Answers for infrastructure.

- Mega trends driving the future
  The megatrends – demographic change, urbanization, climate change, and globalization – are shaping the world today. These have an unprecedented impact on our lives and on vital sectors of our economy.

- Innovative technologies to answer the associated toughest questions
  Throughout a 100-year history of proven research and engineering talent, with more than 50,000 active patents, Siemens has continuously provided its customers with innovations in the areas of healthcare, energy, industry, and infrastructure – globally and locally.

- Increase productivity and efficiency through complete building life cycle management
  Building Technologies offers intelligent integrated solutions for industry, commercial and residential buildings, and public infrastructure. Over the entire facility's life cycle, our comprehensive and environmentally conscious portfolio of products, systems, solutions, and services for low-voltage power distribution and electrical installation technology, building automation, fire safety and security ensures:
  - optimum comfort and highest energy efficiency in buildings;
  - safety and security for people, processes, and assets;
  - increased business productivity.

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of placing the contract.

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www.siemens.com/hvac
The choice for more efficiency and comfort

- Complete HVAC building technology from a single source
Siemens offers a comprehensive range of HVAC systems and products for every area of use and for every technical application.

The components are optimally matched so you profit not only from a reduction in installation and operating costs, but from a high level of security against failure as well.

- Intelligent comfort – whether room climate or operation
Room comfort is vital to your sense of well-being. HVAC building technology optimally matches all required factors to the outside climate and your sphere of comfort.

Operation of the components is as easy as it is convenient. You can set the climate that is most comfortable for you – quickly, intuitively, without error.

- Innovation and investment protection in every phase of the life cycle
Siemens continually evaluates comfort and energy efficiency of buildings through technical innovations in the area of HVAC.

Any further development of the products is also aimed at protecting your investment – by providing simple, gradual modernization options for the installed base in every phase of the life cycle.

- Many years of experience and high quality standards
Siemens has been a driving force behind the development of HVAC control technology for more than 60 years. The company has also accumulated more than 60 years of experience with HVAC systems, resulting in comprehensive applications knowledge. This knowledge, and a rigorous quality management, allow Siemens to offer you HVAC systems and products featuring the highest standards of quality, efficiency, and reliability.

HVAC building technology – energy savings and assured comfort from experienced partners

HVAC systems and products from Siemens can effectively reduce your operating costs thanks to their extremely efficient use of energy. This means you can achieve significant financial savings, while still maintaining a comfortable room climate.

These high standards of efficiency and quality are based on Siemens’ decades-long HVAC application expertise, combined with regularly trained and highly knowledgeable certified Siemens Solution Partners. With Siemens as partner, they will support you and offer you the solution best tailored to your needs.

Highlights

- High energy and cost savings
- Reduction of CO₂ emissions
- Consistent, end-to-end operational reliability, guaranteed from a single source
- Intelligent comfort for the optimum room climate, thanks to intuitive operation
- Investment protection through gradual modernization in every phase of the building life cycle
Customize your green building solution

Customized green building solutions from Siemens Solution Partners create the right equation to meet all of your building priorities during the whole life cycle.

- **Balance building priorities**
  - It can be difficult to balance traditional needs for comfort and productivity with your business goals. Finding the best answer for your building begins with understanding your needs. The evaluation and planning process helps you to define green building goals and the best way to achieve them. Siemens Solution Partners support you with a customized green building solution to convert your green goals into tangible results by offering you efficient infrastructure, accurate information management, and on-going services.

- **Efficient infrastructure**
  - Regardless of the room requirements, on-demand control of heating, cooling, and ventilation ensure optimum room climate with minimum energy consumption. Siemens can be achieved with innovative HVAC products and systems from Siemens.

- **Green building life cycle**
  - Siemens Solution Partners help you to take advantage of optimization opportunities at any stage in your building’s life cycle.

- **Evaluation and planning support**
  - Siemens Solution Partners provide a comprehensive portfolio for your building's infrastructure. Its modular concept allows a tailored service to meet your unique needs.

- **Information management**
  - Monitoring and capturing process and energy consumption values, and taking optimization measure with the INSIGHT™ management station ensure everything can be done from one central point.

- **On-going services and support**
  - Siemens Solution Partners can provide valuable assistance and support to your design team. By understanding your specific facility needs, Siemens can recommend and provide the most efficient building automation system and infrastructure to meet current and future demands.

- **Existing buildings face unique challenges**
  - Siemens Solution Partners can work with your team to maintain the long-term value of your green investment.

- **When you need to upgrade, retrofit, or rewire your facility’s key energy systems and infrastructure, Siemens Solution Partners can work with your team to ensure your renovation provides optimum results.

- **APQ/GS - certified building automation system**
  - Siemens supports you with APQ/GS. It meets or exceeds all LEED, ENERGY STAR, and IBECS requirements.

- **Information management with INSIGHT**
  - The INSIGHT™ application monitors all integrated building systems in real time, providing critical information. Thanks to the tools you can identify optimization opportunities and determine when and where you need to scale adjustments for maximized day-to-day operations.

- **User-specific displays can be tailored to the needs of different users. This reduces operating errors, uncontrolled access, and information overload.

- **Optimized performance thanks to on-going services**
  - Regular service and maintenance improvements are critical to ensure that your green building continues to operate at targeted performance levels. As part of an Advantage™ Services agreement from Siemens or our partners, maintenance priorities and corrective measures, ensuring that all of the standard maintenance tasks are completed as defined by the manufacturer.

- **Through a review of your energy consumption patterns, Siemens can create a plan based on your facility’s current needs and requirements. Siemens’ energy optimization services will help meet new LEED, ENERGY STAR, and LEED requirements.

- **Highlights**
  - Reduced energy costs thanks to intelligent energy management, innovative energy saving functions, and effective processes
  - Reliable and user-friendly operation for full graphical user interfaces and animations in INSIGHT
  - LEED, ENERGY STAR, and similar requirements are satisfied through Advantage Services programs
  - Full support over the entire life cycle

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**APQ/GS - certified building automation system**

**Certification**

- LEED
- ENERGY STAR

**Institution and measurement**

- Siemens supports you with APQ/GS. It meets or exceeds all LEED, ENERGY STAR, and IBECS requirements.

**Website**

- LEED [www.usgbc.org](http://www.usgbc.org)
- ENERGY STAR [www.energystar.gov](http://www.energystar.gov)
- IBECS [www.ibecs.org](http://www.ibecs.org)
A partnership that creates security
Building technology and demands change constantly. Only companies who understand and have mastered the technology required – like Siemens Solution Partners – can offer you a solution that meets your needs and operates reliably and economically.

- Trained and certified partners
- Only established, financially stable, and competent companies are certified by Siemens as Solution Partners. Intensive training and comprehensive support ensure that Siemens Solution Partners continuously improve their knowledge and are up-to-date when it comes to technology. As a result, you can be sure that the technologies are combined into intelligent solutions and accompanied by outstanding service.
- Expertise for today and tomorrow
  - Competent, experienced, and reliable, Siemens Solution Partners are experts at adapting the INAC control system to specifically meet your needs and ensure that everything functions precisely, day in and day out. You can also rely on Siemens Solution Partners when it comes to servicing your system or updating it to meet new requirements.

Highlights
- Everything you need – for plants from simple to complex
  - APOGEE provides you with building automation for every kind of application. It’s a comprehensive, modular range providing reliable automation, operation, and optimization.
- Open communication – for versatile integration and flexibility
  - APOGEE provides comprehensive integration options, thanks to open and standardized communication and interfaces. You can not only control and monitor your HVAC plant from a central point but through integrating such systems as access control, video surveillance, and the protection – all relevant information is available at a glance and you can identify faults quickly.
- Ease of operation – for optimum comfort
  - Comfortable temperatures and good air quality – with APOGEE you can always set the perfect room climate quickly and easily, thanks to exceptional user-friendly operation. From local control units to the management center, the system is intuitive and user prompts and easy-to-understand graphical displays can also be personalized by the user. All system components and control processes.
- End-to-end solution – for maximum efficiency and operational simplicity
  - Efficient and effective, APOGEE is a complete energy-saving building automation solution. With APOGEE, you can achieve significant energy savings while still maintaining a comfortable room climate.
Synco – the system for simple, energy-efficient HVAC control

Whether as a communicative control system or a stand-alone control – Synco™ HVAC standard controllers feature simple operation and quick commissioning.

- Modular range of HVAC controllers for every control requirement
  Synco offers you a comprehensive array of standard controllers for all applications. From straightforward temperature control using stand-alone controllers to the complete control of HVAC plants with a communicative control system, including individual room control.

- Optimum climate for work and living spaces
  For maximum performance efficiency from office to conference rooms; Synco 300/800, KNX, or Synco 700, with the appropriate room devices, are the simplest way to achieve the right room temperature at the right time. With the help of time-based programs, the primary plant energy supply is matched to your needs, based on the scheduled occupancy of the rooms.

- Easy to use, thanks to simple operation and remote monitoring
  Based on Siemens' comprehensive know-how, Synco is extremely user- and service-friendly – through its straightforward operation, optimally adjusted controllers, pre-programmed standard applications, and integrated energy-saving functions. For you, that means smooth, energy-efficient operation. Thanks to the Synco operating control communication unit with integrated Web server, the system can also be operated and controlled from any PC at any time and from any location.

- Designed to be highly energy-efficient and cost-effective
  Synco controllers are designed for maximum energy efficiency, cost savings, and environmental friendliness. Synco thus provides important prerequisites for achieving high energy efficiency.

- Durable products that protect your investment for the long term
  All Synco products are characterized by their long service life, guaranteed by rigorous and systematic tests. Controllers and functions are thoroughly tested by Siemens in their own HVAC laboratory. The more than 200,000 plants currently operating successfully with Synco are proof of the effectiveness of this approach.

- Flexible and expandable for the future
  Synco supports the entire building life cycle. Synco controllers can be expanded and adapted to plant extensions, changes in building usage, or in case of modernization. As your HVAC plants grow with your requirements, you can make your investment in phases.

- Communicating controllers for the system – communication via the KNX standard bus

| Synco 700 | Synco 800/800 EL | Synco operating
|-----------|-----------------|------------------|
| Versatile HVAC controller range of modular design | Enhanced comfort thanks to individual room climate | Efficient operation of plant including straightforward remote control

- Stand-alone controllers for small buildings and basic applications

| Synco 200 | Synco 100 | RND controller
|-----------|-----------|------------------|
| HVAC controller for all standard applications | Temperature sensor, controller, and control panel combined in one unit | Universal controller for heating, ventilation, and air conditioning

- Highlights
  - Optimized climate for relaxed living and high-productivity workspaces
  - Reliable, efficient plant operation, thanks to user friendliness
  - High energy efficiency and cost savings, thanks to pre-programmed energy-saving functions
  - Durable, tested controllers to protect your investment
  - High flexibility through easy expandability and adaptation of controllers and standard functions
Room thermostats – individual variety

The optimum climate in all areas, precisely when you need it: Room thermostats are an efficient, convenient way to set the right room temperature.

- Room thermostats for every requirement
  Attractively designed and matched to your needs. The Siemens portfolio offers room thermostats for a wide range of different heating, ventilation, and cooling applications for use in flats, hotels, or commercial buildings. Many of the room thermostats are easy to install and allow you to set the temperature individually with the room thermostat, many of which also allow timed settings. User-friendly operation options make it easy to adjust settings.

- The efficient, convenient way to control temperature
  Adjusting the temperature to the comfort level only when the room is in use saves energy and costs. That is why you can use them cost-effectively.

Highlights

- A wide range of room thermostats to meet every requirement
- Energy-efficient and cost-saving temperature control
- Simple operation and high control accuracy for optimum comfort and ease of use
- Attractive design for all types of installation

Symaro – innovative sensors

Durable Symaro sensors pay for themselves quickly and contribute to reduced energy consumption thanks to their high measuring accuracy and speed.

- A sensor for every type of measurement
  Whether for measuring temperature, humidity, air quality or pressure in rooms, ducts, or outside areas, Symaro offers a transparent, clearly structured range of systematically tested sensors for all HVAC measurements and applications. The range also includes multisensors that measure all kinds of different parameters as well as certified sensors for special areas, such as the pharmaceutical industry.

- Innovative measurement saves energy
  Durable Symaro sensors are a secure investment because they are innovative. For you, that means lasting savings in energy and costs. Symaro sensors detect and transmit values quickly and accurately – the best possible basis for precise, energy-efficient, and economic control of your HVAC plant.

- High room comfort and user-friendly design
  The sensors allow demand-controlled ventilation for optimum room quality, combined with a high degree of comfort and energy savings of 20–70%. Changes in building occupancy and utilization of the system design are automatically adjusted. Symaro multisensors show measured values in a simple way on their LCD display.

Symaro sensors for all conventional HVAC measurement ranges and applications

- Temperature sensors
- Humidity sensors
- Air quality sensors
- Pressure sensors
- Xtra

Reliable and precise temperature measurement for any location
Highly stable humidity measurement even under difficult conditions
Stable, long-term air quality measurement for high energy efficiency and ease of use
High precision measurement of differential and absolute pressure
Highest measurement quality even for special applications, such as solar radiation

Applications are tested for full compatibility with APOGEE and the Symaro HVAC controllers.
Acvatix – a variety of valves and actuators

Durable, reliable Acvatix™ valves and actuators are key building blocks of an economical, efficient HVAC system.

- A wide choice of valves and actuators for every application
  The Acvatix range contains the right valves and actuators for every requirement and application, offering a unique variety for residential and office buildings as well as industrial plants. Five different actuator technologies, a wide selection of valves, and actuators for refrigeration plants and clean rooms ensure maximum economy and reliability.

- We supply valves and actuators for small to very large HVAC and refrigeration applications as well as for room, zone, and district applications. The range also features 2- and 3-port, butterfly, and slipper valves with flanged, threaded, and soldered connections as well as combi valves for perfect hydraulic balancing and easy sizing.

- Active energy saving through high control accuracy and speed
  The high quality of the range is also reflected in the control accuracy and energy efficiency of the valves and actuators. Whether magnetic valves, combi valves or low energy electro-hydraulic technology – all help you substantially reduce your energy consumption, thereby efficiently reducing costs.

- Investments in continuous magnetic valves from Acvatix offer a particularly high return on your investment, thanks to energy savings of as much as 15% due to their high precision and their ability to adjust to controller setpoint values within fractions of a second. And they can be used in a wide range of different application areas, including ventilation, refrigeration, district heating, drinking water supply, and high-precision operation of industrial HVAC applications.

- A safe investment thanks to high quality
  Whether single- or multi-family houses, complex air conditioning systems in ultra-modern office buildings or plants with large volume flows – Acvatix valves and actuators offer an attractive combination of high quality and long service life. All originated in Siemens’ own development and production facilities and are extensively tested in-house laboratories.

  The robust electro-hydraulic valve actuators, for example, consistently offer the highest level of security even with large volume flows and enormous pressure differences. They require no maintenance, operate reliably over a long service life and are protected by a unique emergency control function.

  Your investment is safe for many years thanks to the durability of the products and their backward compatibility guaranteed over decades. If necessary, individual components can be easily replaced at any time. The high reliability and stability of Acvatix valves and actuators also ensure continuous system availability, thus safeguarding your investment over the long term.

Highlights

- Unique varied range for optimum control of the entire hydraulic circuit
- Energy-efficient thanks to high control accuracy and speed
- High quality and long operating life guaranteed by intensive tests
- Safe investment thanks to a high level of reliability and system availability
OpenAir – robust damper actuators

With OpenAir™ damper actuators, you get extremely durable and reliable actuators for energy-efficient ventilation.

- **A high-performance range**
  With four housing sizes, the OpenAir damper actuators cover the entire application area—from recirculated air dampers, outside air dampers, shut-off dampers, fire protection dampers to variable air volume controls and centralized air conditioning plants.

- **Robust design for long service life**
  OpenAir damper actuators have a very long operating life. Thanks to their robust housing, they are resistant to harsh operating conditions during transport, in the warehouse or on the construction site. A function tested building block concept ensures highest quality and reliability.

In addition, every actuator undergoes a rigorous function test prior to shipment.

- **Powerful action for little energy**
  OpenAir uses motors with low energy consumption, designed to provide large actuating forces using very little energy. The variable air volume actuators further enhance this energy efficiency through static measuring which prevents energy losses.

- **Comfortable room climate**
  Brushless motors, already run-in gears, a truly sturdy housing, and technology mounted with high precision ensure exceptionally quiet operation.

**Highlights**

- Robust housing for long service life and maximum reliability
- Energy and cost savings thanks to low consumption motors and high precision operation
- Low-noise motors for optimum comfort at home or at work

SED2 – efficient variable speed drives

SED2 simply and efficiently control the energy demand of equipment with high power consumption – with minimum maintenance and operating costs.

- **Latest technology for HVAC areas**
  SED2 variable speed drives are based on state-of-the-art converter technology specially designed for HVAC applications. They can be easily integrated into the Syco or APOGEE building automation system via interfaces.

- **Simple commissioning and maintenance**
  You can install the variable speed drives quickly and with little effort. Thanks to their modular design and ease of access, individual components can be replaced quickly. That reduces costs and minimizes downtime for maintenance.

- **Saving energy every day**
  Fans and pumps equipped with SED2 variable-speed drives use up to 50% less energy, in particular thanks to the precise, on-demand control of the motor speed. The speed of fans or pumps is automatically reduced where there is little or no need for them to be used. The low harmonics technology also reduces mains harmonics to a minimum and increases efficiency.

- **Safety in the event of fire**
  In the event of a fire, the SED2 reliably ensure that escape routes are kept free of smoke by means of overpressure.

**Highlights**

- Seamless integration in the Syco or APOGEE building automation system
- Cost savings through fast, simple commissioning and maintenance
- Energy savings of up to 50% thanks to demand control, hibernation function, and low harmonics technology.
- Reliable control in the event of fire

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**Actuators for a wide range of applications**

- **Actuators for ventilation applications**
  Reliable and powerful for recirculating air and outside air applications as well as centralized air conditioning plants.

- **Actuators for variable air volume controllers**
  Highly precise as well as quick and easy to parameterize for conversion and energy efficiency from installation through to operational use.

- **Actuators for fire protection dampers**
  Highly reliable and safe – integrated in safety systems, they prevent fire and smoke spreading via the ventilation duct.