



**TAKE CONTROL  
OF YOUR COMFORT:**  
Introducing the myControl App

**ILLUMINATING THE  
PATH TO A BRIGHT FUTURE:**  
Exploring RHQ Lighting



[www.reliablecontrols.com](http://www.reliablecontrols.com)

# RUNtime

The Official Quarterly Newsletter of Reliable Controls® Corporation

Q1 - 2015



INTRODUCING  
**RCReporter®**  
Building Performance Reporting Software



Web-based building performance software that lets you access and analyze your data on the fly!

**Mobilize your data.  
Make improved operational decisions.**



Member of  
**BACnet®**  
International

**Reliable®**  
controls

# INTRODUCING RC-REPORTER®

Web-based building performance software that helps to improve operational decisions

**E**xtract intelligence from your archived building data and make more informed operational decisions with RC-Reporter®. This fully customizable, server-based application allows you to analyze the trend and runtime data from any BACnet®, Internet-connected building, and generate professional performance reports, quickly and accurately.

Using the latest in web technologies, RC-Reporter is designed to operate optimally with Windows Server 2012, IE 11+, Chrome, and Safari, supporting both PC and Mac users alike. Reports generated with RC-Reporter are sharable using email notifications. The software depends on archived building data either from RC-Archive or from CSV files.

RC-Reporter delivers a simple, flexible, and sustainable web-based solution that provides analysis to help you focus on the bigger picture and be more confident in your long-term, operational decisions.

## Innovation

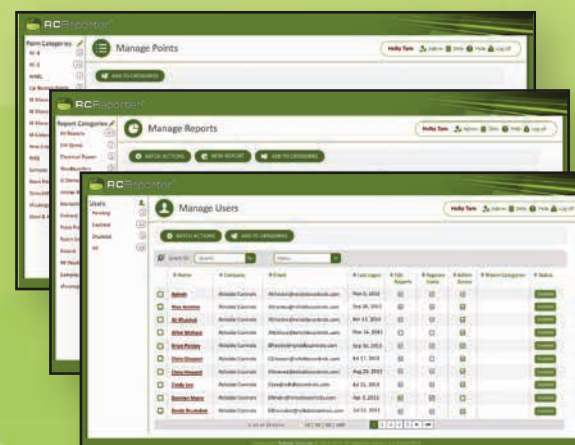
Create a wide variety of building reports from any BACnet, Internet-connected site and access using any standard browser on a desktop or mobile device.

## Impact

Derive meaningful analysis from the resulting reports and make informed operational decisions that impact your company's triple bottom line.

## Value

With its powerful point filtering and categorization, standard and advanced querying, automated report distribution, and drag-n-drop ease of use, RC-Reporter allows you to author and share building performance reports with confidence and ease.



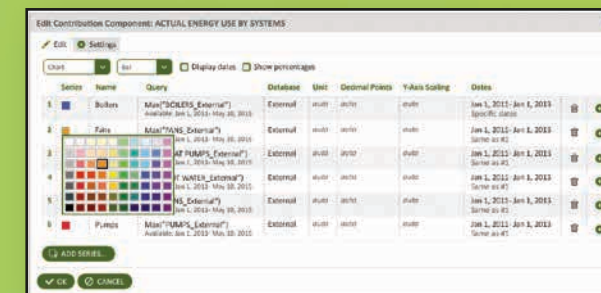
Manage points, reports, and users effectively and efficiently.

## Effective Report Management

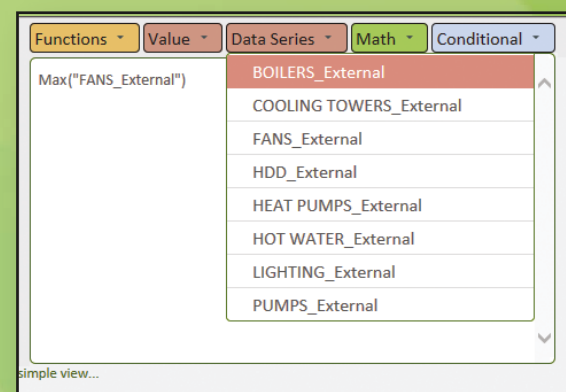
Powerful and intuitive filtering provides effective point retrieval and tagging. Reports can be categorized by application and user, and exported for sharing in other databases. Full permission controls allow numerous users to be managed efficiently.

## Rich Component Editing

Rich component editing provides authors with the flexibility needed to produce creative and visually impressive reports. A wide selection of fonts, colors, borders, and headers are user selectable!



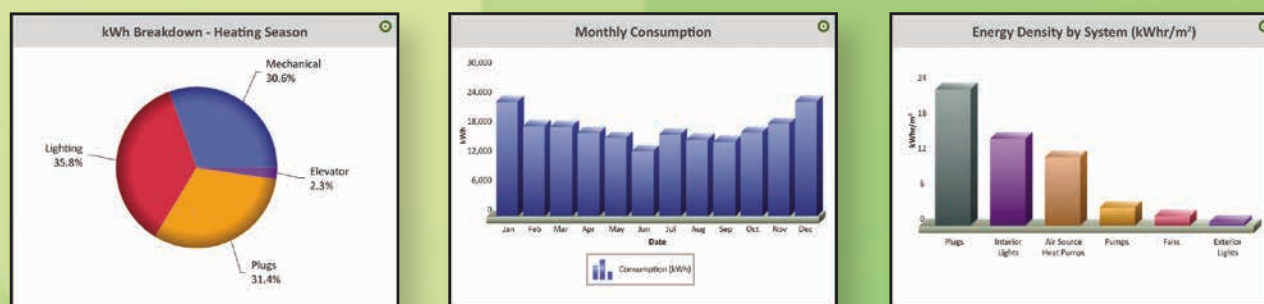
Choose formats and styles with feature rich component editing.



Leverage powerful query capabilities.

## Powerful Query Capabilities

The query capabilities in RC-Reporter allow you to apply a wide range of math functions, transforms, and operators to your data, and extract intelligence from the data to display aggregates, exceptions, normalizations, and much, much more.



Easily produce a wide variety of charts using Date Range, Profile, Correlation, and Contribution components.



**RCReporter®**  
Building Performance Reporting Software



# RC-REPORTER® IN ACTION

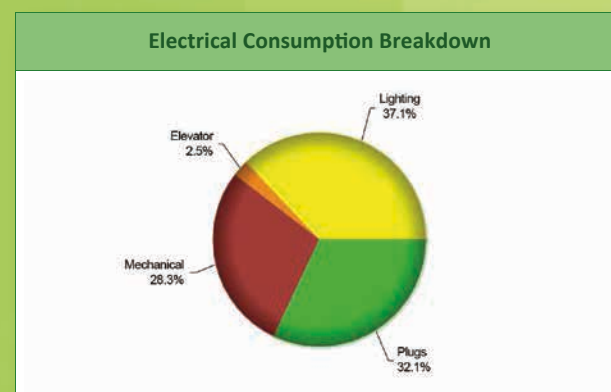
Using the latest software at Reliable Controls Headquarters (RHQ)



generated weekly and automatically emailed to upper management and building operators.

Each of the graphical components on the report contain the data we need to quickly review the progress made on our building, and because it pulls from historical data, we are able to compare our current year to our previous.

The *Contribution* component, for example, allows us to identify our largest consumers of energy, which are (in order) lighting, plugs, and then mechanical. With this data presented before us, it became clear that improvements in the efficiency of our lighting methods could reap large benefits.



This chart shows that lighting equipment was the greatest consumer of electricity in 2014 and; therefore, was the number one target for improvement. As temperatures drop; however, mechanical equipment is expected to take over as the greatest consumer of electricity.

Here at "RHQ" in Victoria, we have some challenging goals around our consumption of energy and water.

In regards to energy, we are making progress towards achieving a 50% reduction of energy compared to the design specifications set forth in the ASHRAE 90.1 standard for our geographical region.

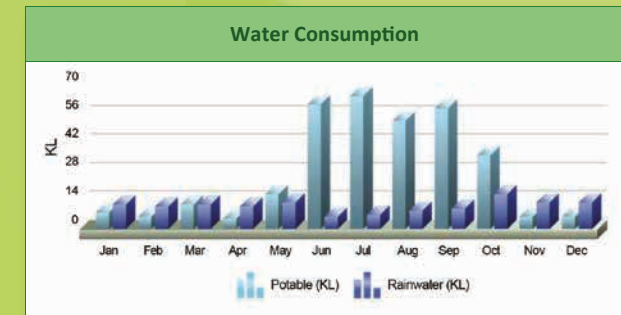
Our water targets are equally stringent, where we aim to reduce overall potable water consumption by 30% and potable water used by irrigation by 50%.

But how do we know that we are meeting these targets? And if we weren't meeting them, exactly where would we look to fix things?

RC-Reporter is quickly becoming an essential tool for not only tracking our progress, but optimizing the performance of our building. The custom reports we create with the software are

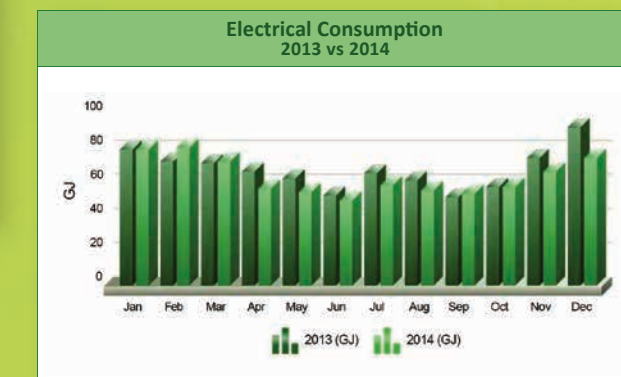
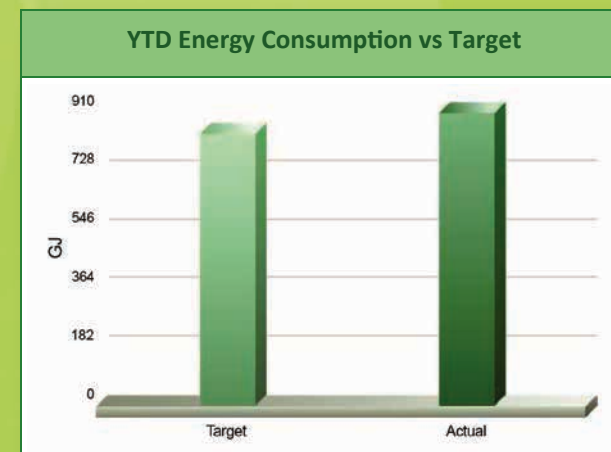
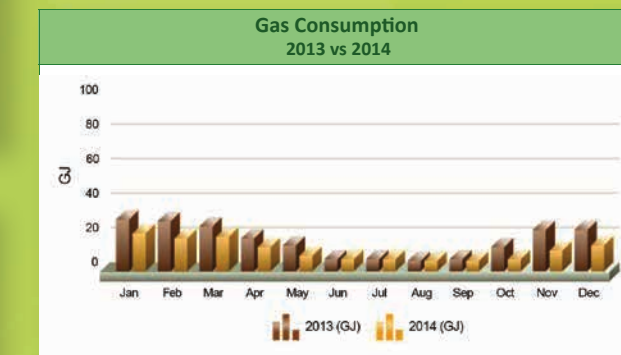
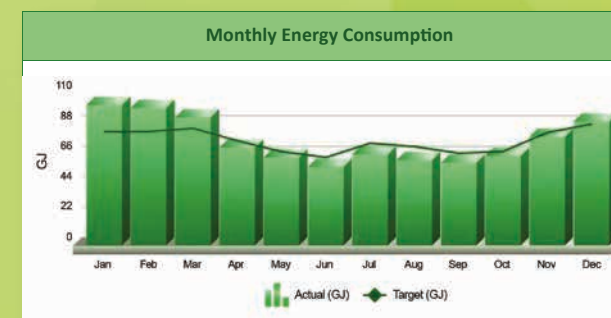
The Reliable Controls MACH-system™ calculates a daily target for energy consumption, based on 50% of ASHRAE standard 90.1, adjusted for actual heating and cooling degree days. Standard 90.1 is used to predict the energy consumption of an energy efficient building in our geographic region. In 2014, the actual energy consumption of the South Annex exceeded target during the winter months, but was consistently on or below target from May to December. The total for 2014 ended up at 53.5% of ASHRAE 90.1. This result shows good progress from 2013, when the total energy was 59%. In 2015, we are working with RC-Reporter to reduce the total energy consumption of the South Annex to below target.

required. We were forced to use potable water to flush toilets June through September, while enjoying a beautiful summer with very low



rainfall.

Gas consumption was reduced markedly in 2014, mainly through BAS programming changes that minimized the use of gas for



The water consumption comparison for 2014 shows the increased potable water consumption in the summer months, when irrigation is

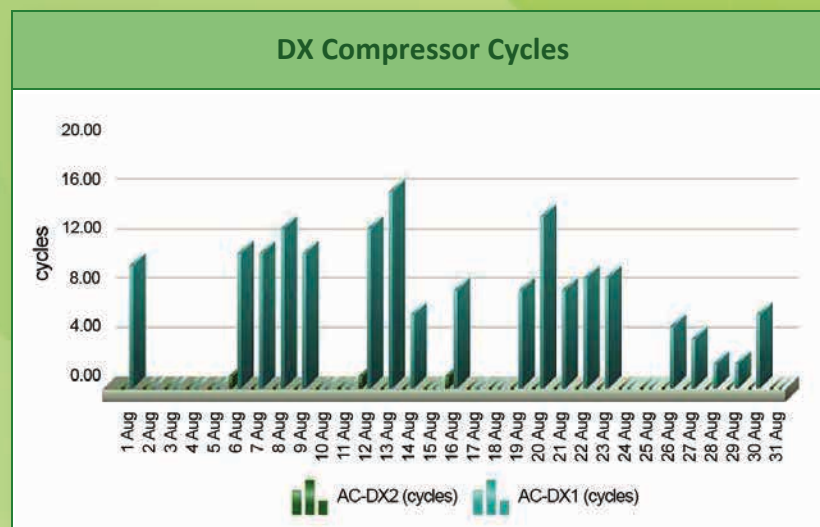
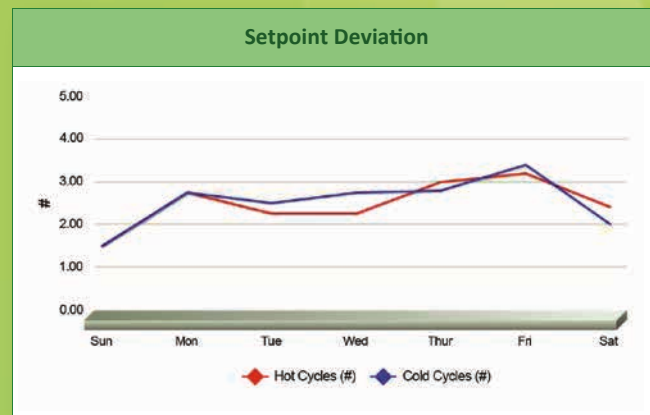
building heat. Most building heat is now supplied by high efficiency, electric heat pumps. Another important use we have for RC-Reporter is present in the data graphs of cycling of fans, pumps, and compressors. We are seeking equipment that is "short-cycling", which is costly, because it leads to a shorter lifespan.

RC-Reporter allows us to quickly identify this "low-hanging fruit" so we can focus on improving the

areas that will yield the most gain. The awareness that RC-Reporter creates brings forth new initiatives, which benefit us all.

To view an updated report of our building performance, please visit [www.reliablecontrols.com/corporate/facility](http://www.reliablecontrols.com/corporate/facility) and click on "performance".

The graph to the right displays the number of times the room temperature deviated from the setpoint by more than 1°C. The number of occurrences is averaged for each day, over the selected month. This is very helpful for monitoring comfort conditions in an occupied space.



This graph clearly shows a reasonable number of cycles for the two stages of DX cooling. The second stage will exhibit more cycles as the outdoor air temperature rises.

## Passive Design Payoff

*Passive design of Pacific Northwest headquarters performs admirably in first year.*

**Three quarters of all electrical energy** is consumed by the buildings we work and live in, and one of the key objectives of the green building movement is to attempt to reduce that electrical demand by designing to minimize heating and cooling loads and maximizing natural lighting and applying daylight harvesting techniques. For the Reliable Controls headquarters annex, all these electrical energy conserving strategies were put into practice. This 4,000 m<sup>2</sup> (43,000 ft<sup>2</sup>) facility which houses the research and development and administration and marketing departments for the company, utilizes 50% less energy than what the ASHRAE Standard 90.1-1999 reference building consumes, and saves approximately 240,000 kWhr per year. Located in Victoria, British Columbia, Canada, at the southern tip of Vancouver

Island, the mild winters and cool summers make the facility ideal for air-source heat pump application. The two air source heat pumps heat and cool the extensive radiant flooring throughout the facility. Two small backup gas fired boilers provide supplemental heat and domestic hot water heating. Ventilation is accomplished predominantly by passive means using 57 trickle-vent units located under each perimeter window. There is very little ductwork or mechanical ventilation in the design save the larger meeting rooms and a heat recovery ventilator which operates only in the winter months, when the perimeter dampers of the clerestory wind tower are not in use. Exterior sunshades keep solar heat gain to a minimum and 98% of the occupants have direct line-of-sight views to the outdoors, which greatly reduces the demand for interior lighting. LED lighting in corridors and energy efficient fluorescent lighting with dimmable daylight harvesting coupled with variable speed drives on most pumps helped this facility earn 8 out of 10 possible points for the LEED Optimized Energy Performance credit EA1. Of course, monitoring and controlling the energy performance of the facility was a task all too familiar for the company.

Air is exhausted through the wind tower at the building's roof.



### >TEAM

**ARCHITECTS** D'Ambrosio Architecture and Urbanism

**Client** Reliable Controls

**Energy consultant** Avalon Energy Management

**Engineers** Read Jones Christoffersen (structural); Cobalt (mechanical and electrical)

### >KEY PARAMETERS

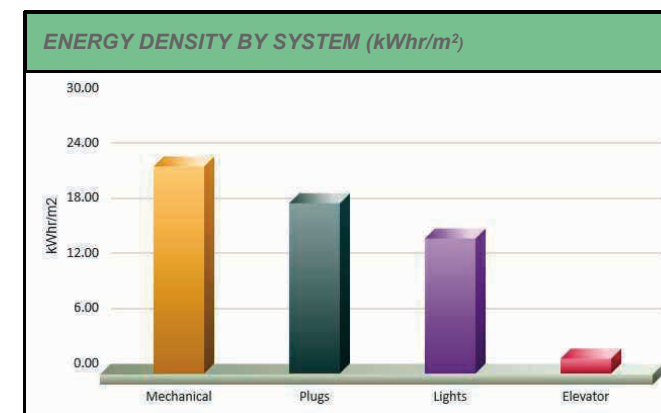
**LOCATION** Victoria, BC, Canada

**Gross area** 42,808 ft<sup>2</sup> (3,977 m<sup>2</sup>)

**Cost** \$8 million

**Annual purchased energy use (2011-12)** 19 kBtu/ft<sup>2</sup> (217 MJ/m<sup>2</sup>), 54% reduction from base

**Annual carbon footprint (saved)** 145,505 lb CO<sub>2</sub> (66 metric tonnes CO<sub>2</sub>)







myControl®

# CONTROL YOUR COMFORT

The myControl® mobile app offers fully customized mobile interfaces to your Reliable Controls MACH-System™

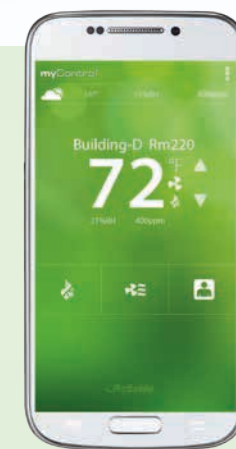
**R**eliable Controls is pleased to announce the release of myControl®, a fully customized, mobile interface for the popular MACH-System. This app is compatible with both Android and IOS operating systems, and can be downloaded from either the Google Play Store or Apple App Store.

The myControl user interface provides individual personal control for occupants through accessible settings for occupancy, temperature, lighting, ventilation, and more. Having personal access offers user empowerment and accountability, as well as the potential for additional energy savings.

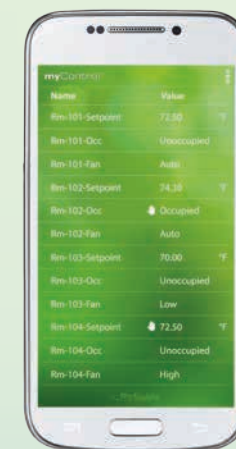
Any configured MACH-System control point can be monitored and adjusted using the app.

Contact your local Reliable Controls Authorized Dealer at [www.reliablecontrols.com/sales](http://www.reliablecontrols.com/sales) to learn how to get the myControl app directly into your hands.

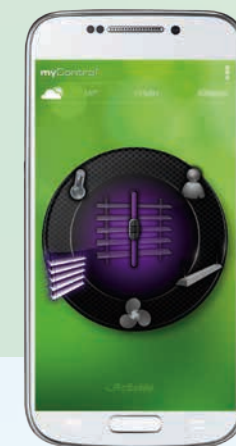
- **STATview** provides a programmable thermostat interface, allowing users to monitor and control the operation of unitary HVAC equipment



- **LISTview** provides a custom list of system points that an occupant or operator can quickly view and adjust



- **SPACEview** provides an easily understandable interface for occupants to adjust environmental conditions in their space

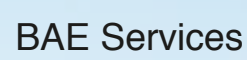







people & technology  
you can rely on™



# NEW DEALERS

New Reliable Controls Authorized Dealers include:

 <b>BAE Services</b>	<b>BAE Services</b> Alexander Heights, WA, Australia
 <b>BLACK DIAMOND CONTROLS INC.</b>	<b>Black Diamond Controls</b> Draper, UT, USA
 <b>e-partners</b> sistemi automatici	<b>E-Partners SAS</b> Falconara Marittima, AN, Italy
 <b>INNOVCONTROLS</b> Futuristic Solution	<b>Innov Controls Technology (1) Pvt Ltd</b> Bangalore, India
 <b>MODERN CONTROL SERVICES, INC.</b>	<b>Modern Control Services, Inc</b> Cedar Rapids, IA, USA
 <b>URBAN ENERGY UES SOLUTIONS</b>	<b>Urban Energy Solutions, Inc.</b> Phoenix, AZ, USA

# TRADE SHOWS

Visit Reliable Controls at these upcoming trade shows:

**NFMT 2015**  
March 10-12, 2015, Booth #2121  
Baltimore Convention Center, Baltimore, MD, USA

BUILDING OPERATING MANAGEMENT'S  
**NFMT2015**

**ISH**  
March 10-14, 2015, Hall 103, Stand #D50  
Messe Frankfurt Exhibition GmbH, Frankfurt, Germany

**ISH**

**Globalcon**  
March 17-18, 2015, Booth #624  
Pennsylvania Convention Center, Philadelphia, PA, USA

**GLOBALCON**  
Energy, Power, & Facility Management Strategies & Technologies







# EFFECTIVE OPERATOR TRAINING

An educated operator can reduce maintenance and energy expenditures while balancing comfort and cost

**R**eliable Controls is committed to having the most satisfied customers in the industry, including the end users who operate the popular Reliable Controls MACH-System™. Training and documentation are key components in achieving our goal.

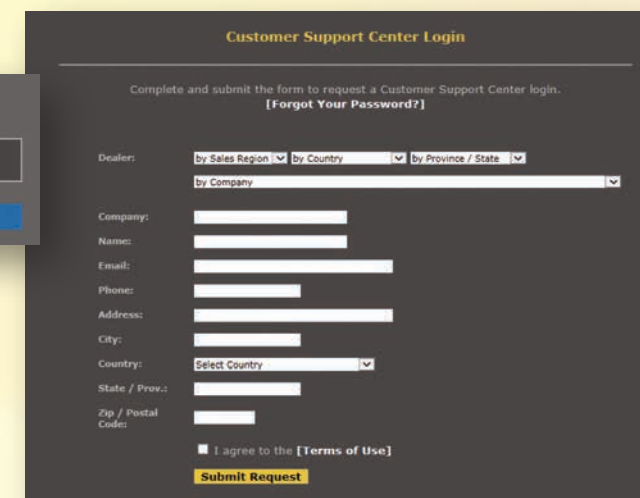
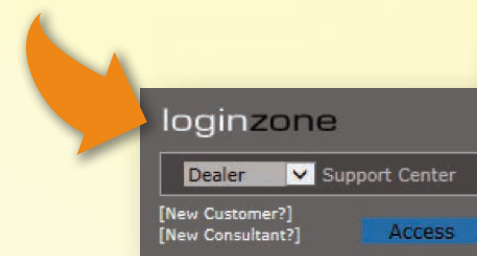
Next, sign up for an upcoming, two-day operator training session in your area. Reliable Controls operator training sessions include hours of hands-on experience using RC-Studio connected to a live control network! This course has been attended by hundreds of operators across North America, and consistently receives approval ratings of over 90%.

Operator training is a two-day course, ideal for facility managers and operators who wish to derive maximum benefit from their MACH-System installations. Attendees typically have computer experience and have regular operation of an RC-Studio® workstation as part of their job description. The course includes database entry, alarm management, control-BASIC programming, scheduling, trend logs, runtime logs, system group graphics, and more.

Once you have access to the Customer Support Center, the following educational materials are available for free!

To sign up, visit [www.reliablecontrols.com](http://www.reliablecontrols.com), select "New Customer?" on the left side of our home page, and fill out the form, which will automatically be submitted for approval to the Reliable Controls Authorized Dealer of your choice.

- Complete user guides for Reliable Controls current and legacy controllers and software
- Online eLearning courses covering current controllers
- Operator training manual
- Online training videos
- Dates for upcoming operator Training classroom sessions



You will receive a password for the Customer Support Center, where you can access a plethora of material and information.



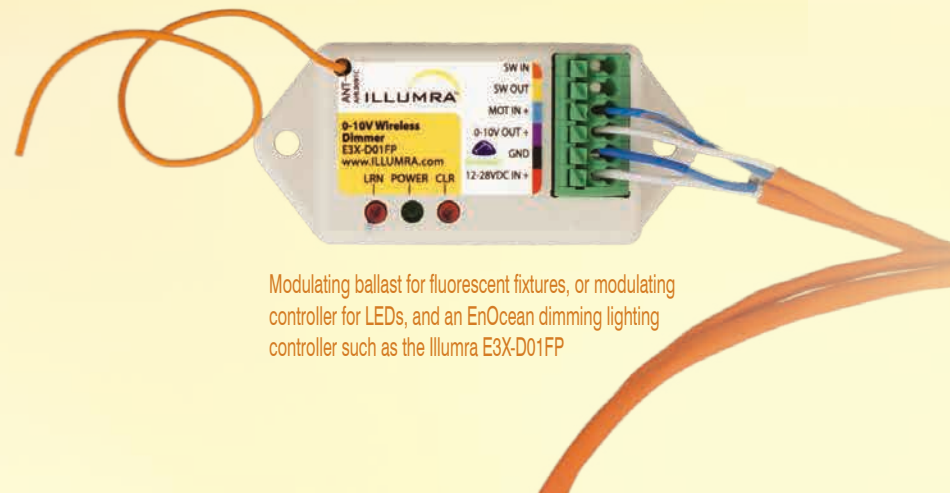
# LET THERE BE LIGHT!

Reliable Controls illuminates the path to a bright future

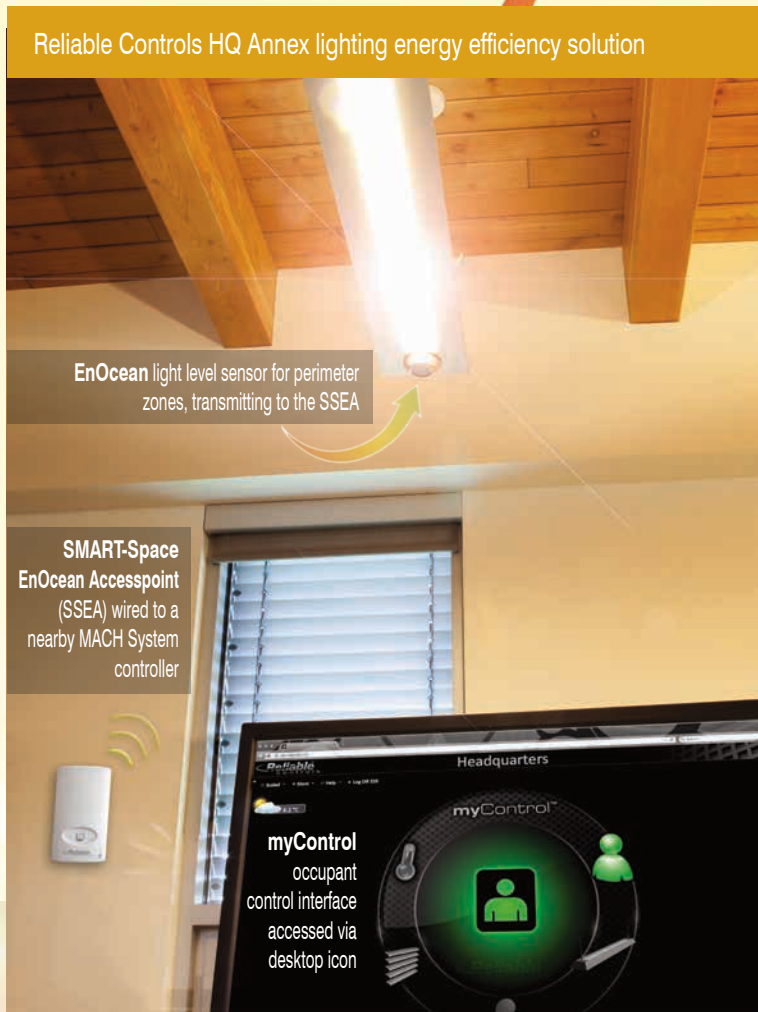
Over the past two years we've had a lot of fun at RHQ, trying out lighting systems in our older North building and in our new, LEED® Platinum certified South annex, completed in 2012. We have had some successes and some near misses... this article features the solutions that worked, and which are currently saving us energy and reducing maintenance!

## Low Voltage Lighting Control Retrofit Solution

When retrofitting a building that does not have an existing low voltage lighting system, there are no low voltage wires run out to switches and fixtures from a central location. Having to run new wire greatly increases installation costs. In this scenario, a wireless lighting solution may yield the lowest overall cost!



Modulating ballast for fluorescent fixtures, or modulating controller for LEDs, and an EnOcean dimming lighting controller such as the ILLUMRA E3X-D01FP



Reliable Controls HQ Annex lighting energy efficiency solution

EnOcean light level sensor for perimeter zones, transmitting to the SSEA

SMART-Space EnOcean Accesspoint (SSEA) wired to a nearby MACH System controller

myControl occupant control interface accessed via desktop icon

The dimming fluorescent fixture in the office shown on the previous page is turned on starting in the morning when the occupant swipes their security card at an entrance reader.

During the day, the occupant can turn their light(s) on or off and adjust the lighting set-point for their space via the Reliable Controls myControl interface (available through a desktop browser or mobile device app). The light level in the space (artificial plus sunlight) is sensed by the light level sensor mounted on the fixture, and transmitted to a nearby MACH-ProZone™ (or any other Reliable Controls controller). The MACH-ProZone compares the current light level to the occupant set-point, and sends a modulating output command to the SSEA™, which forwards the command wirelessly to the ILLUMRA controller and ballast. If the application demands local switches, choose from a wide range of available EnOcean wireless switches!

This solution can provide occupant control of individual fixtures in open office spaces that were previously grouped together and controlled by a single switch!

## New Construction or Replacement of Older Low Voltage Lighting System

In either of these scenarios, centralized wiring is not as much of a concern.

If Reliable Controls components are already used for HVAC control, the best choice for a low voltage lighting system should logically use Reliable Controls components... why?

- One connection provides the operator full access to both lighting and HVAC control. Choose between RC-Studio®, RC-WebView®, MACH-ProWeb™ or myControl® interfaces.
- The lighting system can take advantage of the alarm, schedule, historical data storage, and system group features of the MACH-System™

- The flexibility of Control-BASIC can be employed for creating groups and scenes
- Use standard momentary contact low voltage switches

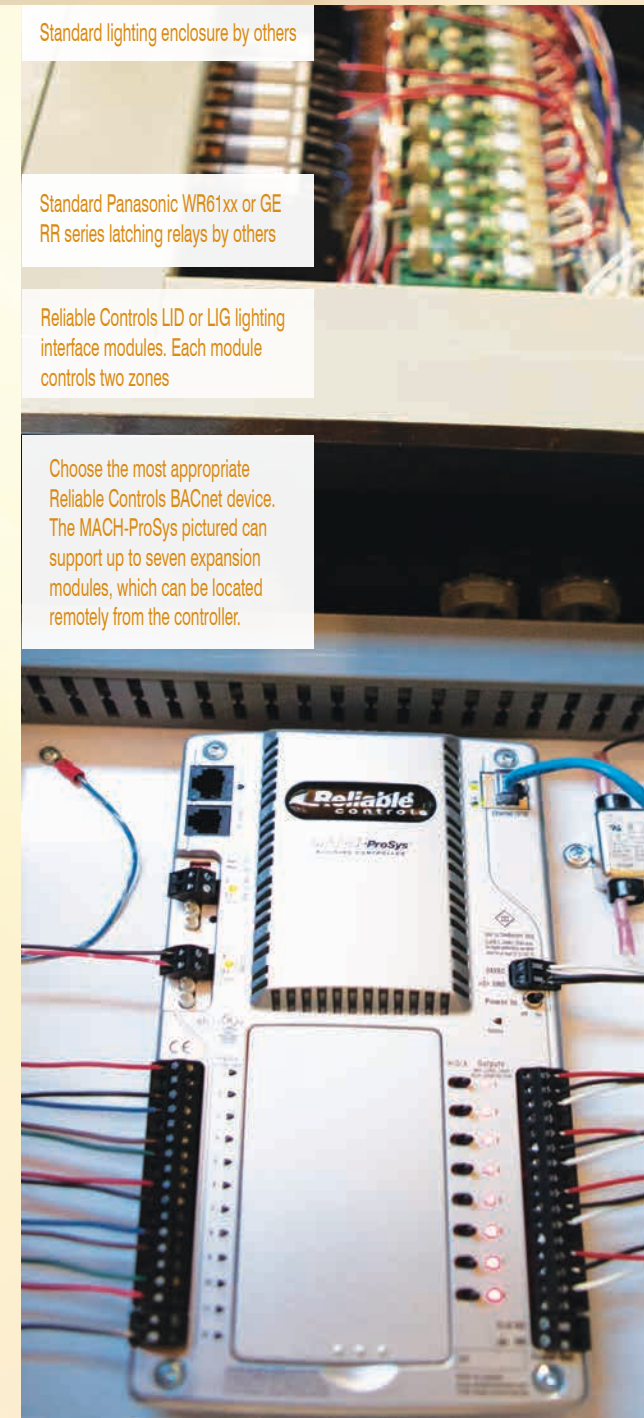
For more information on low voltage lighting, contact a Reliable Controls Authorized Dealer!

Standard lighting enclosure by others

Standard Panasonic WR61xx or GE RR series latching relays by others

Reliable Controls LID or LIG lighting interface modules. Each module controls two zones

Choose the most appropriate Reliable Controls BACnet device. The MACH-ProSys pictured can support up to seven expansion modules, which can be located remotely from the controller.





# 135 EAST 79TH ST.

NEW YORK, NY, USA

RESIDENTIAL

## FAST-TRACKED EFFICIENCY

A luxury residential building, 135 East 79th St. was a fast-tracked project that required a dedicated team of control engineers to provide detailed engineering, comprehensive project management, and high caliber field work.

## PROJECT DETAILS

Certus Controls, a Reliable Controls® Authorized Dealer, successfully completed this fast-tracked, residential project, working through all installation and engineering details during the coordination phase to achieve all schedule milestones while timely mitigating all field conditions.

The heating system is a PRV station that converts high pressure steam to low pressure steam, which is then converted to hot water through a shell and tube heat exchanger. The hot water is pumped through the building with two variable speed pumps. The cooling system consists of a water cooled chiller, four variable speed circulating pumps, and a two-cell, evaporative cooling tower. Each unit has several hot/chilled water fan coil units; common spaces are served by multiple HVAC units.

All hardware used a hybrid fibre optic/Ethernet backbone with all devices connected to form a robust, high-speed automation network. Coupled with a state-of-the-art MACH-ProWeb controller, the system is both powerful and flexible.

The Reliable Controls system provides a truly efficient means of integration with the end result featuring a premium, one-of-a-kind installation. The facility manager effectively uses the system as a high level management tool to maximize the operational efficiency of the property, currently realizing a 20% reduction in energy consumption.

To learn more about projects using Reliable Controls® visit [www.reliablecontrols.com/projects/overview](http://www.reliablecontrols.com/projects/overview)



**PROJECT TYPE:**  
New Construction

**INSTALLATION TYPE:**  
Chiller, Fan Coil Unit, VAV

**TOTAL AREA:**  
18,580 m<sup>2</sup> (200,000 ft<sup>2</sup>)

**EQUIPMENT INSTALLED:**  
2 MACH-ProWebSys™  
12 MACH-ProSys™  
12 MACH-ProPoint™  
20 MACH-ProAir™  
8 MACH-ProZone™

**NETWORK:**  
Ethernet, Fibre optic

**INTEGRATION:**  
BACnet®, Modbus

**TOTAL SYSTEM POINTS:**  
750 points

**RELIABLE CONTROLS® DEALER:**  
Certus Controls LLC

www.reliablecontrols.com