connected buildings. Explore locations in 3D to plan maintenance and conduct tours and building health checks.

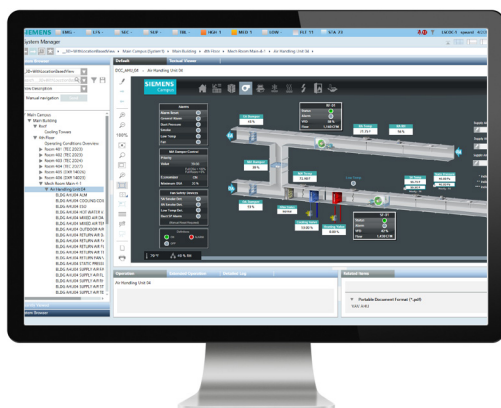


## Maximize building performance with Desigo CC building management software platform.

Desigo CC unifies your entire building management operations into a single platform for optimized performance and enhanced insights. It integrates multi-discipline systems and devices, provides market specific solutions, automates processes and is scalable and flexible to meet the requirements of any building or project size.

Integrate HVAC, fire, lighting, power management, security, video and third-party systems and applications – all accessed through a single interface.

- Supports BACnet, BACnet/SC, OPC, Modbus, KNX and SNMP
- Flexible user interface that supports multi-discipline users
- Manage power generation, storage, distribution and consumption
- Integrate a variety of systems such as escalators, elevators and electrical vehicle charging stations and monitor with confidence
- Application ecosystem harnesses the power of IoT to easily connect smart devices
- IEC62443-3-3 SL2 compliant



## Simplify and streamline building management workflows with Desigo Optic software.

Desigo Optic is an open, easy-to-use building management software that visualizes real-time building operations data through a single pane of glass integrating HVAC, energy efficiency, and lighting. Desigo Optic is powered by FIN Framework, and redefines openness to make your building data work better with a holistic view of your portfolio's critical assets.

Designed for flexibility and scalability, you can deploy Desigo Optic two ways – as a software, or as a software-embedded supervisory controller – to meet your building's unique automation needs.

- Quick, easy access to building data with native Haystack tagging
- 33% faster implementation with streamlined engineering workflow and reduced complexity
- Supports BACnet, Modbus, KNX, SNMP, OPC
- Seamlessly integrates with Niagara
- Best-in-class user interface with market-leading dashboard builder and reporting tools
- Extensive 3-D graphics library
- Access to secure, encrypted data from anytime, anywhere with Edge2Cloud
- IEC62443 and SAL2 compliance



# Enable high performing buildings

We've carefully constructed our building automation systems and service provider network to serve a broad array of customers, from small to large, to deliver what is needed – the way it is needed.

**APOGEE building automation** for interoperability and adaptability at every level. Designed for long-term lifecycle management, APOGEE systems help you continually improve performance, expand functionality and adapt to the future while protecting past investments and your bottom line. APOGEE is exclusively configured and maintained by Siemens regional and independent field offices.

**Desigo Automation controllers** deliver intuitive engineering and labor savings. Designed to integrate with a full range of open building automation platforms, including Desigo Optic's FIN Framework, the Desigo PXC family of controllers delivers increased data processing power and memory to quickly transform buildings into IoT-enabled high-performing buildings.



**Transform building operations with solutions to address the toughest challenges.**



## **Flexible solutions**

Expand and adapt your system to meet your building's unique automation needs – now and in the future.



## **Advanced cybersecurity**

The latest PXC series controllers are BACnet Secure Connect compliant to harden buildings to the highest security standard with an encrypted and authenticated datalink.



## **Powerful data processing**

The upgraded hardware platform delivers faster processing power for increased efficiency and real-time responsiveness.



### Achieve your building performance goals

Achieve CO<sub>2</sub> reduction targets and minimize equipment downtime risks with a system that will adapt to the building. Regardless of the size, age, or existing installation, Siemens building automation delivers value to any system. Explore the latest range of primary controllers to achieve high-performing building automation.



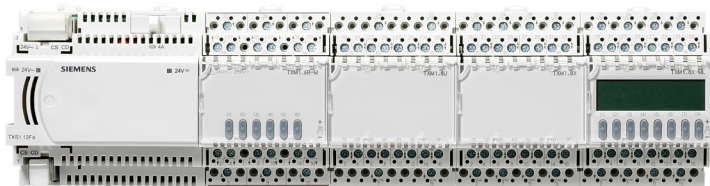
Designed for your largest, most sophisticated applications. Freely programmable, modular controller that provides maximum scalability, integration and reliable building operation.



Freely-programmable for HVAC and building services is perfectly matched for small to medium size plants.

### More power and communication

Add modules for power and communication including TX-I/O point modules, power supply, bus connection, expansion and interface modules.



- High flexibility through distributed I/O's
- I/O module range for measuring, reporting, switching, setting and metering
- Support for all HVAC-typical signals
- Compact DIN design
- Modules with and without manual override
- LCD status display for quick troubleshooting

# Safeguard smart building systems

Smart buildings are under increasing threat of cyberattacks from bad actors who exploit any vulnerability in a building's automation system to gain access. Building designers, owners, and operators can mitigate the risk of cyberattacks by leveraging advanced Operational Technology (OT)-specific protocols like BACnet Secure Connect.

BACnet Secure Connect (BACnet/SC) safeguards communication between building systems and devices in an IT-friendly manner. It applies the same technology to secure and encrypt communication between devices used on the internet for online banking connections and other critical applications, providing a cost-effective solution for standalone and networked facilities alike.



## What is BACnet/SC?

- It is still **BACnet** – a new BACnet datalink (like BACnet MS/TP or BACnet/IP)
- Traffic **encryption** to prevent communication against tampering
- Device **authentication** mechanism to restrict access to a project
- An **IT-friendly** way to do secure building automation communication
- Uses the same **device instance** number and **object instance** numbers for BACnet device/object identification



## BACnet Secure Connect brings security and IT acceptance to OT systems

BACnet/SC is essentially a secure and IT-friendly alternative to BACnet/IP. It uses the same physical layer – Ethernet cable. BACnet/SC adds an encryption layer to communication and requires device authentication using certificates, which makes OT networks less vulnerable to cyberattacks.

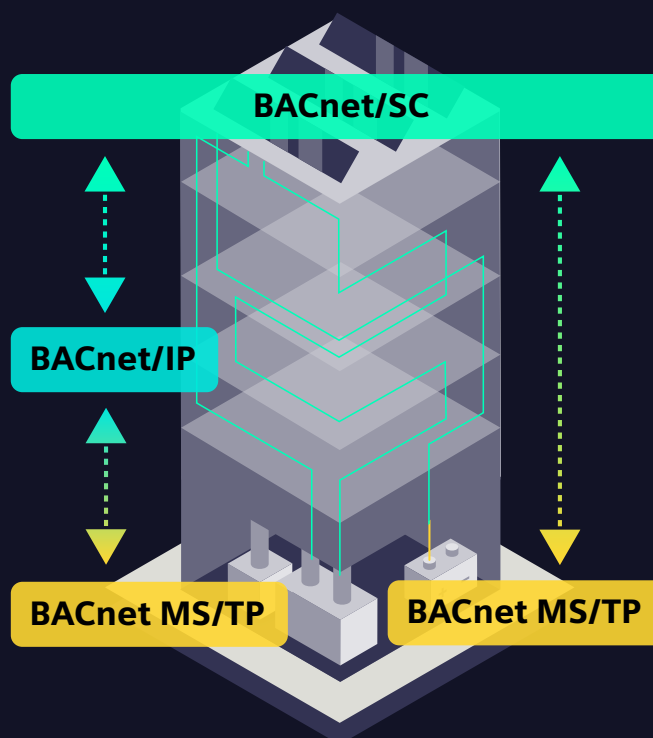
It uses standard technologies such as WebSocket protocol over HTTPS which IT professionals are comfortable with and can trust. It no longer uses the UDP protocol which has been replaced by TCP. It works easily with IP firewalls and network address translation (NAT), and there are no more heavy broadcasts on the network.

Introducing BACnet/SC into an existing BACnet system begins by logically partitioning the building and structuring the project into individual BACnet logical networks of different data link types. Integration can then start with a small BACnet/SC logical network "island" which connects to BACnet/IP and BACnet MS/TP networks using BACnet routers. There should be a plan in place to upgrade the remaining unsecure networks as the devices on those networks become obsolete and replacement products become available.

Investing in BACnet/SC upgrades, not only is an investment in cybersecurity and peace of mind, but it also enables building automation systems to be better prepared for future requirements as new innovations in smart buildings technology become available.

### Use BACnet/SC in new construction or for upgrades.

BACnet/SC can be leveraged in both new construction and existing buildings. It is backward compatible to existing BACnet systems using a BACnet router to implement a more secure system.



# Experience the ultimate comfort for any room

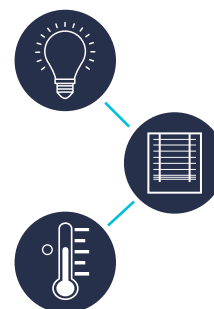
Discover a single system for controlling HVAC, lights and shades to maximize performance and energy savings throughout the life of a building.



Instead of separate systems for HVAC, lighting and shade control, each with its own network infrastructure, Siemens provides a controller for all three functions in one cost-effective solution. The BACnet-enabled, Desigo DXR automation controllers provide high-performance direct digital control over standalone or networked units to perform complex HVAC control, room monitoring and energy management functions at floor, zone or room levels.

And when combined with Desigo Control Point touch panels, they are even more effective. Whenever a room's conditions deviate from the optimal pre-set state, a green leaf icon on the room's display changes to red. The icon is a visual indicator that a room is not in an energy-efficient mode. Room occupants can easily return their room to an energy-efficient level by simply tapping the red leaf icon.

- Lower investment and installation costs
- Reduced long-term operating costs
- Improved room energy efficiency
- Greater occupant experience and comfort



## Adjust room settings and building floor plans quickly and easily.

### Desigo DXR Controllers

Combines room HVAC, lighting and/or shade control systems into one, seamless package. Includes a variety of standard preloaded HVAC applications: variable air volume, constant volume, fan powered boxes, fan coil, unit vent, chilled beam and heat pumps. BTL certified as BACnet Application Specific Controller and communicates using BACnet IP or BACnet MS/TP protocol.

Actuating controller delivers pressure-independent or pressure-dependent control and supports chilled-beam and under-the-floor air distribution applications.

- Dual Ethernet ports for cost optimized BACnet IP daisy chain installations
- Multiple and flexible operational modes (pre-comfort, comfort, economy and protection)
- Applications compliant with latest ASHRAE energy standards and codes
- Title 24 compliant



### Desigo Control Point

Simplifies operation and monitoring of heating, ventilation, air conditioning, lighting and shading in small-to-medium sized buildings. Access plants via touch panels, or from any PC or mobile device – wherever you are. Whether it is for maximizing room comfort, monitoring and operating a primary plant or displaying building data, Desigo Control Point is designed to make all tasks easy.

- Plug & Play features provide ability to view and command points, manage alarms, operate schedules and calendars, create and view trends
- Built-in graphics editor with graphics and dashboard building capabilities
- Monitor important building metrics with no additional software or licensing
- Remote access via touch panels or from any PC or mobile device – wherever you are
- Built on the latest technology including HTML5, Haystack and BACnet





# The right devices matter **for complete building efficiency and comfort**

All field devices fulfill the highest quality standards, meeting most stringent energy efficiency requirements. Easy handling and long lifecycles are among the essential design criteria. Open communication standards including KNX, Modbus and BACnet allow seamless integration into any building automation and control system.

## Thermostats

Select from a wide range of communicating and non-communicating thermostats designed to fit your needs



## Sensors

Accurately measure the required environmental variables to help ensure a healthy and productive indoor climate



## Lighting

Easily manage all aspects of a facility's lighting from a single place



## Electronic Damper Actuators

More torque, greater energy efficiency and long-lasting reliability gives you an ideal solution for all your HVAC equipment needs



## Valves & Valve Actuators

A versatile range of valves and actuators designed for ease of use, superior control accuracy and energy efficiency



## Variable Frequency Drives

Achieve up to 50% energy savings controlling HVAC fans and pumps



# Reduce building emissions to accelerate decarbonization

Buildings are responsible for about 36% of global energy consumption and almost 40% of global greenhouse gas emissions over their lifecycle. Decarbonization is a journey. One of the levers to successful decarbonization includes energy efficiency in both existing buildings and new construction. Even small improvements in building operations and energy consumption make a difference.

Digitalization could reduce building energy demand by up to 10%.

With systematic approaches adapted to a building's lifecycle supported by reliable HVAC devices, automation controls and software solutions, you can turn your building into a green machine that is energy efficient without compromising on comfort or occupant satisfaction.

Report: [International Energy Agency, 2019](#)



**Siemens Industry, Inc.**

Smart Infrastructure  
1000 Deerfield Parkway  
Buffalo Grove, IL 60089  
Tel: (847) 215-1000

**Siemens Canada Limited Headquarters**

1577 North Service Road  
East Oakville, ON L6H 0H6 Canada  
Tel: (905) 465-8000

All rights reserved  
Printed in USA  
©2022 Siemens Industry, Inc.  
Part # 1153-SBT-1406

Information in this publication is based on current specifications. The company reserves the right to make changes in specifications and models as design improvements are introduced.

**Providing you a choice to best achieve your building performance goals.**

Our network of Siemens independent field offices and partners are standing by to help you leverage best-in-class building management solutions to address your toughest business challenges. The companies we choose in our partner network bring additional experience in many different technologies and markets.

Our certified solution partners are experts in Siemens smart infrastructure solutions for buildings in all industries. They help create tailored, future-proof solutions and offer expert services for projects of all sizes and complexity levels.