



# WHEN SCHOOL BUILDINGS PERFORM SO DO STUDENTS

Help your campus do more for your students, your staff, and your budget:  
Let's optimize building operations and simplify facility management  
with cost-efficient, intelligent capabilities that can help your school  
or campus become safer, more secure and more sustainable.

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Building Capabilities for Schools, Colleges, and Universities

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**Honeywell**

# YOU KNOW EDUCATION WE KNOW BUILDINGS

Let's help your campus facilities do more to support students and staff – whether that means better supporting safety, security, and well-being; creating environments that help improve focus and productivity; managing energy efficiency goals; or your own blend of needs.

Around the world, we help schools and universities of all types and sizes gain the capabilities they need within a budget and timeline they can feel good about – and we can help your campus too.

## MANY EDUCATION BUILDINGS NEED URGENT UPGRADES

The average school, city-owned building, or county-owned building in the United States was built in the 1960s<sup>1</sup> – many of which are now likely overdue for upgrades to increase safety and security efforts, manage energy efficiency, and support current standards for in-person learning experiences.

For example, U.S. school buildings earned a D+ grade in the American Society of Civil Engineers (ASCE) 2021 annual report card.<sup>2</sup> The report found that 53% of U.S. school districts need to update or replace multiple building systems and an investment of \$38 billion is required to provide students with a healthier, safer and more modern learning environment.

For many years, data has shown how the

environment inside schools and universities can have consequential impacts on the learning, productivity, and overall health of students, educators, and staff.<sup>3</sup>

There is also greater focus on the mental health of students and the importance of faculty retention, which continues to see a steep decline in the years since the COVID-19 pandemic.<sup>4</sup>

Consequently, many educators and administrators throughout the United States are frustrated by the buildings in which they're tasked with facilitating learning. Among the most common frustrations: Campus facilities are too small, and hence, crowded, outdated, toxic, disruptive to instruction, and ill-equipped for the rapidly evolving needs of students and education.<sup>5</sup>

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# BREATH EASIER IN THE CLASSROOM

## INDOOR AIR QUALITY (IAQ)

Good indoor air quality is essential to the learning experience, and for creating a healthier campus.

Air quality can affect a building's structural integrity, energy efficiency and the well-being of students and staff. A modern healthy education building improves the well-being and productivity of the people who use it<sup>6</sup> while also supporting energy efficiency and sustainability goals.

The backbone of indoor air quality – ventilation, relative humidity, filtration, and pressurization – is also the starting point for a healthier building. Every building has these functions, but they may not be optimized for building health.

Honeywell offers a suite of healthy buildings solutions, along with a dedicated team of experts, which can help improve indoor air quality and create better learning experiences.

## IMPROVEMENT STARTS WITH MEASUREMENT

It's hard to improve what you don't measure. That mantra is true for many things in life – including indoor air quality.

Our advanced IAQ sensors provide continuous monitoring, with simple visual confirmation of the room's air quality – shown as an overall air quality score as well as a color-coded LED indicator.

The sensors can also track five key parameters of IAQ – carbon dioxide (CO<sub>2</sub>), particulate matter (PM2.5), volatile organic compounds (VOCs), temperature and humidity – sending that data to your building management system, with the option to also show any of those details directly on the sensor's display.

The IAQ sensors can connect to any controller regardless of brand, and can feed



data to building management software as part of an IAQ dashboard. They can also enable demand-controlled ventilation with additional parameters, going beyond temperature control to automatically maintain better indoor air quality with minimal intervention from your facility staff.

## PUT YOUR BUILDING'S BRAIN TO WORK

The building management system (BMS) is commonly considered the “brains” of a building. The BMS is a centralized system that monitors and controls a building’s mechanical and electrical equipment, including HVAC and lighting, and even systems such as security and life safety.

An effective BMS can optimize energy consumption for both cost savings and sustainability goals by adjusting the temperature, ventilation and lighting based on occupancy, campus schedules, and even external conditions such as weather.

A deliberate and purposeful building-controls strategy can also help to improve the health of a building by managing temperature, humidity, ventilation and air pressurization – simultaneously optimizing operations for both energy

efficiency and occupant well-being.

We provide these capabilities in a building management system that is easy to install, use, and maintain, and which includes cybersecurity for operational technologies (OT).

## CONTINUOUS MONITORING & MEASUREMENT MATTERS

Once IAQ improvements have been made, continuous monitoring is a critical next step to understand and maintain the ongoing performance of your campus facilities.

Cloud-based dashboards that connect to the BMS along with equipment sensors can aggregate information to give a system-wide view of your building performance – and can even provide valuable insights across multiple facilities on campus, and throughout a school district or university system.

Our advanced software makes it easy to monitor and manage building status, including the factors that affect IAQ.

We can also help further improve your campus IAQ through capabilities such as filtration, electronic air cleaners, and portable air purifiers.



# A SAFE, SECURE CAMPUS IMPROVES LEARNING

## PROTECT YOUR CAMPUS AGAINST THREATS

Campus safety has become increasingly urgent – making safer, more secure facilities a critical need for students, staff, and families.

Securing a campus is complex: Schools, colleges, and universities often have hundreds or thousands of students, staff and contractors onsite during the day.

We provide security capabilities that can adapt to the needs of your site – whether that's a public or private school, a district, a college, or a widespread university system.

All of our systems are built on open platforms that integrate with an extensive variety of third-party technologies, helping you extend the value of systems and devices you've already invested in.

Our expertise in access control, intrusion prevention, video surveillance and visitor management – and in integrating security systems and devices into a single user interface – ensures you have comprehensive end-to-end security that's intuitive to learn and use, particularly during an incident response.

## INCREASE ACCESS CONTROL & SITUATIONAL AWARENESS

We provide robust, integrated capabilities to help your campus protect students, staff and property and to more readily comply with strict regulations. These

intuitive security capabilities are easy to learn and use with the staff you have, streamlining processes to reduce your overall operating costs.

For example, Honeywell security systems provide automated incident workflows to automatically document all incidents, enabling stronger compliance without adding work for your campus security staff. Likewise, our systems include system-health dashboards to streamline maintenance and help reduce operational costs.

With smart access control and digital visitor management, staff have seamless access to buildings while visitors first complete a simple screening process from their own smartphones. This streamlines and documents sign-in and badging processes, letting security staff monitor who's in the building in real time as well as the current locations of visitors.

A visual dashboard also helps administrators monitor and manage campus occupancy to manage compliance with applicable protocols.

## VIDEO SECURITY & NDAA COMPLIANCE

Video systems are an essential element of a school's security strategy.

Designed with cybersecurity and compliance in mind, all of our video products comply with U.S. legislation NDAA Section 889 Part B – including

cameras, video storage, video management systems, and analytics.

Our cameras help you increase awareness and documentation, covering large areas in high resolution with visibility during day and night, and smart analytics such as human and vehicle-motion detection to reduce false alarms.

And our scalable video management systems give you a smart, user-friendly platform that can deliver critical information to help reduce risk and save valuable time.

## LOCK DOWN FASTER WITH AUTOMATED GUNSHOT DETECTION

Active shooter incidents are a worst-nightmare scenario, but one that campuses must be prepared for.

Honeywell gunshot detection and lockdown capabilities give security teams and first responders detailed alerts about what is happening and where, inside and outside the building.

Sensors that can be integrated into security platforms analyze the energy level and waveform of a firearm discharge to confirm that it is a gunshot, accurately identify the type of weapon, and pinpoint the GPS location, all within seconds to help enable quicker lockdowns and faster, more accurate responses.



# BETTER FIRE SAFETY KEEPS CLASS IN SESSION

## FIRE & LIFE SAFETY: EARLIER DETECTION FOR FASTER RESPONSE

As a leader in fire and life safety systems, we aim to create innovative technology that keeps people safe, including those responsible for saving lives. To achieve this, we design fire and life safety products that leverage connectivity to provide the earliest detection, enable the fastest responses, and help you centralize decision-making and management.

Honeywell fire safety devices include capabilities such as:

- Smoke and carbon monoxide detectors and other types of life-safety sensors to detect anomalies and risks
- Fire alarm control panels
- HVAC and sprinkler monitoring systems
- Audible and visual alarms as well as public address systems, to alert and communicate the actions that those inside campus buildings should take
- Connected Life Safety Services, a cloud-based platform for managing and testing fire systems and receiving alerts, even when offsite

## STOP FIRES FROM ESCALATING

Every second counts during a fire. Advanced detection technology can detect minute traces of risk factors such as smoke, enabling campus staff to assess the situation and summon first responders immediately to the scene.

We pioneered the “very early smoke detection apparatus” or VESDA™ technology, an early-warning smoke detector that uses aspirating technology to actively “inhale” air samples and thus identify the presence of smoke

far earlier than conventional passive smoke detectors. As a result, Honeywell VESDA™ Aspirating Smoke Detectors can provide the earliest possible warning of an impending fire hazard.

As another form of early detection, Li-ion Tamer® detection can help campuses reliably detect the very early signs of failing Lithium-ion batteries by using “off-gas” detection to sense battery electrolyte vapors — enabling facility managers to respond earlier to impending thermal runaway events.

The Li-ion Tamer system also provides multi-point temperature and humidity monitoring for better environmental control and situational awareness across a wide range of applications.

## MONITOR & RESPOND FROM ANYWHERE

Connectivity and the Internet of Things (IoT) are changing the way fire and life-safety systems are installed, tested, maintained, and used.

Connected Life Safety Services (CLSS) is a cloud-based platform that gives your facility managers insight into your fire system’s performance, testing and compliance data, and potential maintenance needs from the convenience of a smart phone or tablet. This makes it much faster to monitor system performance and to perform regular compliance testing.

CLSS also provides remote access to the fire alarm panel so the right people can receive alerts when events are generated and view asset information and system status across multiple sites.

This connectivity helps ensure that your staff is alerted to any life-safety incidents, even outside of the regular campus schedule, and it can also enable

centralized monitoring and management — for instance, across a large campus with multiple buildings, or throughout a full school district or university system.

CLSS can also provide reliable and accurate alarm-event communication to central monitoring stations, maintaining critical connections with them.

This is now a key consideration, given that “plain old telephone service” or POTS connectivity is increasingly being displaced, and in 2022, 3G cellular networks were all retired by telecom providers in the US, as well as most other global regions. So older systems that depended on these means of connectivity need modern forms of alarm-event communication that will remain viable well into the future.

## SIMPLIFY MAINTENANCE AND COMPLIANCE TESTING

In addition to CLSS’s capabilities for monitoring and testing fire-safety devices remotely, Honeywell self-testing detectors help further simplify and automate system maintenance, testing, and inspections.

This patented, approved self-testing technology enables campus facility managers to overcome obstacles such as classrooms and other areas that are currently in use, as well as locked rooms, hard-to-access areas, high ceilings, and large campuses — letting staff complete safety testing much more quickly during regular hours, while the system remains fully operational.

This helps schools and universities comply with local regulations efficiently and with the least potential disruption to campus operations.

# BETTER SECURITY ALSO MEANS CYBERSECURITY

## PROTECT SENSITIVE STUDENT & STAFF DATA

Schools and universities have become increasingly popular targets for cybercriminals around the world. In 2020, the K-12 Cybersecurity Center reported an alarming and record-breaking number of incidents, with 408 incidents reported across 377 school districts in 40 states.<sup>7</sup>

Unfortunately, many schools and universities are underfunded and understaffed when it comes to IT and cybersecurity protection, leaving them potentially susceptible to exploitation. Suffering a cyberattack can have tremendous implications, ranging from learning loss to financial repercussions and exposure of sensitive information.

Discussions about cybersecurity usually focus on IT systems – protecting proprietary IT systems, data, and personal information.

However, security is also vital for operational technology (OT) systems –

such as those that operate the equipment and facility systems in campus buildings.

These OT systems are typically not managed by IT staff and often lack cybersecurity, which has made them an increasingly common “backdoor” for breaking into IT networks and systems. This vulnerability makes it essential for all buildings, education facilities included, to take a proactive approach to protecting OT network and systems.

As a founding member of the Global Cybersecurity Alliance, we take cybersecurity very seriously. We are one of the world’s leading developers of cybersecurity and best practices for buildings and OT systems, and we can help improve your cybersecurity strategy to ensure OT systems are protected.

Our cybersecurity experts can help your campus, district, or system prevent or mitigate risks to finances, operations and reputation with safeguards such as:

- Developing cybersecurity strategies and response plans
- Cyber assessments of your campus systems, detailing vulnerabilities and options for corrective actions
- Advanced software capabilities for monitoring, protection, and response
- Remote monitoring to enable a fast, coordinated response in the case of a breach
- Monitoring and support by Honeywell experts

Additionally, we ensure that all of our products, both software and hardware, are designed according to best practices for cybersecurity.

Our cybersecurity capabilities readily scale to adjust to the scope you need (such as expanding from one school to a whole district) and also to your cybersecurity maturity level, helping you optimize the integrity, availability, and safety of your systems.



# PLAN A SMART STRATEGY FOR CAMPUS SUSTAINABILITY

## SUPPORT SUSTAINABILITY GOALS ON CAMPUS

According to the U.S. Department of Energy, state, county, and local governments could potentially add around \$6 billion to their collective coffers every year by improving the energy efficiency of their buildings by just 20%<sup>8</sup> – and similar opportunities exist for many schools and universities.

These savings can then be used to finance other critical educational programs and needs. For instance, essential upgrades to modernize campus buildings and infrastructure can often be paid for with energy savings – such as HVAC, lighting, and building automation systems that further improve energy savings.

In fact, as an energy services company (ESCO), we have helped many schools and universities make essential building upgrades that are then paid for through their energy savings over a term of years as part of an energy savings performance contract (ESPC).

The impact of those upgrades can be substantial. In 2022, Honeywell delivered 206 GWh of verified electricity savings across United States government and educational facilities, avoiding emissions of approximately 146,000 tons of carbon dioxide (CO<sub>2</sub>).

As sustainability becomes a more urgent topic with rapidly evolving regulations and guidelines, energy efficiency is a key capability for supporting sustainability goals.

The benefits of environmental, social and governance (ESG) principles are increasingly being recognized and adopted by government organizations and regulators at all levels,<sup>9</sup> making this an important consideration for schools and universities as well.

For our part, we strongly believe that improving learning environments and supporting sustainability goals can and should be capabilities that mutually reinforce one another.

Regardless of the specific technologies and capabilities used, we can work with your campus, district, or university system to help you cost-effectively achieve the energy efficiency you need and support your sustainability goals.

## USE AI TO MONITOR & OPTIMIZE ENERGY USE

Many building operators – and most education campuses – lack data about the amount of energy used or carbon emitted from specific devices and building assets. And the data that is available can often be difficult to access, consolidate, and comprehend.

Yet energy management shouldn't feel like a forensics investigation. This can make it daunting to know where it's most cost effective to focus your efforts and your investments for improving energy use.

Fortunately, with the right integration and software, we can help operators of educational building address two pressing, yet seemingly conflicting

objectives: optimizing indoor air quality and reducing the environmental impact of buildings with the aim of improving carbon-reduction goals.

For example, the Honeywell Forge for Buildings Sustainability+ platform uses artificial intelligence (AI) with machine learning (ML) to automatically optimize building operations in real time – such as HVAC use and lighting – based on which parts of the building are currently occupied. This enables schools to improve comfort, indoor air quality, and energy efficiency simultaneously, and with minimal staff intervention.

This scalable platform is system agnostic – supporting the systems and devices you already have. It uses advanced controls capabilities with AI and ML algorithms to create a baseline of your campus's energy consumption and carbon emissions across building assets, giving you data from the overall site level all the way down to each individual asset – and even across multiple sites.

So beyond the intelligent automation, you also gain the insights to better monitor, control, optimize, and maintain your building assets, and then to make better-informed plans and investments.

Across multiple buildings, such as at the district level, this data can also provide benchmarking between sites to validate pilot initiatives and to determine which strategies work best.



# FUND VITAL CAMPUS UPGRADES

## IDENTIFY FINANCING OPTIONS

Competing spending priorities and debt restrictions may make it challenging for education leaders and their colleagues in state, county, and local organizations to find the funds needed to make improvements to campus buildings. Meanwhile, as buildings continue to age, building systems become obsolete and inefficient, and deferred maintenance costs can become a significant challenge.

However, there are a variety of financing and funding options that can help campuses make necessary improvements.

Energy saving performance contracts (ESPCs) are often an effective solution for public organizations such as schools, districts, colleges, and universities.

An ESPC is a budget-neutral way to make building improvements that reduce energy and water use and pay for the improvements with the savings they will eventually generate. These savings are contractually guaranteed, and the improvements can range from lighting upgrades, building envelope enhancements and the deployment of energy renewal sources to more site- or project-specific needs.

As a leading energy service company (ESCO), Honeywell has decades of experience helping schools and universities take advantage of ESPCs to improve building performance with little or no impact on your capital spending budgets.

In fact, we have guaranteed \$9.2 billion in energy and operational cost savings through more than 3,400 projects for customers around the world – giving us the knowledge and experience to help

you streamline the process and realize your potential energy saving benefits.

The process begins with a thorough assessment of each building's current infrastructure and operating costs. Then based on your projected energy savings, we help you identify and secure funding from sources such as government grants, incentives, utility rebates, and other programs designed to support infrastructure upgrades such as indoor air quality, energy efficiency, and sustainability improvements.

Honeywell bears responsibility for the cost, performance, and outcomes of each such project – and we guarantee the contracted results.

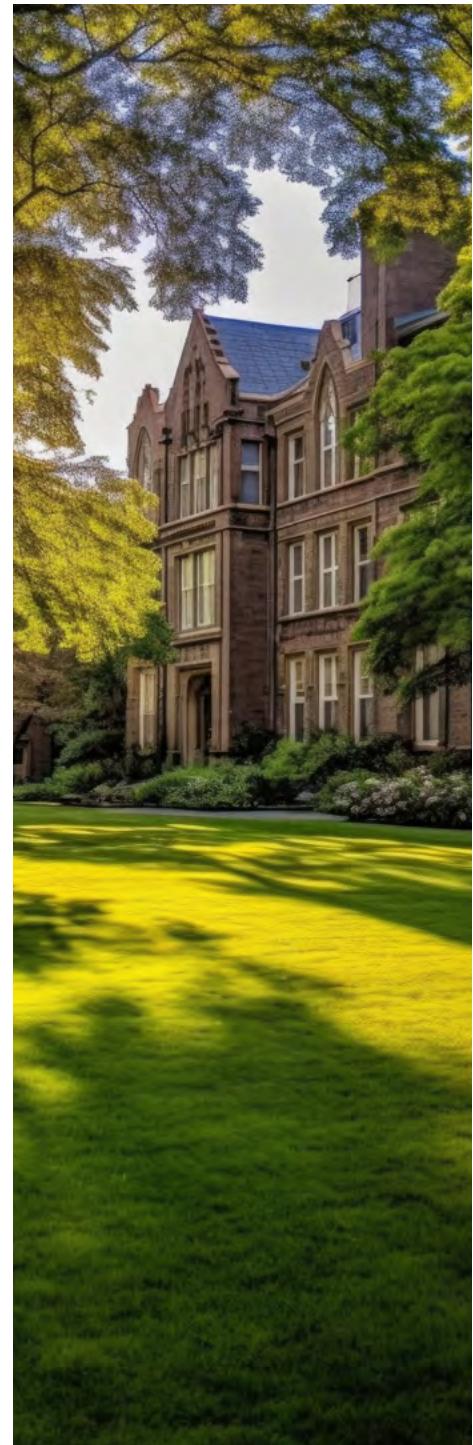
There are also similar grants and programs related to improving the safety infrastructure of campuses. We can help public and private institutions as well as local governments to identify and apply for grants in which they may be eligible to deploy campus-safety upgrades.

## CO-OPERATIVE PURCHASING

Honeywell is an awarded vendor of several purchasing cooperatives throughout North America.

For public schools and higher education entities, membership in a purchasing cooperative offers several benefits including access to competitively procured contracts for a variety of campus building solutions.

Co-op purchasing helps public entities like schools, districts, and universities save time and resources by enabling purchasing that fulfills bid requirements without the need to go out to bid.



# LET'S HELP YOUR CAMPUS MAKE THE GRADE

## HONEYWELL IS HERE TO HELP

Smart building capabilities can help you provide a safer and more sustainable education experience for students and educators alike.

Draw on our deep technical experience to help you identify your needs and opportunities and then prioritize the options that are most beneficial and cost effective.

We can guide you through processes as complex and varied as building retrofits, new construction, critical infrastructure upgrades, and government-grant applications.

In short, we don't want to just be a company you do business with – we want to be an ally you can trust and collaborate with. Because we're a part of your community too.

Find out what your campus can achieve, with Honeywell: [hwll.co/schools](http://hwll.co/schools)

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