

Reliable[®]
controls

facilityguide



Leadership in Energy & Environmental Design

Leadership in Energy and Environmental Design (LEED®) is a rating system developed by the US Green Building Council (USGBC) to provide a definitive standard for what constitutes a green building in design, construction, and operation.

In Canada, the LEED rating system is administered through an exclusive license agreement with the Canadian Green Building Council (CaGBC). The rating system in both countries is implemented using traditional design guidelines and a tool called the LEED scorecard. LEED Canada - NC 1.1 (New Construction) consists of an explicit set of environmental criteria, organized into five performance categories: SS, WE, EA, MR, and EQ. A sixth category (ID) rewards exemplary performance or innovation beyond the criteria in the previous categories. Each category consists of a collection of prerequisites and credits, which are earned depending on the “greenness” of the project’s design and construction. At the end of construction, the prerequisites and credits are documented and submitted to the Green Building Certification Institute (GBCI) for evaluation and final certification. For LEED-NC 1.1 projects in Canada, four certification levels are possible, depending on the points earned.

The Reliable Controls® Headquarters Annex has been designed and constructed to meet LEED Platinum, the highest level achievable.



Sustainable Sites - SS

12 / 14

This LEED category evaluates the project with respect to construction pollution prevention, soil erosion, suitability of land-use, connectivity to community, parking, preservation of habitat and biodiversity, reduced stormwater use, and reduced heat island effect and light pollution.

Prereq 1 EROSION & SEDIMENTATION CONTROL

- Stockpiled topsoil for reuse, lined catch-basin grates, minimized roadway dirt and dust

Credit 1 SITE SELECTION

- Used existing building site, not forest land reserve, agricultural, or park land

Credit 4 ALTERNATIVE TRANSPORTATION

- Located close (**170 m**) to Admirals Walk shopping center with BC Transit bus routes
- Installed bicycle racks and onsite shower facilities for **40%** of occupants
- Purchased a Toyota Prius hybrid with designated, preferred parking stall for staff use
- Subsidized bus pass and carpool incentives to further reduce parking demand

Credit 5 REDUCED SITE DISTURBANCE

- Restored **63.3%** of site (excluding building footprint) with native or adaptive vegetation
- Designated **124.3%** of building footprint as open space and greenways

Credit 6 STORMWATER MANAGEMENT

- Reduced stormwater runoff from site by **54%**
- Removed **80%** of suspended solids and **40%** phosphorus due to bioswales and retention areas

Credit 7 HEAT ISLAND EFFECT

- Minimized by placing all off-street parking underground
- Used high solar reflectance index (SRI) material on **78%** of the roof

Credit 8 LIGHT POLLUTION REDUCTION

- Set all non-emergency lighting to automatically turn off during non-business hours



Water Efficiency - WE

5 / 5

This LEED category evaluates the project with respect to reducing the burden on municipal water supply and wastewater systems, and limiting or eliminating the use of potable water for landscape irrigation.

Credit 1 WATER EFFICIENT LANDSCAPING

- Reduced potable water consumption for irrigation by **100%**

Credit 2 INNOVATIVE WASTEWATER TECHNOLOGIES

- Reduced potable water consumption for urinals and toilets reduced **82%**

Credit 3 WATER USE REDUCTION

- **Reduced** overall potable water **61.4%** below baseline building



Energy & Atmosphere - EA

12 / 17

This LEED category verifies that the project's energy related systems are installed and calibrated to perform properly, and the environmental and economic impacts of energy use are minimized.

Prereq 1 FUNDAMENTAL BUILDING SYSTEMS COMMISSIONING

- Engaged a Commissioning Authority (CxA) and implemented a commissioning plan
- Verified installation and functional performance of all systems

Prereq 2 MINIMUM ENERGY PERFORMANCE

- Adopted an integrative design approach resulting in a naturally ventilated building design
- Building performs **54%** better in regulated energy cost saving **66** tons of CO₂ per year

Prereq 3 CFC REDUCTION IN HVAC&R EQUIPMENT

- HVAC and refrigeration equipment contains no chlorofluorocarbons (CFC)

Credit 1 OPTIMIZE ENERGY PERFORMANCE

- Used Virtual Environment modeling software from IES
- Building performs **50%** better than reference and consumes **239,756** kWh/year

Credit 3 BEST PRACTICE COMMISSIONING

- Reviewed design and all contractor submittals prior to construction and reported concerns

Credit 4 OZONE DEPLETION

- HVAC and refrigeration equipment contains no hydrochlorofluorocarbons (HCFCs)

Credit 5 MEASUREMENT & VERIFICATION

- Continually monitored and controlled system using a Building Automation System (BAS)

Credit 6 GREEN POWER

- Purchased a 2-year, renewable energy contract for **50%** electricity from renewable sources

Leadership in Energy & Environmental Design



Material & Resources - MR

8/14

This LEED category evaluates the project during the construction and operation of the building with respect to reduction of waste, the reuse of existing materials, the use of renewable and recycled materials, and as the collection of recyclable materials.

Prereq 1 STORAGE & COLLECTION OF RECYCLABLES

- Dedicated area for paper, corrugated cardboard, glass, plastics, metals, and compost

Credit 2 CONSTRUCTION WASTE MANAGEMENT

- Diverted **98.4%** (**582.5 tonnes**) of construction waste from landfill or incinerator

Credit 4* RECYCLED CONTENT

- **15.3%** of all construction materials came from recycled content

Credit 5 REGIONAL MATERIALS

- **31.8%** of all building materials were sourced within 800 km of the project site

Credit 7 CERTIFIED WOOD

- **56.5%** of all wood-based materials were certified by the Forest Stewardship Council

Credit 8 DURABLE BUILDING

- Building Durability Plan ensures the Design Service Life (DSL) of the project to be at least **75** years



Innovation & Design Process - ID

5/5

This category evaluates the project with respect to innovative strategies implemented but not addressed by LEED, and exemplary performance achieved that are above the requirements set by LEED.

Credit 1 INNOVATION IN DESIGN

- Exemplary performance from **100%** of parking spaces under underground
- Exemplary performance by using **61.4%** less water than the baseline
- Comprehensive Green Education Program signage built into the building's spaces and website to educate the occupants and visitors of the benefits of green buildings
- Green House Keeping policy uses Green Seal products and Green Seal procedures

Credit 2 LEED ACCREDITED PROFESSIONAL

- Project team had four LEED Accredited Professionals (AP)
- Architect, LEED Project Manager, Commissioning Authority, Security System Agent

* Credit numbers skipped, were credits not pursued in the design



Indoor Environmental Quality - EQ

14/15

This LEED category evaluates the project with respect to the quality of the indoor environment and its impact on the comfort and well-being of its occupants. The controllability of indoor air quality, thermal comfort, and lighting form a key part of this category.

Prereq 1 MINIMUM IAQ PERFORMANCE

- Building exceeds outdoor air requirements by a factor of **2.51**, allowing **2,050** L/s

Prereq 2 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL

- Exterior smoking area located **31.1** m away from entries, outdoor air intakes, and operable windows

Credit 1 CARBON DIOXIDE (CO₂) MONITORING

- Installed carbon dioxide monitors throughout the building
- Integrated CO₂ sensors into the Building Automation System (BAS)
- Sequenced trickle vent dampers, wind tower dampers, and air handlers to hold CO₂ setpoint
- Programmed alarms if CO₂ levels exceed 1200 PPM

Credit 2 VENTILATION EFFECTIVENESS

- Natural and some mechanical ventilation ensures ventilation effectiveness exceeds **0.9**

Credit 3 CONSTRUCTION IAQ MANAGEMENT PLAN

- Implemented a nine step IAQ Management Plan for construction and pre-occupancy phases

Credit 4 LOW-EMITTING MATERIALS

- Interior adhesives and sealants meet South Coast AQ Management District (SCAQMD) rule #1168
- Interior paints and coatings within content limits set in Green Seal Standard GS-11 of Jan. 1997
- Carpet meets or exceeds requirements for Rug Institute's Green Label IAQ Test program
- No added urea-formaldehyde in composite wood or agrifiber building materials

Credit 5 INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL

- Installed permanent entryway systems to capture dirt and particulates
- Installed parkade exhaust fans to exhaust harmful fumes

Credit 6 CONTROLLABILITY OF SYSTEMS

- Occupants control their space via the Internet
- Installed **60** operable windows and exterior shades, **174** lighting zones, **57** trickle vents, and **81** radiant floor heating/cooling zones

Credit 7 THERMAL COMFORT

- Design meets comfort requirements of ASHRAE 55-2004
- Reliable Controls® MACH-System installed in building includes:
 - **80** programmable MACH-Pro building controllers
 - RC-Studio® to program and configure the building controllers
 - RC-Archive® to provide long-term historical recording of building data
 - RC-Reporter® to report energy tracking and performance from RC-Archive data
 - Web-based graphical user interfaces for occupants to interact with building
 - Occupants can see the impact of the settings they choose for their own workstation

Credit 8 DAYLIGHT & VIEWS

- **76%** of spaces receive daylighting through the windows and wind tower clerestory
- Low height cubical partitions assist daylighting to enter a majority of interior spaces
- **98%** of spaces experience direct line-of-sight to the outdoor environment

LEVEL 1 – TOUR MAP

A Reception:

Reliable Controls produces Internet-connected building controllers for the commercial Heating, Ventilating, and Air-Conditioning (HVAC) industry. The company's primary product is the MACH-System which consists of small, application-specific controllers and larger, general purpose controllers that communicate with BACnet (Building Automation and Control Networks) protocol, Modbus protocol, and EnOcean wireless sensor products.

B Hardware:

All of the company's products are designed, manufactured, and tested in-house. Worldwide technical support and repairs to all products are also performed in-house.

C Through Hole Assembly (TH):

After the SMT process, the circuit boards are sent to assemblers who hand-place any through-hole parts. The boards are then soldered using wave-solder equipment. The company operates within an ISO9001 quality management system and also follows the IPC-A-610 solder standards and Electro Static Discharge (ESD) procedures to maximize product quality.

D Surface Mount Technology (SMT):

Surface Mount Technology (SMT) is used as the first step in the manufacturing process. The SMT assembly line is capable of automatic assembly at high speed and with precise quality. Automated Optical Inspection (AOI) equipment is used to inspect every SMT circuit board to ensure quality standards are met.

E Receiving & Materials Coordination:

Good material coordination processes ensure all incoming inventory meets the company's quality standards and raw production materials are available when needed.

F Testing & Final Assembly:

Each controller is rigorously tested. Products are then packaged and prepared for final inventory.

G Shipping:

An important element of customer satisfaction, the company's shipping department uses strategic partnerships with logistics partners across the globe to accurately deliver orders.

H Quality Assurance:

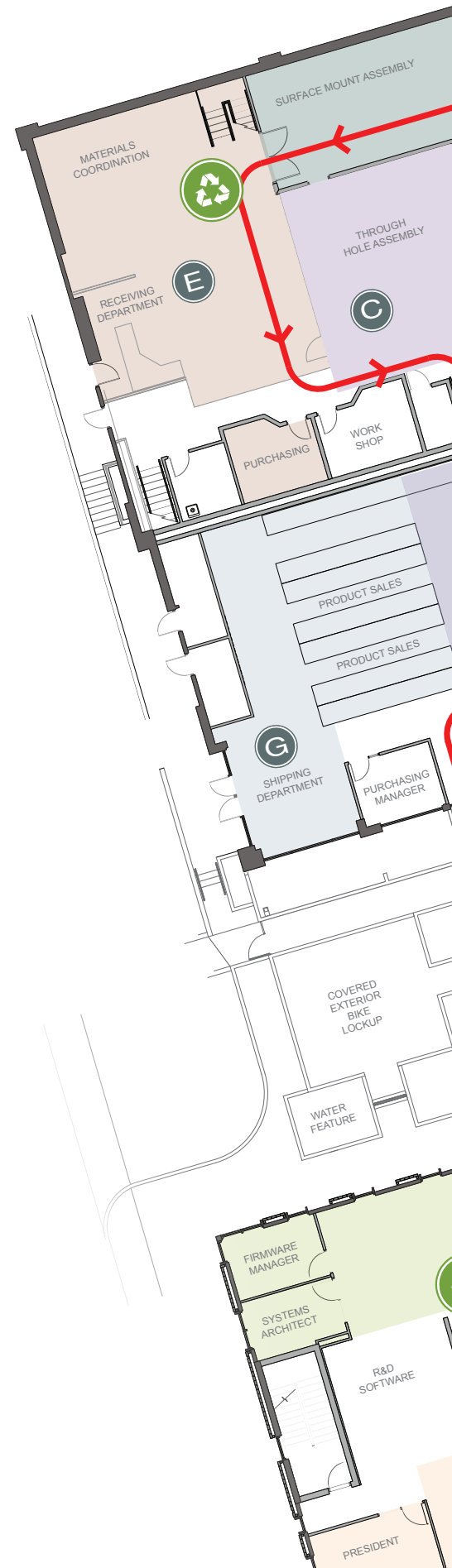
As an integral part of the Reliable Control design process, the R & D Quality Assurance team tests software and firmware. Each new design is tested for proper operation in all possible configurations. System level tests ensure that each product functions to specification and is compatible with all other products.

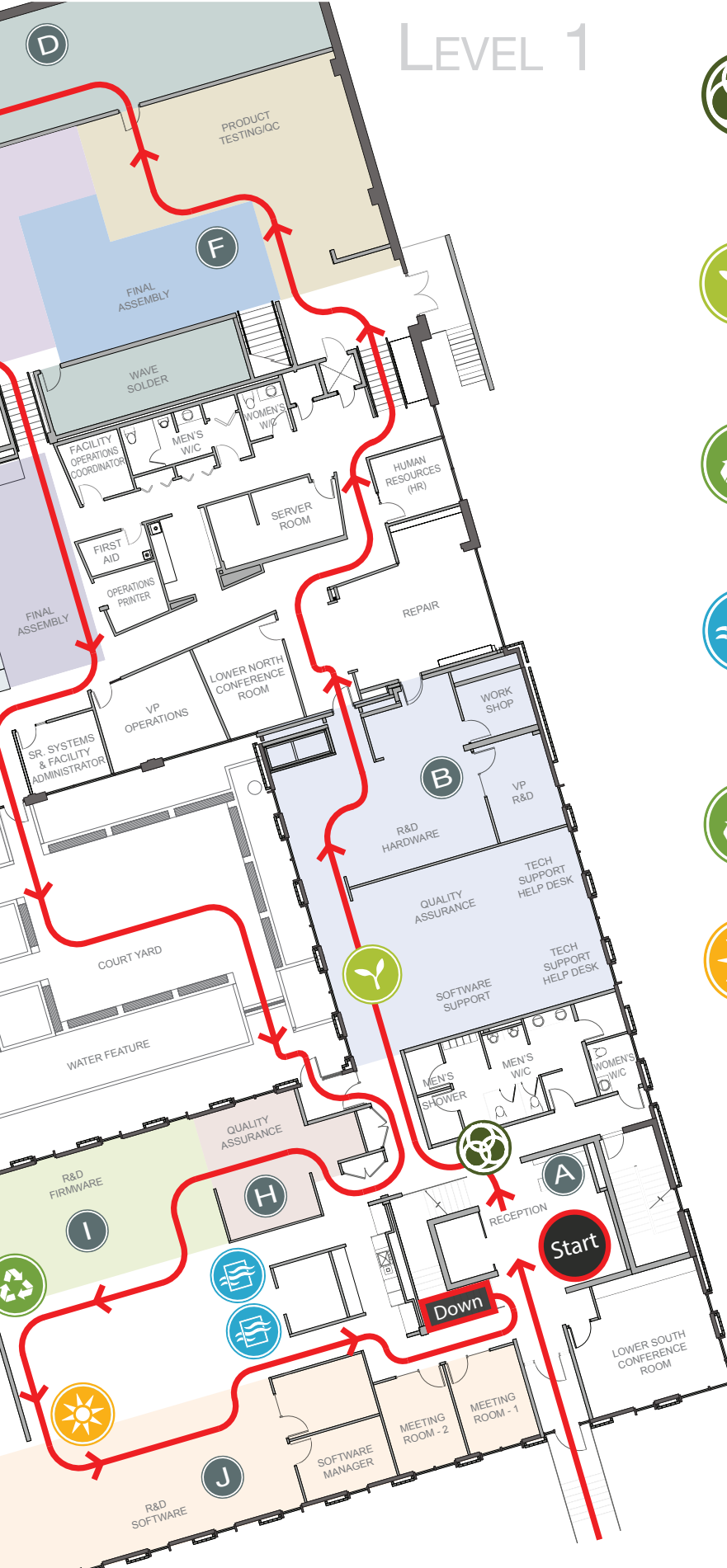
I Firmware:

MACH controllers are microprocessor-based networking products that contain embedded programming known as firmware. Since 1998, Reliable Controls has been a world leader in developing firmware using BACnet® protocol. BACnet is the building control industry's international standard networking protocol.

J Software:

Reliable Controls develops its own software in-house. Software provides programmability, configuration, and a graphical user interface into a building control system using a PC, a web browser, or mobile technologies.





LEVEL 1



Sustainable Thinking - L1:

Traditional vs. sustainable thinking: the Triple Bottom Line (People, Planet, Profit). LEED® Point System: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and innovation in design.



Sustainable Sites - L1:

Erosion and sedimentation control, site selection, development density, redevelopment of contaminated sites, reduced site disturbance, stormwater management, and landscape and exterior design to reduce heat islands.



Materials and Resources - L1:

Dedicated refuse/recycling area, waste management of construction and demolition materials, and post consumer, post-industrial recycled content.



Indoor Environmental Quality - L1:

Inside Air Quality (IAQ) plan, Tobacco Smoke (ETS) control, Carbon Dioxide (CO₂) monitoring, ventilation effectiveness, low-emitting materials (adhesives and sealants, paints, and carpet), no added urea-formaldehyde in composite wood and agrifiber.



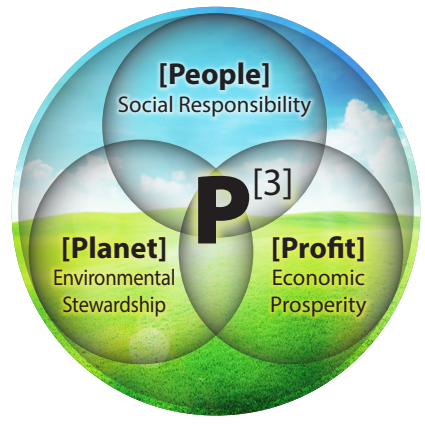
Materials and Resources 2 - L1:

Regional materials, certified wood, and durable building.



Energy and Atmosphere - L1:

Fundamental building systems commissioning, minimum energy performance, CFC reduction in HVAC&R equipment, optimizing energy performance, best practice commissioning, and ozone protection.



TRIPLE BOTTOM LINE



LEVEL 2 – TOUR MAP



Graphic User Interface for occupant space control

A Sales & Marketing:

Regional Sales Managers (RSMs) are located in Canada, USA, Latin America, EuroAfrica, Australia, Singapore, and China and mentor a global network of 200 Authorized Dealers in 30 countries. The Marketing team constructs the public presence of Reliable Controls. All marketing initiatives are executed in-house, from designing award-winning, industry-leading, magazine ads to supplying the Authorized Dealer network with marketing collateral, such as professionally-crafted project profiles, newsletters, and an immersive web presence.

B Finance & Administration:

Finance and Administration provides support and services for all departments of Reliable Controls and the company's related subsidiaries. Areas of support include sound planning, budgeting, and accounting principles, providing financial reports to management, and administering Human Resources.

C Training:

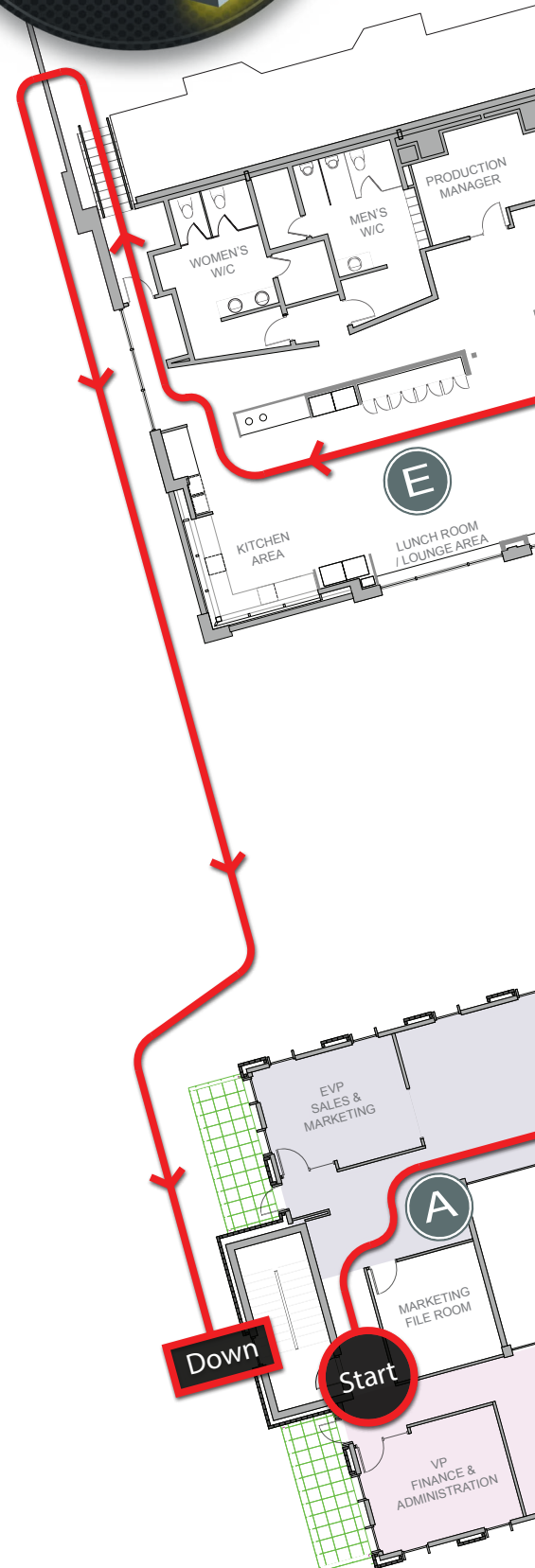
To support successful dealers in the field and satisfied customers in building environments, professional training is essential. The vehicles for delivering the Reliable Controls body of knowledge include classroom training at the company's head office facility, training in remote cities, and online learning delivered over the Internet. Technical staff at authorized Reliable Controls dealers must maintain a Level 3 certification.

D Conference Room:

This room can be partitioned to provide a large meeting room.

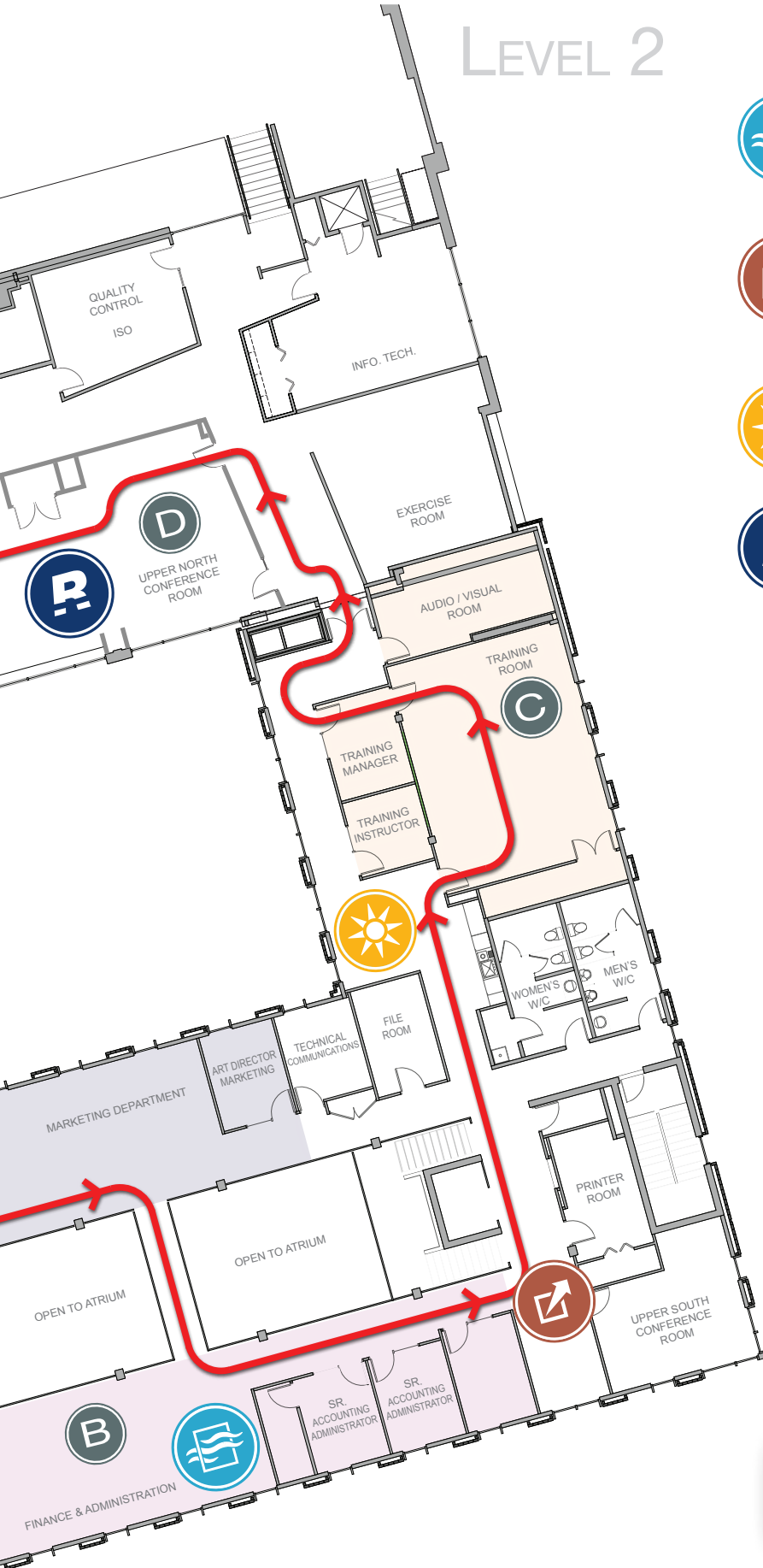
E Lunch Room/Lounge:

This lounge/lunch room has excellent views of the court yard and the near by waterways.





LEVEL 2



Indoor Environmental Quality - L2:

Controllability of building systems (airflow, temperature, and lighting), thermal comfort (trickle vent and radiant heating/cooling), daylighting, and views.



Innovation & Design Process - L2:

Exemplary performance, green building education, green housekeeping, and the benefits of LEED Accredited Professionals.



Energy and Atmosphere - L2:

Measurement and verification, green power.



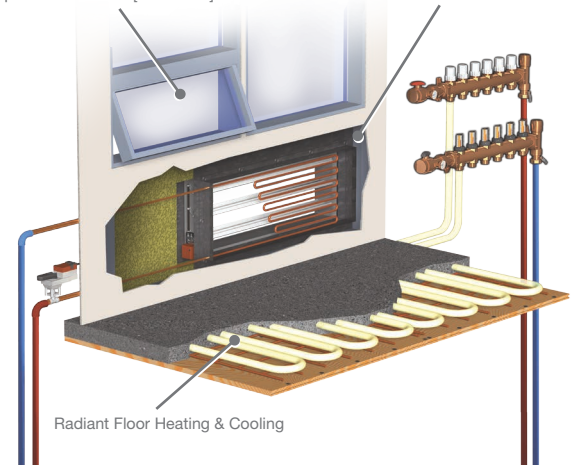
Facility Facts & History - L2:

An overview of the facility's design, construction, and occupancy, and a history of Reliable Controls Corporation.

HYDRONIC HEATING & COOLING SYSTEM

Operable Windows [monitored]

Trickle Vents



Radiant Floor Heating & Cooling

Required: at least 50% of FSC wood by volume

Actual: amount of FSC certified wood used is 56.5%



LEVEL P2 – TOUR MAP

Reliable Controls Corporation is a privately held, Canadian corporation that designs, develops, and manufactures Internet-connected building controls. The products are used to monitor and control the energy of mechanical and electrical equipment found in every kind of building.

The company was founded by Mr. Roland Laird in 1986, a BCIT grad. He started the company in his parent's home in Delta BC, and remains very active in the company as President and Manager of Quality Assurance. The company relocated to Victoria in 1995 and currently has over 140 employees in Victoria and support offices in Calgary, Cheltenham, Novato, Waunakee, Chicago, Ft. Lauderdale, Marietta, Nijmegen, Singapore, Shanghai, and Sydney.

Managed by a talented group of individuals, every employee in the organization makes a direct contribution to product development, processes, and/or support. A simple corporate philosophy built on openness and honesty in all aspects of business has resulted in steady growth and long-term relationships with the most satisfied customers in the industry.

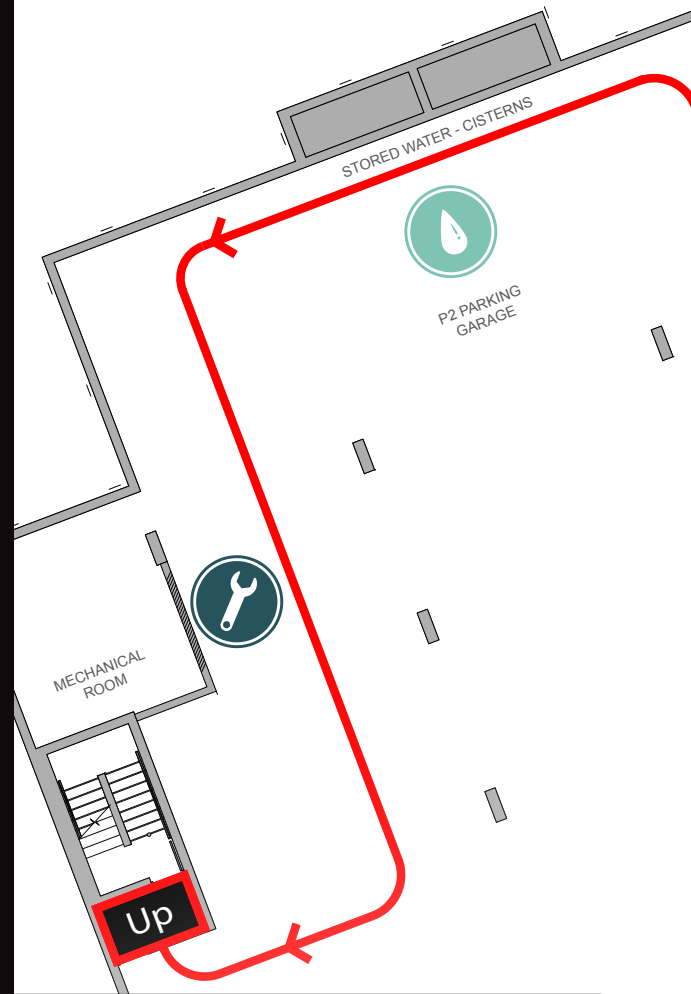
What makes Reliable Controls different from other building controls manufacturers?

Simple – we manufacture easy to use software and easy to install hardware.

Flexible – any possible building control strategy can be programmed with the Reliable Controls MACH-System™.

Economical – even the list price looks good.

Our outstanding customer loyalty stems from our ability to be good listeners and to deliver practical, easy-to-use building solutions that are flexible and provide an excellent return on investment.



History of Construction

- 2013** **November** - Headquarters Annex becomes LEED platinum certified
September - HQ Annex wins EcoStar Award for Integrated Water Management
April - North Wing Renovation - Completed
- 2012** **November** - Renovation of North Wing begins
October - Occupancy of new LEED platinum annex
- 2011** **April** - Construction begins of new LEED platinum annex
- 2010** **April** - Approval of development permit for new LEED platinum annex
- 2009** **April** - Schematic design begins for new LEED platinum annex
- 2008** **November** - Space programming for new annex
June - Feasibility study for new annex
- 2006** **August** - Phase 2 renovations completed
- 2004** **October** - Phase 1 completed. Reliable Controls moves in. Dance Unlimited remains as tenant
July - Phase 1 renovation begins to change Playzone area to accommodate Reliable Controls Corporation
May - Land Title passes to NPL
February - Offer accepted to sell property to Natural Properties Ltd (NPL)
- 2001** **October** - Dance Unlimited leases bottom level of Playzone
- 1999** **June** - Opening of "Playzone" entertainment centre and Dance Unlimited
- 1998** **January** - Land purchased by Playzone Adventures Ltd. and subsequently constructed original building





LEVEL P2



Sustainable Sites - P2:

Public transportation access, bicycle storage and change rooms, alternate fuel vehicles, parking capacity and carpooling, and light pollution reduction.



Water Efficiency - P2:

Water efficient landscaping, complete with cisterns and green roofs, innovative wastewater technologies, and water use reduction via low flow shower heads and faucets.



Mechanical Room - P2:

Review hydronic heating/cooling system.

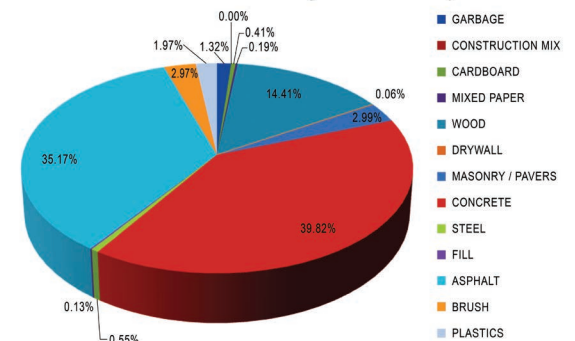
Construction Waste Management – MRc2

Implementation

Divert 50%

- 211.2 tonnes (465,715 lbs) of concrete waste
- 186.6 tonnes (411,334 lbs) of asphalt waste
- 103.6 tonnes (228,449 lbs) of wood waste
- 18.6 tonnes (41,038 lbs) of plastic waste
- 18.1 tonnes (39,928 lbs) of brush waste
- 15.9 tonnes (34,994 lbs) of masonry waste
- 13.9 tonnes (30,556 lbs) of drywall waste
- 9.3 tonnes (20,610 lbs) of garbage waste
- 6.6 tonnes (14,619 lbs) of cardboard waste
- 5.6 tonnes (12,376 lbs) of steel waste
- 1.6 tonne (3,6385 lbs) of mixed paper waste
- 0.7 tonnes (1,543 lbs) of fill waste
- **Produced 591.9 tonnes (1,304,862 lbs) of total waste**

Construction Waste Management Summary



Required: to divert at least 50% of waste

Actual: diverted waste was 582.5 tonnes (1,284,252 lbs) or 98.4%



Reliable Controls® has grown steadily as a high-tech. manufacturer in Victoria, BC, and currently serves over 200 Authorized Dealers in 30 countries.

Reliable Controls® Authorized Dealers complete approximately \$200,000,000 in controls contracts each year.

Over 10 million points of measurement and control are connected to Reliable Controls® products, helping building owners and operators manage their commercial properties with efficiency, accountability, and comfort.



www.reliablecontrols.com