TRANSFORMING THE EVERYDAY

# **Green Lab** Solution

Achieve sustainability and energy efficiency objectives while maintaining safe, secure, compliant operations
**siemens.ca/lifesciences**

From managing budgets and funding sources to retaining top research talent and students, today's labs face an array of challenges—not to mention the need to stay current with changing regulations, compliance efforts, and the latest laboratory technologies.

While achieving sustainability and energy efficiency objectives is a priority for many lab managers, safe operations and standardized procedures still take precedent, and older building infrastructure may restrict the ability to reduce energy consumption safely.

But thanks to advancements in laboratory technologies, it's now possible to maintain safe, secure, compliant operations while achieving sustainability and energy efficiency objectives.

**The Siemens Green Lab Solution**

Laboratory facilities are large energy consumers due to their ventilation requirements. Depending on the age the laboratory was built, current air change rates may range from 8 to 20 air changes per hour (ACH). Typically, laboratories have been designed with 100% ventilation air, operating 24 hours per day, seven days a week. In fact, the heating and cooling of ventilation air constitutes the primary energy consumer in laboratory environments.

The environments in which life science research, development, and storage are carried out must meet some unique requirements – and they can make the difference between success and failure.

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## How it works

Using our Green Lab Solution, Siemens Energy Engineers can accurately assess your laboratories and apply one of our many hardware or software solutions to not only reduce energy consumption, but also to improve occupant safety.

The Siemens Green Lab Solution follows a comprehensive, step-by-step process to identify the most effective, efficient ways to keep your laboratory spaces, people, research, and assets as safe, secure, comfortable, and compliant as possible. The process starts with a thorough evaluation of existing operations and an understanding of organizational goals, objectives, and priorities.

1. Assess current operations and understand facility goals and objectives
2. Implement energy-saving technologies and solutions
3. Manage facility operations data
4. Maintain optimal energy efficiency with ongoing management and optimization

Our program provides the technologies, facility improvement measures, and services designed to greatly reduce energy consumption while taking a comprehensive approach to personnel health, safety, compliance, and comfort. We closely follow the current ANSI/ASSP Z9.5 standard on lab ventilation that ensures your facility is safe, compliant, and sustainable.


### Siemens hardware solutions

Siemens reviews multiple hardware solutions to determine which may be the right fit for your laboratory. These may include, but are not limited to:

**Venturi valve retrofit kits** – These retrofit kits are designed to reuse existing housing of installed venturi valves, and fully integrate with Siemens room laboratory controls to:

- Convert constant volume systems with venturi valves to variable volume systems
- Create a two-state constant volume approach with reduced air change rates when unoccupied
- Replace existing legacy controls systems on older venturi valve devices

**Variable air control devices** – Siemens hardware includes three types of devices to control air within a laboratory environment. All devices can be fully integrated with Siemens room laboratory control.

- **GOLO intelligent air valve**: Delivers airflow capability with up to 100:1 turndown for increased energy savings and save, pressurized environments
- **Laboratory single-blade dampers**: When used with Siemens Laboratory Controls, the single blade damper provides fast-acting, stable, and precise laboratory airflow control over the entire range of room airflow requirements
- **Venturi valves**: A pre-packaged, easy-to-install airflow measurement and control solution, this provides fast-acting, stable, and precise airflow control of room supply, room general exhaust, or fume exhaust

**AQGARD™** – Purpose-driven ventilation helps to create an energy efficient, safer, and healthier work environment by having a positive impact on indoor air quality, which can have a positive impact on cognitive function, sick days, and protecting occupants from airborne hazards / particulates.

**Siemens installed devices** – Siemens works with a variety of laboratory partners to develop and provide energy-saving devices that can be integrated as a part of the laboratory design. A Siemens Energy Engineer will evaluate if devices such as ductless fume hoods and fume hood sash automatic closers are a good fit for your laboratory environment.

## Siemens laboratory control solutions

**Laboratory pressurization and airflow** – These laboratory controls integrate into your building automation system and are specially designed for room pressure control, ventilation and general extractions, laboratory fume hood control, and room air conditioning. These include BACnet/IP communications and can combine multiple disciplines, including HVAC pressurization, fume hoods, and lighting into one comprehensive solution.

**Fume hood control** – Fume hood controllers use true exhaust flow measurement to monitor safe operation and provide fine flow control. This provides a constant face velocity, and supports damper, VFD, and Venturi Air Valve Control devices.

## Supporting North America's Critical Environments

As the needs for testing, research, and space expand, we're harnessing our capabilities, expertise, and global network of partners to support North America's Life Science and Critical Environments in a variety of ways:

- Supporting the rapid design and development of life science infrastructure
- Identifying sources of potential contamination and offering effective technologies to mitigate those risks
- Developing a holistic approach for the Smart Labs of tomorrow

## About Siemens Smart Infrastructure for Life Science Environments

Siemens Smart Infrastructure brings innovations in smart building technologies to create environments that care for research labs and other life science environments. Our Smart Lab solutions further improve researcher and lab work experiences; lab efficiency; and safety for all staff, assets, and research.

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