ASSURING QUALITY,
the Reliable Controls way

INDUSTRY EVENT
AHR Expo 2022

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RUNtime

The official quarterly magazine of Reliable Controls® Corporation

Q4-2021

INTRODUCING the next GENERATION

Better by design™

ISO 9001 14001 QUALITY ENVIRONMENTAL COMPLIANCE
RoHS COMPLIANT
Member of BACnet International

Reliable® controls

President's message

RC-FLEX family: The next generation has arrived!

Tom Zaban, P.Eng, LEED Green Associate

The year 2021 tossed up a few more challenges than many of us were probably expecting. Extreme weather events, parts shortages, spiking fuel costs, and freight logistics disruptions all weighed heavily over to the enduring concern of the global pandemic and its Delta and Omicron variants. As business leaders, it sometimes feels like we are honing our skills at a global game of "whack-a-mole."

Despite these business continuity challenges, our companies must continue to look forward and remain positive. We must envision, innovate, and engineer optimistically toward the opportunities that will inevitably emerge in the built environment. That means we must continually re-invest in our people, processes, and partners so we can seize on new opportunities and deliver new and improved products and services to meet customer expectations. In doing so we position ourselves to become part of the solution that improves our customers' lives and resolves some of the real challenges they must boldly face.

Throughout the pandemic, Reliable Controls has been very busy not only maintaining and growing our sterling reputation of having the best technical support in the building automation industry but also researching and developing an entirely new generation of building automation controllers that will complement previous-generation products and take our customers to the next level. After many tens of thousands of hours of planning, designing, developing, and testing, we are absolutely delighted to announce the arrival of the all-new RC-FLEXair® advanced VAV controller.

The RC-FLEXair is the first of an entirely new family of freely programmable dual-Ethernet BACnet building controllers and is designed to be integrated with any IP-connected BACnet Testing Laboratories–listed device. We designed this next-generation family of controllers to be configured using our existing RC-Suite of software, allowing you to integrate the RC-FLEXair with legacy controllers manufactured by Reliable Controls. This significantly extends the ROI of your existing Reliable Controls installations by eliminating the expense associated with purchasing gateway technologies or learning entirely new software interfaces.

As the first in a family of new devices, the RC-FLEXair sets the stage as the premier platform of hardware technology for the next decade of production at Reliable Controls. Aside from its blazing-fast and massively scalable technology, the RC-FLEXair is packaged in an all-metal enclosure constructed of aluminum and steel, and its Linux-based operating system is super-secure and extensible. These design elements elevate the usefulness and resilience of RC-FLEX products as they will endure for many years—likely beyond the life of the equipment being controlled. With the RC-FLEX family, we wanted to fulfill our "better by design" engineering philosophy. We designed these products using robust, extensible, recyclable components that will withstand the test of time, experience many value-added updates, and be easily streamed back into the materials economy at the end of their useful life.

Simple, flexible, and sustainable are the hallmarks of Reliable Controls technology. We are delighted to carry these hallmarks forward into the new RC-FLEX family. We trust you will find this issue of the *RUNtime* a valuable read and encourage you to learn more about the RC-FLEXair by visiting our website and contacting a local Reliable Controls Authorized Dealer. The next generation has arrived!

Reliable Controls ushers in a ***new generation of building controllers*** *with the* ***RC-FLEXair***

Reliable Controls has introduced a brand-new generation of building controllers with the launch of the RC-FLEXair advanced VAV controller, an exciting addition to its range of simple, flexible, sustainable building automation products. The culmination of 2 years and tens of thousands of hours of research and development, the freely programmable RC-FLEXair is a BACnet Building Controller ideal for a wide range of variable air volume and room control applications.

James Puritch, VP of Research and Development at Reliable Controls, had some lofty goals when he began developing the company's new RC-FLEX family of products: Not only did he want to complement a hugely successful existing line of building controls—the MACH-Pro family—but he also wanted to create a solid foundation for the company's next decade of hardware.

"The RC-FLEXair is the first of our RC-FLEX products, all built around dual Ethernet connection architecture and multicore processors," said Puritch. "We've taken our 30 plus years of technology and embedded it into this new hardware and firmware platform. The RC-FLEXair is highly performant for today's building automation system needs and built to accommodate tomorrow's advancements."

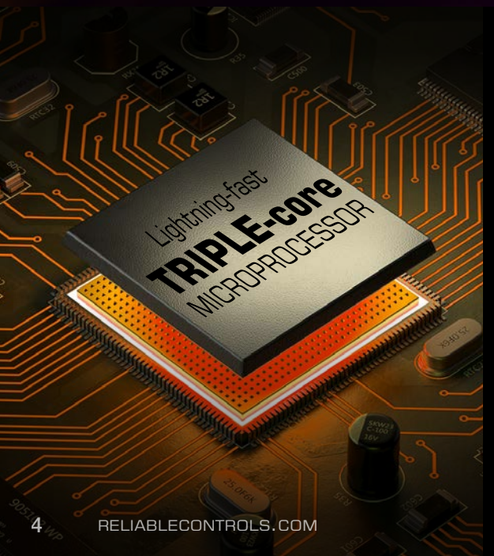
Let's explore some of the features that make this new controller so exciting.

RCFLEXair®
ADVANCED VAV CONTROLLER

Better by design

The RC-FLEXair is equipped with a versatile USB application port that provides convenient access to a technician today and extended capabilities tomorrow. A technician can power the controller via USB from a laptop to permit configuration, firmware updates, programming, and graphics creation. As a bonus, if no Ethernet ports are available, they can also use the USB port as an Ethernet bridge to the IP subnetwork.

All input, output, and communication ports are hardware-protected against transient surges and spikes, which hardens the controller against field-wiring mistakes and improves resilience.



Database? More like data*beast*

With tons of nonvolatile memory, the RC-FLEXair has enough space to handle the most challenging applications now and in the future. It automatically logs all input, output, value, calendar, loop, and schedule objects, which can each store up to 2,000 records. That's enough for over 1 million data points! It also has space for 64 control programs, each large enough to run advanced energy sequencing, integrated fault detection and diagnostics, and more. Throw in dual high-speed Ethernet ports, and the RC-FLEXair provides access to all that data and intelligence in near real-time, opening the door for advanced analytics and superior performance tracking and control.

Future ready

Reliable Controls tests every product it manufactures to ensure compatibility with previous-generation controllers. The RC-FLEXair is no different! It can be added to Ethernet networks that host previous-generation controllers without the need to purchase costly third-party gateways or accessories. To further future-proof return on investment, the RC-FLEXair features an open-source Linux operating system renowned for its cybersecurity resilience and global community of programming support.

Supporting over 30 YEARS of backward COMPATIBILITY

Sustainable hardware

Reliable Controls rigorously engineers its products to minimize their impact on the environment and provide years of dependable, high-performance service. The RC-FLEXair is manufactured in an ISO 9001– and 14001–certified facility and features an industry-recognized 5-year warranty. Made from highly recyclable materials, it also complies with RoHS 3, WEEE, and R2 directives to ensure easy, clean disposal at the end of its useful life.

5yr WARRANTY · R2 2013 · ISO 9001 14001 QUALITY ENVIRONMENTAL ASSURANCE · RoHS COMPLIANT

Ideal for terminal control

The RC-FLEXair features an optional precision-airflow sensor and a brushless DC damper actuator, making it ideal for many types of terminal control applications. The pressure sensor ports are highly resilient and made from die-cast aluminum; combined with the aluminum enclosure and steel baseplate, this controller is rugged and built to last.

Ultimate flexibility

With many available models and options, the RC-FLEXair is suited to a wide variety of projects. Models are available with one or three universal inputs and up to six outputs with a mix of universal or solid-state relay outputs. Better still, they can communicate with up to eight Reliable Controls SMART-Net devices and expand the controller's capability without consuming inputs or outputs. Technicians can connect temperature, humidity, gas detection, or occupancy sensors; a SMART-Sensor™ EnOcean Accesspoint, or even the SMART-Net Relay with up to five heavy-duty mechanical relays.

Built on this cutting-edge new architecture and honoring the simple, flexible, sustainable hallmarks Reliable Controls products are known for, the RC-FLEXair promises a bright future for Reliable Controls and its Authorized Dealers.

"We are absolutely delighted to see the first of the RC-FLEX family products shipping into the field," says Reliable Controls president Tom Zaban. "It takes more than just a green building certification to create a sustainable building. The RC-FLEX family delivers a critical component of a scalable and secure control system that will help people to stand at the helm of sustainability by reducing their greenhouse gas emissions in the built environment for the long term."

The RC-FLEXair is available exclusively through more than 200 Reliable Controls Authorized Dealers in over 45 countries around the world. Find one near you.

Learn more now at
reliablecontrols.com/RCFA

View the features the RC-FLEXair has to offer in this informative video on YouTube!

Better by design™

Welcome

New Reliable Controls Authorized Dealers

Integrity Control Systems
Alabaster, AL, United States
Integritycontrolsystems.com

Integrity Control Systems inc.

Neomate Co., Ltd.
Yeongdeungpo-gu, Seoul, South Korea
neomate.co.kr

(주)니오메이트
NEOMATE
Firstly Differently Thoroughly

Reliable Controls sales, installation, service, and support are all performed by a growing network of independent, factory-trained Authorized Dealers. Each dealer is committed to the green building controls industry and to providing total customer satisfaction.
To locate an Authorized Dealer near you, visit the dealer locator on the Reliable Controls website.

Reliable controls Authorized Dealer

Assuring Quality,
the Reliable Controls way

Reliable Controls strives to earn and sustain the reputation of having the most satisfied customers in the building automation industry. Creating products that deliver what they promise demands a quality mindset. The RC-FLEXair is better by design because quality checks are integrated into every step of its production.

Minimal motion between the surface-mount technology (SMT) machine, through-hole station, and bed of nails speeds up the production process. This is an example of lean manufacturing.

Receiving

The Operations department starts the quality-control process by verifying suppliers sent the correct parts and quantities and that each unit meets Reliable Controls criteria. This is particularly important for custom-designed components, where Reliable Controls sets the dimensions and tolerances. This incoming inspection—a step that is accelerated as confidence in a supplier grows—helps to ensure quality down the line.

Reliable Controls sources RC-FLEXair parts from 22 longstanding qualified suppliers.

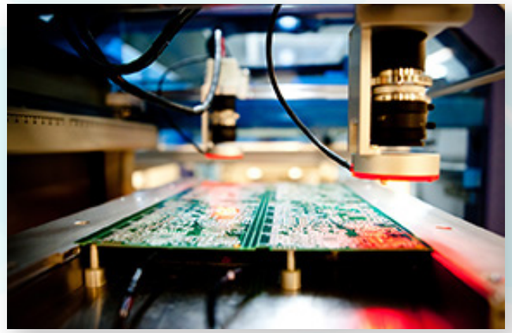
Kitting

Each printed circuit board (PCB) requires a specific number of components—several hundred, on average. The production team meticulously compiles, documents, and tracks the kit of parts so they can trust they have what they need to start building. They then load this kit into the SMT machine.

One RC-FLEXair unit comprises 554 pieces, 184 of which are unique components that populate the circuit boards.

SMT assembly

The SMT process is three-fold—printing, placement, and inspection, which are all executed and controlled by the latest technology. The jet printer at Reliable Controls can print up to a million dots of solder per hour, varying the amount of solder to ensure high-quality joints across the circuit board. An automated optical inspection occurs with every dot dispensed. After verifying the correct parts have been loaded, the placement machine (a robotic arm) can place 16,000 components per hour.



The RC-FLEXair has three PCBs: a mezzanine board, a main board, and an inputs/outputs board.

AOI inspection

Every circuit board used at Reliable Controls undergoes an automated optical inspection (AOI), which ensures 100 percent accuracy of each solder joint and placement by comparing the board to a golden sample. Seven cameras inspect a board with unparalleled accuracy in 30–60 seconds, catching errors that would take a person far longer. This keeps quality high and helps streamline production so products reach customers quicker.

The AOI inspection helps keep the defect rate of Reliable Controls products below 1 percent.

Inventory

Nobody likes waste. It's inefficient and costs money. Lean manufacturing eliminates excess, resulting in reduced cycle time and faster build times. Reliable Controls keeps inventory as low as possible, with enough stock ready to work on demand. The team continually analyzes production forecasts and scheduling, ensuring customer needs are met in a timely manner. Once boards have undergone the inspection process, they are kept in stock until they need to be kitted for through-hole (TH) assembly.

All Reliable Controls products, including the RC-FLEXair, are built to order.

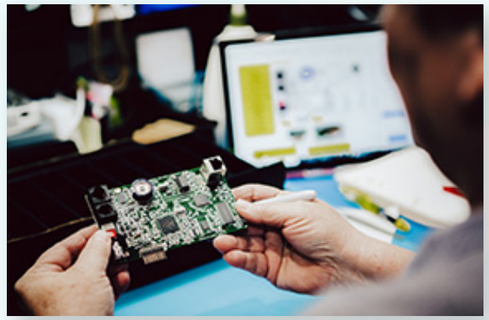
TH assembly

Through-hole building continues the process of populating the board with components that fit through the holes and are soldered on the back, either by hand or in the wave-soldering machine. Imagine molten lava streaming from a volcano, bright red until it crusts over as it cools and oxidizes, gathering impurities. Molten solder is essentially the same, just silver. A wave-soldering machine is a 1,000-kilogram bath of solder with a pump that churns impurities to the side so the board rides a wave of clean solder that wicks up into the board—yet another automated and controlled process.

RC-FLEXair circuit boards are completely populated in the SMT; no TH assembly required.

Visual inspection

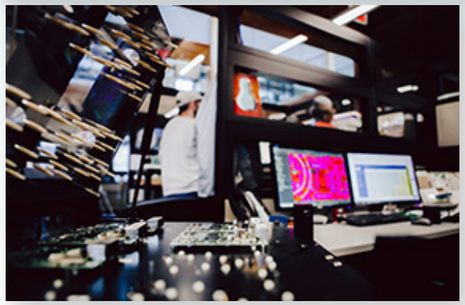
All Reliable Controls operators are trained to Institute of Printed Circuits (IPC) standards, and they visually inspect soldering to ensure it meets the IPC-610-A quality requirements. Any variances or defects are identified during the detailed visual inspection if not already caught while boards are built. Operators inspect 100 percent of the boards before they pass to testing.



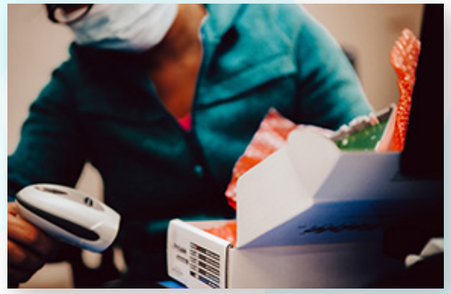
This job takes having an "eye for detail" to a whole new level.

Bed-of-nails testing

The Reliable Controls goal to have the most satisfied customers means, in part, selling products that do exactly what customers expect them to. By testing every board on a bed of nails (designed by Reliable Controls and specific to each model), any defects are caught by Reliable Controls instead of the customer, resulting in very low returns. The bed of nails activates every point on the board, stimulating and measuring inputs and outputs by interfacing with a suite of sensors and RC-Studio® software. This is a full quality check that ensures only the best units reach the end of the line.



Multiple beds of nails test the three RC-FLEXair circuit boards, independently and together.



The final assembly of an RC-FLEXair, from prep work to testing and boxing for shipment, takes roughly 10 minutes per controller.

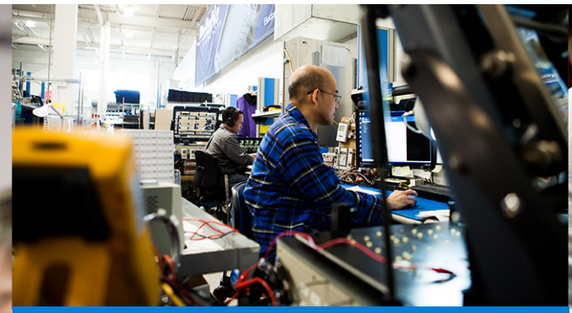
Final assembly

Reliable Controls has more than 1,650 products in its catalog. Everyone on the production team is able to build them all. The flexibility among the team—their in-depth knowledge of Reliable Controls products, eye for detail, and quality mindset—is the company's biggest asset. The machines enhance rather than replace what people do with their own skills. In the final assembly stage, operators mount boards in their enclosures, add connectors, and carefully prepare labels. They then package the product and corresponding documents, ready for shipping.

Shipping

The average turnaround from order to shipping is 1.4 days. Many products don't even make it onto a shelf because Reliable Controls builds to order—they go from final assembly straight to shipping, where a team member verifies the order has all the correct products and amounts. The shipper scans barcodes, updates files, and cross-references paperwork, and away they go!

RC-FLEXair orders are already being shipped to New Zealand, Australia, Singapore, China, Ireland, Canada, and the United States.



How does Reliable Controls ensure a high standard of quality? It's a combination of cutting-edge technology and passionate professionals. Reliable Controls products are built by people who care. Positive energy goes a long way to delivering quality. Most of the team have worked on the production floor for over a decade; they take pride in their efforts *every day*. These are the people and technology Reliable Controls customers can rely on.

Reliable controls

Project profile

Industry City

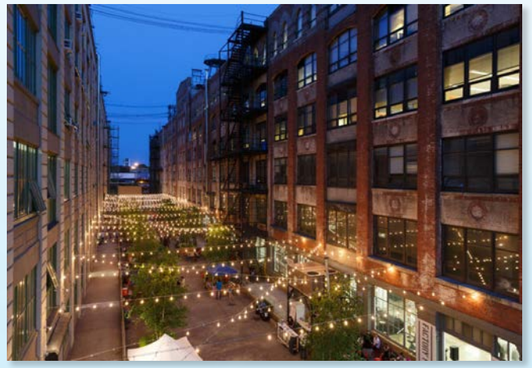
United States

Industry City, formerly Bush Terminal, is a 19th-century industrial complex on the waterfront in Sunset Park, Brooklyn. Founded by Bush Terminal Company head Irving T. Bush in the early 1900s, Bush Terminal was one of the first and largest integrated cargo and manufacturing sites in the world. During World War I, it was used as a U.S. Navy base, though it returned to private ownership after the war and eventually experienced a period of decline after World War II. The complex was rebranded as Industry City during the post-war years; in the 1970s and 1980s, sections of it were demolished or converted for other uses, including a shopping mall, federal prison, and garment district.

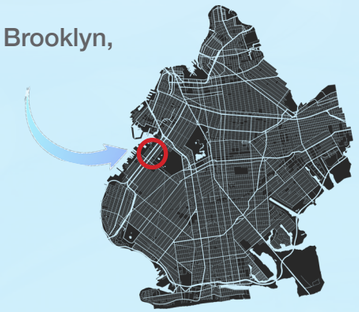
The owners of Industry City began attracting artists in 2009 by building artists' studios and hosting film screenings and art installations. By the mid-2010s, artists were joined by a diverse mix of businesses, including garment manufacturers, data centers, and warehouses. Today, the area comprises roughly 71 acres, including 16 former factory buildings and 11 warehouses, which the owners are dedicated to furbishing with smart technology.

Reliable Controls Authorized Dealer Energy Control Service (ECS) began the mammoth task of retrofitting the building automation system at Industry City in 2010 during a $450 million redevelopment.

ECS Energy Control Service



Industry City, Brooklyn, New York



Industry City owners approached the redevelopment in part with a goal to reduce emissions and increase the energy efficiency of the site, introducing 15,000 new energy-efficient windows and $50 million in electrical upgrades and other energy-related infrastructure.

ECS installed 200 MACH-ProZone controllers, ideal for controlling small to mid-sized rooftop and heat pump units and small mechanical room equipment. For larger mechanical equipment that serves multiple buildings on site, three MACH-ProCom and 20 MACH-ProSys controllers allow building operators to integrate equipment with numerous open protocols and complex systems. ECS implemented a mix of MACH-ProView and MACH-ProView LCD controllers to provide access to and control of comfort and energy performance in connected buildings.

Five MACH-ProLight controllers allow facility managers to implement advanced lighting control strategies such as daylight harvesting, dim-to-off control, vacancy control, plug-load control, and theme/scene control. By installing Reliable Controls SPACE-Sensor EnOcean devices, ECS was able integrate a wide variety of EnOcean wireless sensors and control devices. Today sensors measure temperature, humidity, carbon dioxide, volatile organic compounds, light levels, and more.

ECS used RC-Studio to integrate mechanical equipment from multiple third-party vendors. Today, with the help of RC-Archive and RC-Reporter, stakeholders have access to data and analytics from 278,709 square meters of building area that help them effectively balance comfort and energy efficiency for multiple tenants. RC-RemoteAccess, a flexible BACnet Secure Network solution, simplifies IT management and improves data communications security for Industry City engineers, who often use the Reliable Controls myControl app to monitor conditions remotely. And RC-WebView connects multiple independent control systems at the site into a single Enterprise Website accessed by a secure single sign-on, providing scalable visibility and control at a glance.

This massive retrofit project at Industry City has already generated more than $1 million in energy savings. Reliable Controls and ECS are thrilled to be part of the ongoing efforts to revive the former Bush Terminal into an inspiring destination that offers art, food and drink, music, manufacturing, workspaces, technology businesses, and more.

Installed Reliable Controls hardware

- 3 MACH-ProCom™ controllers
- 5 MACH-ProLight™ controllers
- 20 MACH-ProSys™ controllers
- 25 MACH-ProView™ controllers
- 10 MACH-ProView LCD controllers
- 3 MACH-ProWebCom™ controllers
- 200 MACH-ProZone™ controller
- 250 SPACE-Sensor™ EnOcean devices

Installed Reliable Controls software

- myControl®
- RC-Archive®
- RC-Studio
- RC-RemoteAccess®
- RC-Reporter®
- RC-WebView®

Total system objects

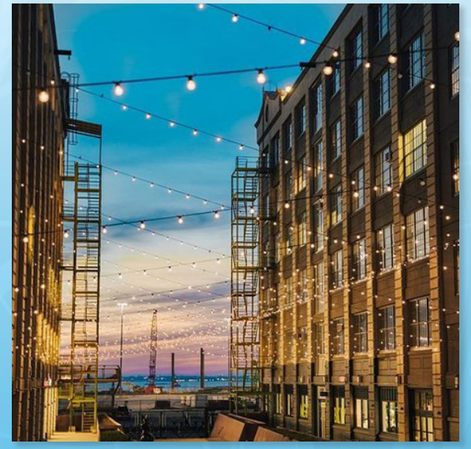
- 2,000+

Total area

- 278,709 m^2 (3,000,000 ft^2)

Integrated equipment

- Mitsubishi, Trane, Daikin, proprietary gateway



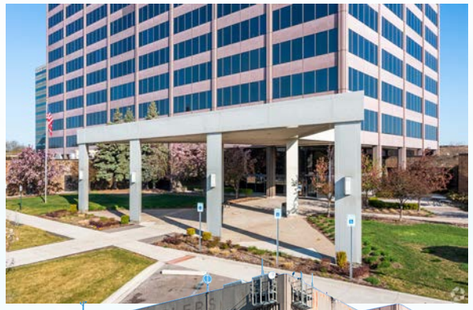
Reliable controls

Project profile

Travelers Towers

United States

Travelers Towers is the third-largest multitenant office property in Metropolitan Detroit. New facility owners initiated a multimillion-dollar capital improvement program in 2013 that included renovations to the lobbies and common areas, numerous upgrades to the mechanical and building management systems, installation of museum-quality artwork, and construction of a state-of-the-art fitness facility. Reliable Controls Authorized Dealer Green Building Automation upgraded the building automation system as part of this large retrofit.



Green Building Automation installed hundreds of MACH-ProAir controllers in the Travelers Towers buildings to control the variable air volume systems. The MACH-ProAir includes an airflow sensor and onboard damper motor for integrated variable air volume control, eliminating the need for separate sensors and actuators and saving time, money, and space.

Today facility operators use RC-WebView, a browser-based building management solution that combines the power of enterprise tools with a simple interface and connects the multiple independent control systems in the Travelers Towers in a single Enterprise Website. RC-WebView empowers users with scalable visibility and control at a glance.

Switches on each floor connect the combination Ethernet/optical-fibre network for the building automation system. Green Building Automation installed multiple MACH-ProCom, MACH-ProSys, MACH-ProView, and MACH-ProZone controllers throughout the facility and seamlessly integrated the buildings' mechanical equipment—including new third-party boilers, pumps, and variable frequency drives as well as an existing chiller and cooling towers—using BACnet and Modbus, demonstrating the flexibility of the Reliable Controls system.

Facilitating a retrofit in a project of this size is no easy feat, and Green Building Automation worked tirelessly to ensure the new building automation system improved energy efficiency at Travelers Towers. "We are very pleased with the results of this project and would highly recommend Green Building Automation and plan to use them on similar future projects," says Gary Smiecinski, chief engineer with Newmark.

Installed Reliable Controls hardware

- 820 MACH-ProAir™ controllers
- 12 MACH-ProCom controllers
- 14 MACH-ProSys controllers
- 7 MACH-ProView controllers
- 27 MACH-ProZone controllers

Installed Reliable Controls software

- RC-WebView software

Total system objects

- 1,800

Total area

- 810,000 m² (8,718,767 ft²)

Integrated equipment

- Lochinvar boilers, Bell & Gossett pumps, York chiller, Danfoss variable frequency drives

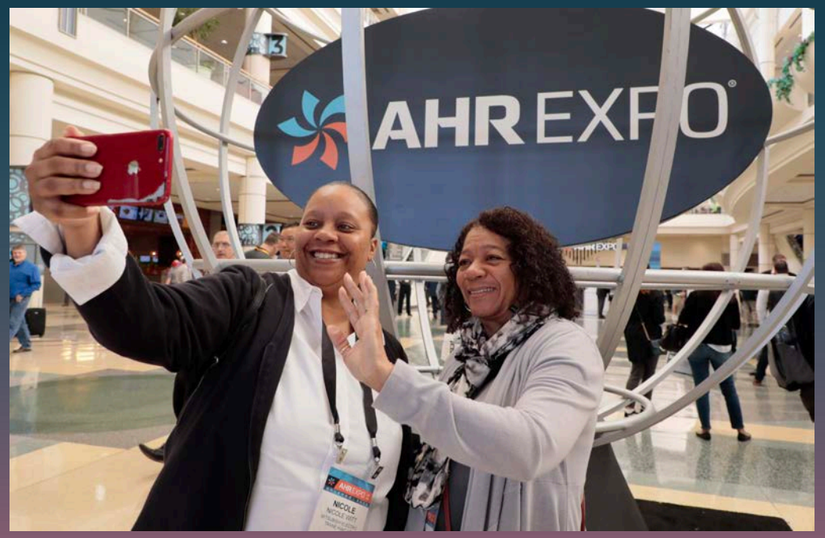
Green Building Automation
Energy Management Systems

Explore other Reliable Controls projects:
reliablecontrols.com/projects/profiles

AHR EXPO LAS VEGAS

JAN. 31–FEB. 2, 2022

AHR Expo is America's largest HVACR event, providing a unique 3-day opportunity for industry professionals and manufacturers to showcase the future of HVACR technology under one roof.



AHR Expo attracts more than 70,000 industry professionals and allows experts to get together and share new products, technologies, and ideas. Reliable Controls is excited to attend AHR 2022 to unveil what's new for us and the industry. To register and review current health and safety information, or learn more about AHR 2022, visit ahrexpo.com. Visit booth C1545 to see the newest addition to the Reliable Controls family of controllers, the RC-FLEXair.

AHR Expo Dates and Location

Monday, **Jan. 31: 10 am – 6 pm**
Tuesday, **Feb. 1: 10 am – 6 pm**
Wednesday, **Feb. 2: 10 am – 6 pm**

Las Vegas Convention Center
3150 Paradise Rd, Las Vegas

Since 1986 Reliable Controls has developed a global network of highly skilled independent controls contractors called the Authorized Dealer network. The *RUNtime* newsletter supports the collective efforts of the company to earn and sustain the most satisfied customers in the building automation industry. Information on the latest Reliable Controls products and services and insight into industry news and trends can be found in each issue of the *RUNtime.*

As a leader in the industry, Reliable Controls supports their Authorized Dealer network to achieve their goals with a motto that together, they can be better by design.

RELIABLE CONTROLS™
BUILDING SUSTAINABILITY

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