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Building a greener future

A BRIGHT FUTURE
Lighting upgrades at Reliable Controls

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RUNtime

The quarterly magazine of Reliable Controls

Q1- 2021

2021 LEED PERFORMANCE

President's message

The hallmarks of Reliable Controls

Tom Zaban, P.Eng, LEED Green Associate

After its first decade in the building automation industry, Reliable Controls was ready to begin developing a new, second-generation system. The next-generation system included many expanded technical capabilities yet remained backward compatible with its predecessor. With the excitement of a new system of products came the need to develop new marketing materials to communicate the value proposition of the system to a larger, global audience of users and Authorized Dealers. Those in the marketing department at that time had a pretty good idea of why customers preferred Reliable Controls products, but to minimize risk, the company retained a freelance marketing consultant to interview a dozen users and Authorized Dealers in Western Canada. Once the team had listened to the interviews and read the transcriptions, it was easy to identify the key benefits of the Reliable Controls system.

The number-one benefit the interviewees spoke of was simplicity. Users really appreciated that the hardware products were simple to install, service, and expand. The controllers shipped with removable connectors that made it easy to wire the input and output devices and to connect power and network wiring. If the controller needed to be repaired or replaced, the removable connectors made it easy to swap out the board. Proportional status LEDs on the inputs and outputs made it easy to visually identify the state of the connected devices. The Hand/Off/Auto switches on the output terminals made it easy to command and override outputs. The software, too, was very easy to learn, so much so that senior facility operators felt comfortable teaching junior operators how to use it, and in short order, the junior operators were competent to manage the building systems on their own.

The number-two benefit that popped out was flexibility. Authorized Dealers appreciated that there was only a half-dozen types of controllers, not dozens of controller types. And with those few controllers they could practically engineer any controls solution at scale. The universal inputs and universal outputs of the controllers meant dealers could easily integrate virtually any application. The freely programmable structure of the control language meant dealers could write, edit, and apply any sequence of operation. Users appreciated the expansion capability of the controllers and network architecture. They could start small with just one building, then expand the network to include many.

Both users and Authorized Dealers appreciated the economics of the hardware and software products. Reliable Controls provided good value for the dollar compared to other vendors. Additionally, the hardware products included a 5-year warranty, and Reliable Controls provided (and still provides) economical repairs for the life of the controller, even long after the warranties expired.

With the customer benefits in hand, it was straightforward for the nascent marketing team to conclude the Reliable Controls product hallmarks to be *simple*, *flexible*, and *economical*. As data security, hazardous waste, and lifecycle costs emerged as growing customer concerns, the third hallmark, economical, was naturally amalgamated with today's triple-bottom-line business approach and rephrased as *sustainable*. There you have it. Simple, flexible, and sustainable. The three hallmarks that permeate the Reliable Controls better-by-design approach to building automation systems, creating lasting value in the built environment for generations to come.

People and technology
you can rely on™

Welcome

New Reliable Controls Authorized Dealers

KERR CONTROLS INC.
Building Automation Specialists

Kerr Controls Inc.
Burnaby, BC, Canada
kerrcontrolsinc.ca

IES
IESGROUP.NZ

IES Group—Wellington
Christchurch, New Zealand
iesgroupnz.co.nz

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.

Reliable controls Authorized Dealer

What's new with the Reliable Controls LEED Platinum–certified building?

2021 LEED performance

It's been 8 years since Reliable Controls opened its LEED Platinum–certified south annex building in Victoria, Canada, during which time the number of staff has grown and the organization has implemented many improvements to the sequences of operation for mechanical and electrical systems. The flexibility of the Reliable Controls system means changes are easy to implement and the results are easy to monitor.

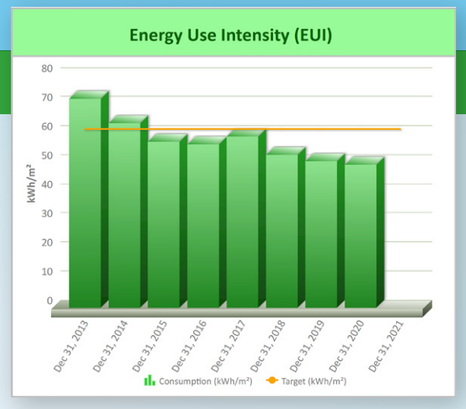


Figure 1

Figure 1 displays energy consumed from 2013 to 2020 in the south annex, expressed in energy use intensity (EUI). In 2020, EUI was well below the design intent of 58.8 kWh/m^2, with a rate of 49.2 kWh/m^2 at the end of December.

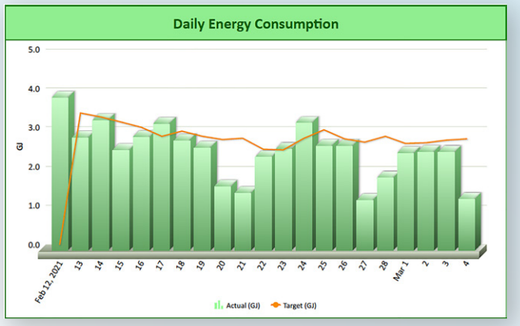


Figure 2

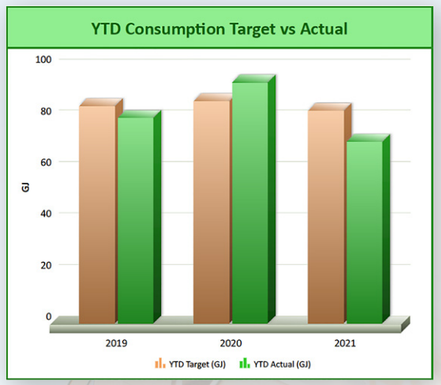


Figure 3

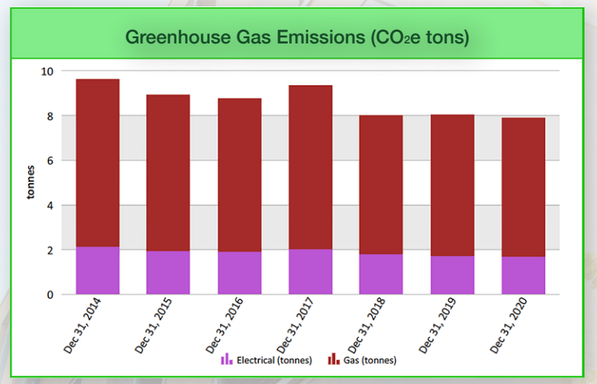


Figure 4

In the first few weeks of January 2021, during BC's second wave of COVID-19, Victoria had mild temperatures, and about 50 percent of employees who normally work in the south annex were working from home.

RC-Reporter® calculates a daily target for energy consumption (Figure 2) based on 50 percent of ASHRAE Standard 90.1 (1999), adjusted for actual heating and cooling degree days. Standard 90.1 predicts the energy consumption of an energy-efficient building in any geographic region. As shown in Figure 3, year to date for 2021, energy consumed was 42.4 percent of the ASHRAE 90.1 target in the Reliable Controls south annex and well below previous years due to COVID-19 and mild weather.

In BC, over 90 percent of the electricity consumed is hydroelectric. Using hydroelectricity rather than natural gas produces less greenhouse gases per gigajoule of energy—about 95 percent less.

Figure 4 shows the total greenhouse gases produced by the energy consumed in the south annex since 2014, expressed in tons of CO_2 equivalent. CO_2 equivalent is used to compare the overall global warming potential of the greenhouse gases emitted by different processes.

The company reduced the greenhouse gases generated by the south annex by 17.8 percent from 2014 to 2020. One improvement Reliable Controls can make to the building is to replace its three hydronic force-flow heaters with electric ones. The existing heaters use hot water from gas-fired boilers, so switching the units to electric will significantly reduce greenhouse-gas emissions.

Electricity

In August 2020, Reliable Controls retrofitted all existing T5 fluorescent fixtures with LED tubes and drivers. This change will result in a continuous drop in electricity consumption, although the impact is expected to be obscured by the reductions attributable to COVID-19. Figure 5 shows the downward trend in electricity consumption since 2014.

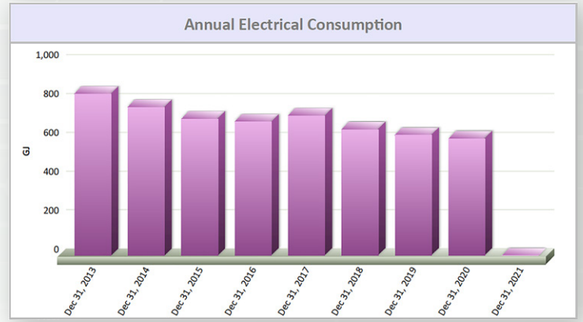


Figure 5

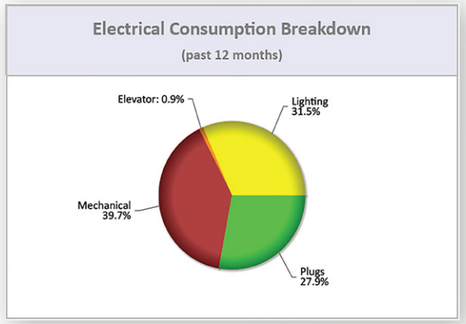


Figure 6

Reliable Controls anticipates that it will break another record in 2021 for low electricity consumption in the south annex. Figure 6 shows the distribution of energy consumed by purpose over the past 12 months. Figure 7 compares monthly electricity consumption year over year from 2019 to date, and Figure 8 depicts daily electricity demand for February and the beginning of March 2021.

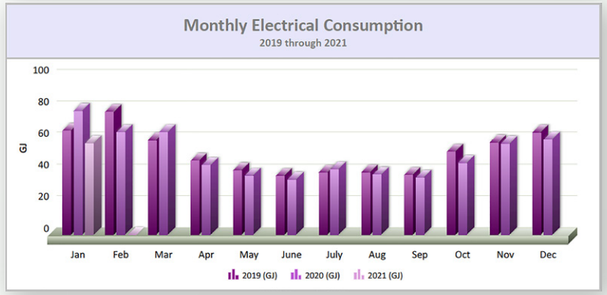


Figure 7

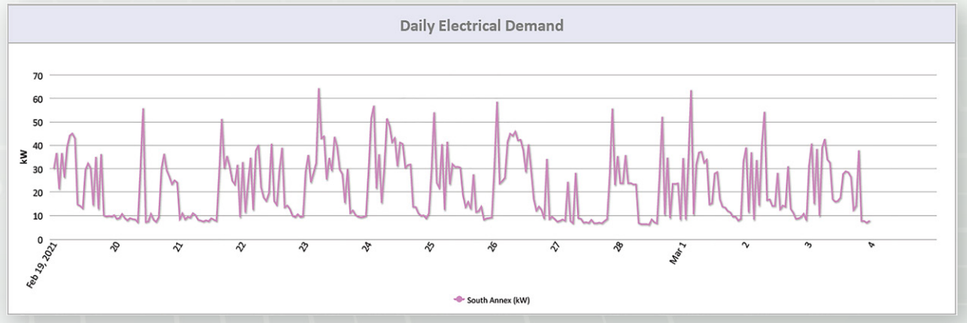


Figure 8

Natural gas

Very little natural gas is consumed in the south annex because all floor and ventilation heat is generated with electric air-source and heat-reclaim heat pumps. Figure 9 shows the downward trend in natural gas consumption since Reliable Controls began monitoring in 2014, and Figure 10 compares monthly gas consumption year over year from 2019 to date. Figure 11 shows the distribution of natural gas consumed by purpose for the past 12 months.

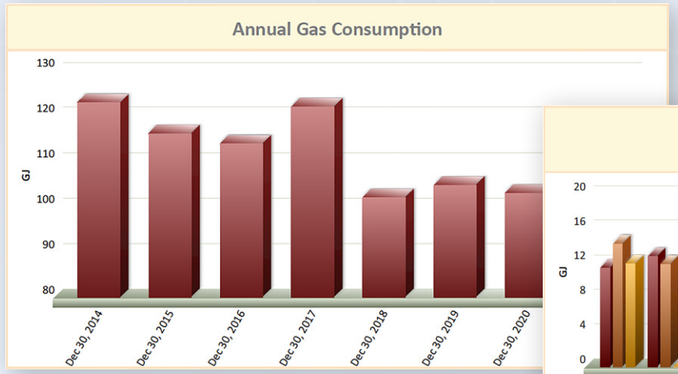


Figure 9

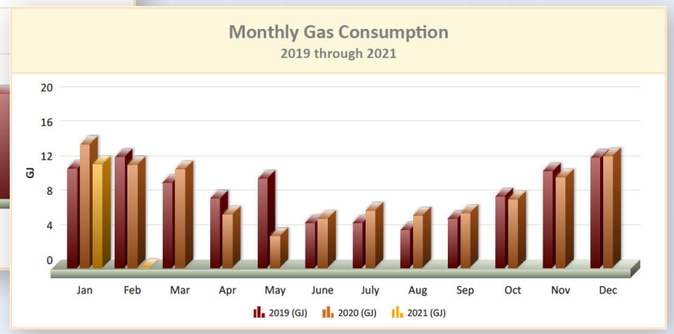


Figure 10

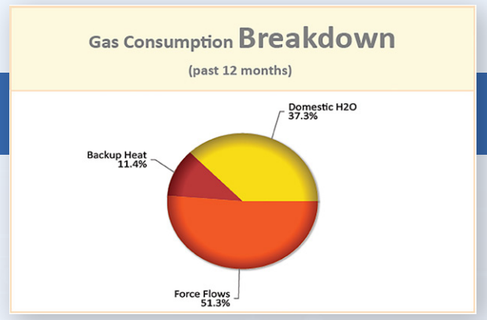


Figure 11

Water

The south annex has two large cisterns that store rainwater. One cistern is used to flush toilets, and the other provides irrigation in the summer. Figure 12 shows the downward trend in potable water consumption since 2016.

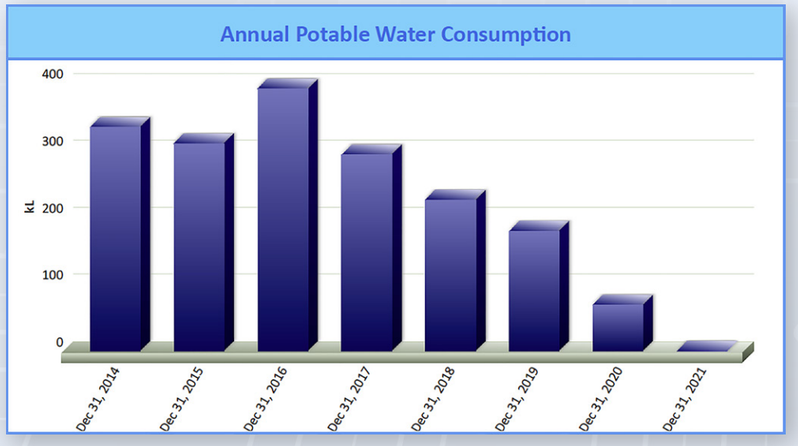


Figure 12

In 2019 Reliable Controls finally lowered domestic water use to the design intent after several years of procedure improvements. Figure 13 shows this reduction month over month from 2019 to date.

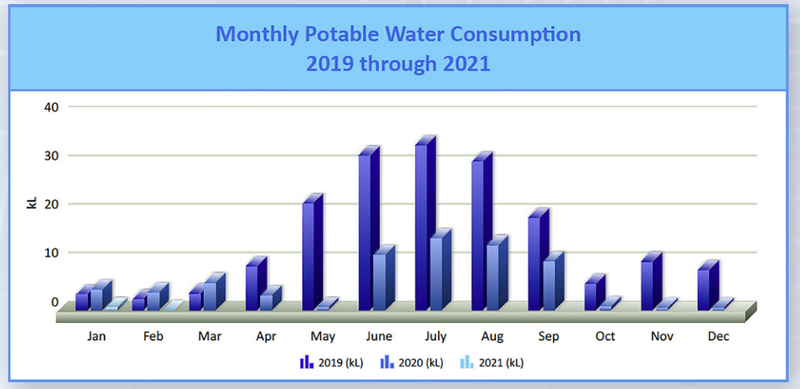


Figure 13

The changes brought about by COVID-19 allowed the company to drastically reduce potable water consumption in 2020. In addition, a cool, wet spring meant less water was needed for landscape irrigation. Figure 14 shows potable water consumption by use for the past 12 months.

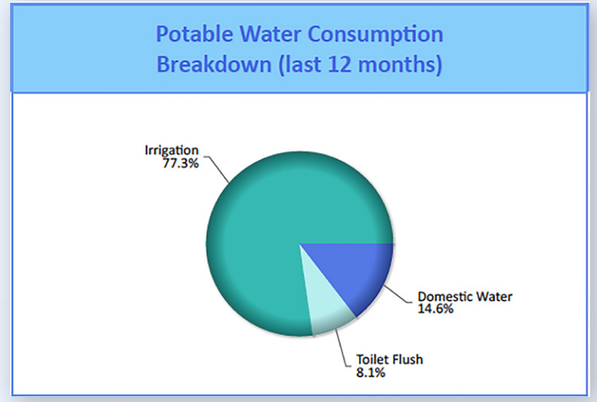


Figure 14

Transportation

Reliable Controls team members are encouraged to use alternative transportation to get to work, with financial incentives for cycling, walking, car-pooling, and use of public transit. In 2020 the company set a new record, with 45 percent of employees using alternative transportation. Figure 15 illustrates the number of employee trips by method over the past 12 months.

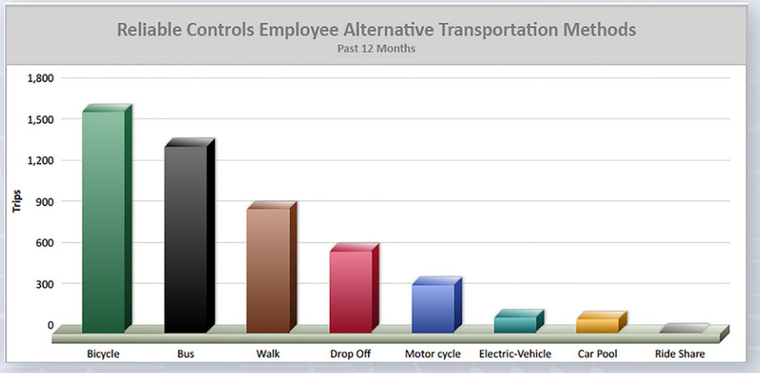


Figure 15

Of course, COVID-19 has led to a dramatic drop in the number of employees who commute to the office, as shown in Figure 16.

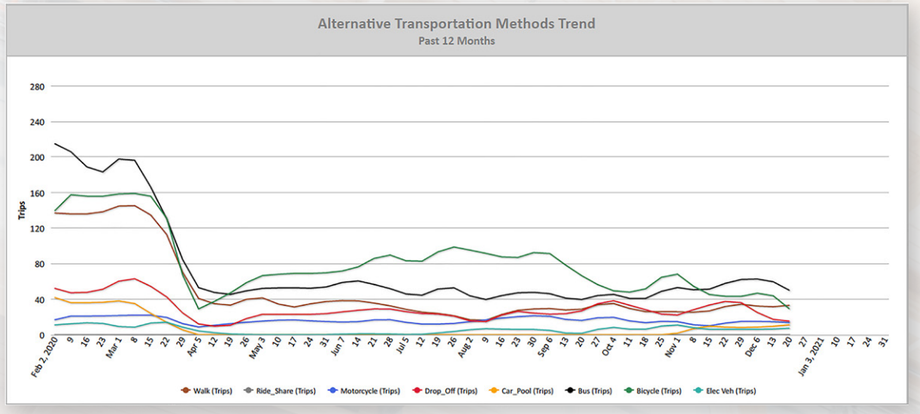


Figure 16

Occupant comfort

Figures 17, 18, and 19 illustrate the results of Reliable Controls occupant comfort surveys carried out in October 2018, June 2019, and February 2020.

The overall satisfaction rating for the south annex varied between surveys but stayed above the company's 80 percent comfort key performance indicator. According to the 2020 survey, the company exceeded the key performance indicator in three of six comfort categories.

Figure 17

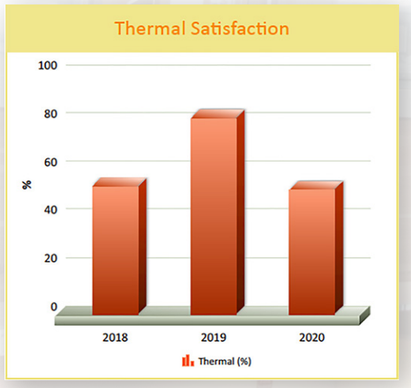


Figure 18

The results for thermal comfort were skewed somewhat in 2020 (Figure 18), when Reliable Controls changed the survey question from current comfort to seasonal comfort, which provides a more useful statistic for future comparisons. In the winter 2020 survey, occupants reported an unacceptably low level of thermal comfort. The most common complaint was that the building was just too cold in the winter. To address this concern, the upper limit of setpoint adjustment for heating will be increased.

Satisfaction with acoustics in the workspace rose in each of the last two surveys (Figure 19). Hopefully this is a direct result of physical renovations to private offices and communicating with employees about personal conversations following the 2019 survey.

Figure 19

Figure 20

Satisfaction with air quality fell in each of the last two surveys (Figure 20). This result is disheartening, as the south annex has excellent air quality. Some complaints arose about odor from the gardener's leaf blower, so the company supplied the worker with an electric model. Unfortunately, sometimes the outdoor air is not that fresh.

Figures 21, 22, and 23 illustrate employee satisfaction with lighting, maintenance, and cleanliness in 2018, 2019, and 2020.

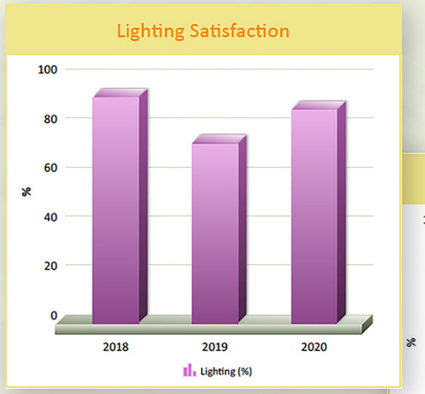


Figure 21

Figure 22

Figure 23

Better by design™

Building a greener future

¡Pura vida! **Spend any time in Costa Rica, and you will encounter the national motto. Equal parts philosophy and lifestyle, "pure life" is everywhere—exchanged between friends as a salutation, offered as gratitude in lieu of gracias, spoken as encouragement or appreciation, and lived every day.**

Costa Ricans are the happiest people in Latin America[1]; their positive mindset and conflict-avoidant character is omnipresent, from negotiations at the local market to decisions of national importance. When they abolished their army in 1948, they sent a message to the world: We want to play nice with everyone.

Today, their message is a call to action: Sustainability goals are achievable if we make them a priority. In the battle against climate change, Costa Rica is well armed and leading by example. *Pura vida* went from a motto to a mission decades ago, and in 2019 the country received the United Nations Champions of the Earth Award—the LEED Platinum of environmental honors.

Costa Rica is the only tropical country in the world to have reversed deforestation. Agriculture made way for ecotourism, a lucrative incentive to further protect the natural environment. National parks and reserves currently cover a quarter of the country. Renewable energy sources provide 99.8 percent of their electricity; in 2017, the country ran 300 consecutive days on renewable energy alone.[2] To decarbonize the economy by 2050, Costa Ricans must also focus on the built environment.

Sustainability through quality

Backward compatibility
Invest in technology that will last the lifetime of your building. When all generations work together, there's no need to throw out functioning products every seven years in order to keep up with the latest technology.

Better by design
Choose BAS products that maximize your return on investment and are manufactured to meet RoHS 2 and WEEE directives. Reliable Controls provides a 5-year warranty and comprehensive repair services so your controllers deliver enduring quality.

Responsible recycling
Reduce the volume of waste sent to landfills and incinerators by shipping non-repairable products to responsible recyclers who are R2 certified.

Reliable training
Invest in your people. The Reliable Controls Operator Certification training program will help your team maintain their technical knowledge and skill level so that they can deliver long term, consistent, local support for you and your buildings.

Reliable Controls and Costa Rica have more in common than just compatibility with third parties; they're also driven by a commitment to have the most satisfied customers. Take a holiday in Costa Rica, and your local guides will do their best to facilitate a positive experience. "Tell your friends how much you loved it here," they say. Reliable Controls, too, delivers internationally recognized quality because it works with the best and continues to evolve. The Reliable Controls goal to help others achieve their goals begins by listening.

Costa Ricans say that the next 30 years are critical to meeting carbon-reduction objectives. In the world of building automation systems, that means you want products that are built to last. Reliable Controls technology is backward compatible. Install Reliable Controls products now and they will endure for decades. That's national-park-level return on investment.

This dedication to multigenerational success is unique to the Reliable Controls brand and reflects the company's pledge to sustainability. It's with purpose that its lineup of controllers or sensors are referred to as a family; each generation adds value, and nothing is rendered obsolete. Reliable Controls supports its legacy so that you have confidence in yours.

Reliable Controls strengthens its corporate family through collaboration, aligning with companies that share common values. Every Authorized Dealer can start with confidence, knowing Reliable Controls provides ongoing training and technical support.

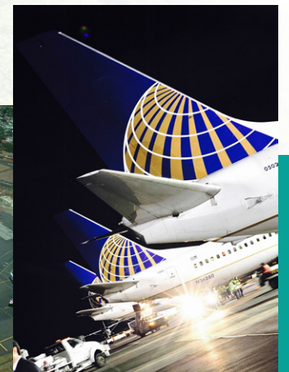
Solmatec, run by Alvaro Solis, is a six-person company on the rise. The Juan Santamaría International Airport was its first high-profile project, resulting in roughly $32,000 in energy savings in the first year. Currently Solmatec is working with Align Technology on a multilab project that extends internationally. The seamless BAS integration of multiple facilities will be made possible by RC-WebView®, the easy-to-use browser-based building management solution that will allow Align to efficiently manage any BACnet internet connected building.

Building sustainability is an art. It starts with vision. Costa Rica, Reliable Controls, and Solmatec are all dedicated to building a greener future. Their holistic focus on the natural environment, the built environment, and people means they're making a difference in every way that matters. *¡Pura vida!*

Visit our website to find a Reliable Controls Authorized Dealer near you.

The Solmatec team (from left to right): Cesar Pérez, Osiris Blanco, Álvaro Solis, Lucia Alvarado, Douglas Roque, and Andrés Reyes

Juan Santamaría International Airport, named for Costa Rica's national hero, is the second busiest airport in Central America, serving over 5 million travelers annually. In February 2020, Reliable Controls Authorized Dealer Solmatec successfully retrofitted the airport with Reliable Controls technology, without any downtime to airport operations. The three building automation system (BAS) brands installed over the years were unable to talk with one another; it was time for one user interface to tie all systems together. Reliable Controls products are meticulously engineered to provide convenient access, flexible application, and easy installation and expansion capability. Basically, they also like to play nice with everyone. The common language: BACnet.



1 According to the UN's 2020 World Happiness Report.
2 Renewable energy sources, according to the Costa Rican Institute of Electricity (ICE): 75.3 percent hydropower, 12.84 percent geothermal, 10.08 percent wind, 0.77 percent biomass, 0.01 percent solar.

A bright future: Lighting upgrades at Reliable Controls

The terrible thing about the lighting business is it changes so rapidly. The past few decades have seen incandescent technologies replaced by fluorescent T12s, compact fluorescents, T8s, T5s, and now LEDs. The pace of technological development is so rapid, manufacturers and suppliers aren't interested in stocking replacement parts or offering upgrade kits for old fixtures. Reliable Controls facilities staff were recently dismayed to discover that when expensive exterior fixtures failed after just a few years, replacement parts were not available.

The wonderful thing about the lighting business is that it changes so rapidly. The technology is transmogrified every few years, with new features and energy savings so enticing, owners and consulting engineers happily sign up to retrofit lighting fixtures and controls that were installed just a few years earlier! Building codes change constantly, requiring new fixtures, new control components, and new control strategies.

Reliable Controls designs its hardware products to last many years, which means it will be the next generation who performs a retrofit with those devices. When upgrading your lighting fixtures over the long term you won't have to worry about simultaneously upgrading your controls, which could be a costly endeavour. The flexibility of the hardware allows for easy re-programming to accommodate new sequencing. Consider the extended controller life offered when you use Reliable Controls, and your return on investment. Now that's savings!

Recently, the good guys in the Reliable Controls Facilities department joined the madness. Would you believe they just upgraded most of the lighting fixtures and controls in the south annex—less than 8 years after construction? Here's why:

The original installation used T5 fluorescent tubes and ballasts. Upgrading to LEDs provides significant energy savings.

The original dimming fluorescent ballasts were failing, which required an electrician and an expensive replacement part for each individual failure. It should be noted Reliable Controls never lost a single T5 tube in the 8-year period; that part of the technology was flawless.

The original EnOcean transceivers that came with the light fixtures proved to have firmware problems, and the hardware was failing at an unacceptable rate.

The original SMART-Sensor EnOcean Accesspoint devices and fixture transceivers used 315 MHz radios, which were superseded by 902 MHz devices a few years ago. For that reason, adding more EnOcean devices, like plug-load controls, to the existing 315 MHz system became problematic.

Fluorescent fixtures.

Well, the motivation was compelling, but the task of replacing or upgrading the existing beautiful, expensive fluorescent fixtures was daunting. So Reliable Controls hired an electrical consultant to do a study.

The consultant did a nice spreadsheet of the types of fixtures installed and recommended a suitable LED fixture replacement for each but did not include energy savings estimates. The total cost was unacceptable, so the team got discouraged and shelved the idea for a few months while continuing to replace ballasts and EnOcean transceivers.

Eventually, Reliable Controls started looking for a way to upgrade the existing fixtures without replacing them. The Facilities team learned that three types of LED tubes are available for installation in existing fluorescent fixtures.

For this project, Type A was out of the question, because it would not solve the problem of constant expensive ballast failures.

Then the team learned the manufacturer of these beautiful, expensive fixtures does not offer a kit for Type B or Type C LED retrofits.

Also, most lighting manufacturers don't make the job of selecting retrofit LED driver/LED tubes easy. Not to mention, these two components must be electrically compatible for the warranty and specified operating hours to be valid. And it turned out that many available drivers would not physically fit into the existing streamlined fixtures.

TYPE-A

Type A LED tubes are drop-in replacements for T5 or T8 fluorescent tubes. The LED driver is buried in the tube, and they are designed to operate with the old fluorescent ballast in place. Super easy to install, not that expensive, but…

- The old ballast uses energy, even when the light is off (5–7 watts each).
- If the old ballast fails, it has to be replaced to keep using the Type A LED.
- The location of the driver in the bulb is sensitive to heat. If the driver heats up, it can significantly reduce the life of the bulb.

TYPE-B

Type B LED tubes also have the LED driver mounted inside the tube, but they are designed to operate from main power directly. To use these bulbs, each fixture must be rewired to exclude the old ballast. That work requires a UL kit and an electrician, making this option much more expensive, but at least it does not reuse the nasty old ballast. On the down side, warning labels must be installed on the fixture, because main power is exposed at the tombstones holding the tube. Maintenance personnel need to be cautious when they replace tubes.

TYPE-C

Type C tubes do not have an internal LED driver, which means a separate LED driver has to be installed in the fixture. Again, a UL kit and electrician are required, but the result is basically an LED fixture with the lowest cost for replacement tubes.

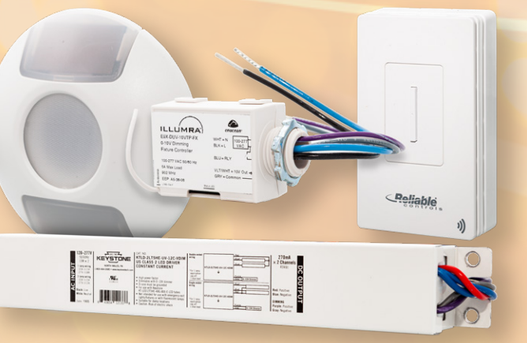
Eventually, the Facilities team found some driver/tube pairs from Keystone Technologies, based in Pennsylvania. The drivers were small enough to fit in the fixtures, the price was good, the company has been in business for over 75 years, and the documentation is readily understandable. Aside from choosing the color temperature, the only option to decide on was high efficiency (HE) or high output (HO). Reliable Controls ordered two ballasts and four tubes of each type to compare. The Facilities team subsequently installed the two sets of gear in the fluorescent fixtures of two adjacent offices in the south annex.

To justify the overall project, the team needed some data on the performance of the retrofitted fixtures. They hooked up a power meter to the power input of each fixture, which yielded the results in Table 1.

Wow! The efficacy, in lux per watt, of the fixture retrofitted with the HE components was typically three times that of the old fluorescent tube. At 100 percent command, it produced 40 percent more light while consuming 55 percent less power. The HO components produce much more light than necessary for this application.

Inspired by these results, the team went on to discover that since all the lighting components are UL certified, they could hire a local UL inspector to approve the converted fixtures. Game on.

In the end, the retrofit consisted of the following components, including spares (Table 2):



Light type	Dim % Cmd	Lux	Watts	VA	pf	Lux/ watt
Fluorescent	100	196	120.5	120	0.99	1.63
HO LED	100	300	100.8	101	0.99	2.89
HE LED	100	274	53.8	54	0.99	5.09
Fluorescent	75	192	116.4	116	0.99	1.65
HO LED	75	260	84.2	84	0.99	3.09
HE LED	75	232	44.8	45	0.99	5.18
Fluorescent	50	136	85.6	85	0.99	1.59
HO LED	50	180	54.4	54	0.99	3.31
HE LED	50	156	29.3	29	0.99	5.32
Fluorescent	33	88	63	63	0.99	1.40
HO LED	33	124	34.8	35	0.98	3.56
HE LED	33	106	19.2	19	0.98	5.52
Fluorescent	25	64	50.6	50	0.99	1.26
HO LED	25	92	25.6	26	0.97	3.59
HE LED	25	78	14.3	14	0.98	5.45
Fluorescent	10	8	23.3	23	0.99	0.34
HO LED	10	40	10.5	11	0.91	3.81
HE LED	10	30	6.1	6	0.93	4.92

Table 1

Manufacturer	Item	Part number	Quantity
Illumra	EnOcean transceiver	E9X-DUV-10VTP-FX	85
Reliable Controls	SMART-Sensor EnOcean Accesspoint	SSEA3-902-O/W	60
Keystone	LED driver	KTLD-2LT5HE-UV-12C-VDIM	160
Keystone	LED tubes	KT-LED12T5HE-48G-835-E	320
Echoflex	Lux sensor	TAP-31U	50
Echoflex	Battery for lux sensor	CR1632	50
Reliable Controls	Labels		160

Table 2

Peripheral components: Illumra EnOcean transceiver, SMART-Sensor EnOcean Accesspoint, Keystone LED driver, and Echoflex lux sensor.

Reliable Controls was aware that with its typically low operating hours and high rate of dimming, the energy savings of the overall retrofit would not be high. The Facilities team estimated a 3 percent drop in the electrical energy consumed in the south annex, or about $672 per year. Nevertheless, the other considerations carried the day, and management approved the project.

A Reliable Controls Authorized Dealer performed the electrical installation in August, which created very little disruption to staff, who had been chased out of the building by COVID-19. The other benefit of an empty building is very few complaints. Unfortunately, it will be difficult to differentiate the actual energy savings due to the lighting retrofit, because about 60 percent of the lights have been off continuously since March 2020.

Nevertheless, with new LED bulbs, a LEED Platinum–certified heritage, and energy use about 14 percent below design intent, the Reliable Controls south annex continues to be a shining example of the Art of Building Sustainability.

People and technology you can rely on™

People you can rely on

Celebrating the women of Reliable Controls for Women's History Month

The women who work at Reliable Controls are praise-worthy every day of the year—and especially in March. Reliable Controls celebrated Women's History Month with a series of interviews, shared on social media. Women from each department spoke about their experiences and offered advice to those joining the industry today.

Karina Silva

As regional sales manager, Karina likens her job to farming and hunting; cultivating a relationship continues far beyond the moment she signs a new client. She takes care of her dealers; her hands-on approach means she can anticipate issues before they arise and liaise between the dealer and HQ.

Karina has worked in the industry for 20 years, focused on Latin America. Since joining Reliable Controls, she extended our reach into that market—a challenge she enjoys! Because of Karina's efforts, we're gaining brand recognition in countries where we didn't yet exist.

Karina has always been a trailblazer. At Belimo (where her career began), she was one of the first women to work in sales in Latin America. She started a trend of hiring only women for customer service, realizing that the natural nurturer quality had advantages in her region, which is still largely male dominant.

Clients connect easily with Karina; she understands her market, listens first, and delivers what she promises.

She's also not afraid to part ways with a dealer if their integrity is questioned. Her goal is to build strong, sustainable relationships—once again pioneering a modus operandi in a region traditionally driven by short-term fixes.

Karina joined Reliable Controls because our philosophy aligns with her own: The triple bottom line means we can be successful while taking care of customers and the planet. She stands behind our products, and we stand behind her.

Karina's advice to women joining our industry: Don't apologize for being a woman—own it and be yourself. Share your ideas; we need the female perspective to balance things out. Women approach problems differently. Seek the advice of other women who have succeeded in the field—some things we only learn from experience.

Thank you for your contribution, Karina. Here's to many more years of collaboration!

Pamela Duncan

Pamela, our supply chain and logistics manager, is passionate about process development, always looking for ways to improve. She began in the electronics manufacturing industry in 1994; it's this path that led her to us.

In her early years as purchaser, Pamela wore multiple hats. She is proud to have helped lay the foundation for the production team, replacing the holler-down-the-hall method, to ask who's making what, with a streamlined system of schedules, detailed documentation, and a change-development program.

The team can forecast demand, secure material, and establish trust with manufacturers, resulting in a steady supply of products. "You have to stay ahead of change. In this market, if you're reactive, you're in trouble."

Pamela watched Reliable Controls outgrow buildings and quadruple staff yet retain the original culture. "Having a family away from family is amazing. Everybody helps each other succeed. Even kitchen interactions are considered valuable; creative inspiration doesn't just happen at your desk."

As a manager, Pamela understands the power of trust within a team—she cultivates a spirit of appreciation, encouraging everyone to share ideas. "When you're comfortable and feel that you can be yourself, that's when you progress the most." She looks forward to whiteboard sessions with her team.

This respectful collaboration, right through to senior management, keeps Pamela motivated. "If you have a thought or concern, they're open to what you have to say and will never judge you." Having also experienced jobs where people didn't dare to speak, here she feels empowered. "This is innovation. We don't want to miss the little things—they're what could take us to the next level."

Pamela's advice to women joining the industry: Be confident. Push forward. Women need to stand behind women—how else are we going to make changes? Don't take no for an answer. Support people and they will support you; it's how we grow as individuals and as a company.

Thank you for your contributions, Pamela. We're stronger with you on our team!

Terry Bell

Armed with a diploma in computer systems operations and management, Terry found her niche in eLearning. After years of working in IT, then as a software implementer/trainer, she landed at Reliable Controls. "Working for a company that actually makes a difference is a huge draw—and something I'm proud of."

As our senior eLearning developer, Terry is driven by innovation. "Things are always changing in eLearning; there's always an opportunity to create newer and better material." Anyone who has worked with our eLearning library has encountered Terry's skills; our dealer certification courses are supplemented by interactive modules and instructional videos. Thank you, Terry, for bringing the training department into the post-Flash world.

Karaoke. Terry loves it! Thanks to her, our company parties feature karaoke. Terry's social skills are her superpower: She genuinely cares about her colleagues, is the first to offer praise, and can lighten any mood with humor. Birthdays don't go unnoticed by Terry; the harder it is to surprise someone, the more she enjoys it. Her manager says, "I think people work in the training department mostly so they can hang out with Terry."

In nearly all her past jobs, Terry was the first or only woman in her department. She had been prepared to work in male-dominant industries: The interviewing advice she received in college focused heavily on skirt length and general appearance! Thankfully the industry has evolved since then. Terry's advice to women today: Be vocal about what you want and expect, and don't be afraid to pat yourself on the back when others pat you on the head. And while you're at it, celebrate other women, too.

Thank you for being you, Terry. Our company culture and training efforts thrive with your contributions.

Sarah Sorenson

Creative collaborator, avid paddler, and women's advocate—our Sarah represents team spirit and isn't shy about inciting change.

As UI/UX designer, it's Sarah's job to make our software intuitive and aesthetically pleasing. She defines design success by users not having to look at the help guide. Her role was new when she stepped into it; the changing nature of her work means she and the role continue to grow together.

Sarah enjoys a challenge and is proud to have brought our software into the 21st century—abandoning the Windows 95 look. She's also the team negotiator, unifying the ideas between product owners. "All our products are vastly different, and what works for one has to work for them all."

Sarah has a graphic design background and formerly worked in print. She transitioned to mobile and web work in 2008; print departments were the first to be slashed during the recession. When Reliable Controls posted a position that didn't require her to code designs, she leaped at the opportunity. She was drawn to Reliable Controls because it's a green tech firm. "This job gives me the opportunity to use my skills to be part of the change," she says.

Her contribution to a healthier environment starts by cycling to the office—a building she enjoys, except for one detail: the women's changeroom, or lack thereof. Sarah made some noise, and now the women, too, have an appropriate space with lockers at the Hallowell office. She also advocated for women's apparel. A lesson we can learn from Sarah: Speak up when you'd like things to change; if you don't voice concerns, they can't be acted on.

Sarah recently relocated to our Garbally office, near Victoria's upper harbor, and discovered dragon boating—a sport she now loves. To bridge the off-season, she also took up outrigger paddling. She looks forward to returning to practice once the pandemic is behind us.

Thank you, Sarah, for standing out—and doing outstanding work. We're proud you're on our team!

If you enjoyed these interviews and would like to read more, follow us on social media.

Juliana Yu

How does one rise from accountant to vice president of a successful tech company? Integrity, dedication, hard work, and expertise. Juliana also brings flair. She was the first appointed VP of the company and remains the only woman in the upper echelon to have a voice among baritones. And they listen.

Juliana is responsible for the financial well-being of Reliable Controls, including the branches in the US, China, Singapore, and Australia. She says, "I'm blessed to work with such wonderful, loyal women who make me look good." As if her job isn't demanding enough, Juliana also makes time for her creative passions—interior design and architecture.

When Reliable Controls went through a growth spurt and annexed the parking lot, Juliana volunteered to oversee the design and construction. Impressed by the style of her home, the past president gave her free rein; her decisions have never been questioned. Juliana's goal is to create spaces that leave a lasting impression, elevating our offices to Apple standards. "When people walk in the building, they want to come and work with us." With each renovation she builds her legacy.

Juliana's industriousness gained the respect of her peers. She laments that new generations arrive with a sense of entitlement. "It's not all about the money," she says. "Be humble." She has earned the right to speak her mind and directs her advice to all levels within the company. "I'd like to see more empathy between colleagues." Juliana makes time to speak with employees, showing interest in their personal well-being. Greeting people in the hall is the simplest form of acknowledgement.

The building automation industry is not what drew Juliana in; it was "just a job" that she applied for—one she never expected to last this long in. Her team, some of whom she has worked with for 20+ years, are the heart of the job for Juliana. We feel the same about her.

This year we'll celebrate Juliana's 25th anniversary. Thank you for everything you've done!

SALVATION ARMY COMMUNITY CENTER AND ADMINISTRATIVE OFFICES

BOISE, IDAHO, UNITED STATES

EDUCATION

OVERVIEW

The Salvation Army began offering services in Boise in 1888, 2 years before Idaho became a US state. The organization built a new multipurpose community center in the city in 2019 to house a child care center, auditorium and chapel, gymnasium, commercial kitchen and cafeteria, administrative offices, and school program for pregnant and parenting teens. The new facility offers education, recreation, arts, social, and spiritual programs for youth, adults, and older adults in an underserved neighborhood in West Boise. The Salvation Army has one agenda: to meet human need without discrimination.

PROJECT DETAILS

Reliable Controls Authorized Dealer Sunbelt Controls successfully installed a Reliable Controls system at the new Salvation Army facility in Boise.

A MACH-ProWebSys controller serves as the master building controller and web server. It hosts the variable air volume units throughout the building and exhaust fans, as well as the rooftop and air-handling units, via MS/TP. MACH-ProAir controllers and SMART-Sensor EPD devices manage the variable air volume terminals. Sunbelt installed a MACH-ProZone to control exhaust fans and other miscellaneous objects, with MACH-ProPoint expansion modules that expand input and output capabilities. On the second floor, a MACH-ProSys provides utility and CO_2 monitoring and control of exhaust fans, hot water heaters, and variable frequency drives over BACnet MS/TP. The gym and community center are served by packaged rooftop units that building managers operate using MACH-ProZone controllers.

RC-Archive software logs and stores system data, and RC-Studio provides local access to the system and database. The integrated web server in the MACH-ProWebSys allows operators to implement custom schedules, browse System Groups, and view trend logs for various zones in the building using any standard internet browser.

Sunbelt Controls met the challenge of providing a quality building management system at a price that was accessible for a non-profit organization. Community is one of Sunbelt's core values, and the organization took pride in delivering a robust and economical building management system for the Salvation Army.

To learn more about projects that use Reliable Controls, visit
reliablecontrols.com/projects

PROJECT TYPE
New construction

TOTAL AREA
4,181 m² (45,000 ft²)

INSTALLATION TYPE
HVAC

EQUIPMENT INSTALLED
36 MACH-ProAir™ controllers
2 MACH-ProPoint™ expansion modules
1 MACH-ProSys™ controller
1 MACH-ProWebSys™ controller
8 MACH-ProZone™ controllers
2 SMART-Sensor™ LCD devices
47 SMART-Sensor EPD devices
5 SMART-Sensor EPD devices with CO_2 sensors
1 SMART-Space™ Controller
RC-Archive® software
RC-Studio® software

NETWORK
EIA-485, Ethernet

PROTOCOL
BACnet

INTEGRATED EQUIPMENT
Daikin air-handling units, Laars boilers, ABB variable frequency drives

OBJECTS
350

RELIABLE CONTROLS AUTHORIZED DEALER

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