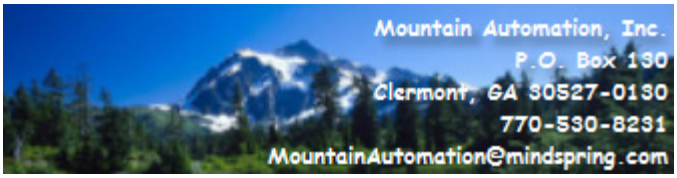

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MAI Liaison: David Fischhaber
MAI Document No.: 11292008

RE: Recommendations for Cabbage Patch Building Automation
Date: November 29, 2008

Mountain Automation, Inc. is submitting this recommendation for Building Automation controls for the new Cabbage Patch world headquarters facility. In this document, we will describe a series of technologies – already available on the market - that will provide access control (security), lighting control, HVAC control, animation control, and energy savings at a cost that is friendly with your budget.

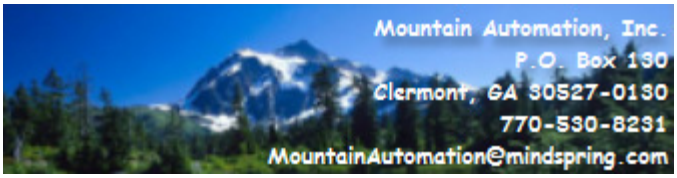
Access Control (Security)

1. At each of the entrances, there will be a security panel. The panel could utilize either a pass key (like a credit card), a finger print reader, a RFID tag, or any one of several other existing technologies. A finger print reader is preferred as it would:
   - Eliminate the need to handle or process cards and the difficulties with lost cards
   - Eliminate the need to remember passwords or pass-codes.
   - Eliminate the possibility of one employee checking in or out for a different employee

   That's because finger prints can't be borrowed, loaned, misplaced, lost, or stolen. They also happen to be unique.

   As an employee checks in at the Main Entrance, the lights will automatically turn on in the Fourier - if they are not already on. They will not turn on if there is sufficient daylight. To support the availability of daylight and reduce energy usage, skylights and/or light-tubes can be installed in the roof at strategic locations such as the Fourier, hallways, restrooms, offices, shipping/receiving, etc.
2. Once in the Fourier, employees will use another finger print reader to access the office area which, consequently, also keeps guests out of the office area. As the employee checks in, the lights will automatically turn on in the hallway - if they are not already on. They will not turn on if there is sufficient daylight.

   One option for the hallway is to turn on only those lights within a specific radius of the employee. As the employee walks toward their office, the lights within that moving radius will turn on and those outside the radius will turn off thereby saving energy. This is accomplished by using infrared sensors and/or cameras. The cameras also provide additional security features. The radius is adjustable to suit the needs of the employee (i.e., some women will want a larger radius for personal safety against would-be stalkers and the like).
3. At the same time the employee is checking into the office area from the Fourier, the system will start a timer to wait a predetermined amount of time before turning on the lights to the employee's office. In this way, the lights will not turn on before they are needed. When the employee checks out for lunch or at the end of the day, the lights will be managed accordingly, automatically.
4. With regard to handling guests, the Main Entrance doors will automatically unlock at the prescribed time in the morning to allow guests entrance and then lock at the prescribed time in the evening to prevent entrance. People will still be able to exit the facility unhindered – a safety issue.
5. With regard to service entrances both from outside the building and within the building, authorized employees may enter at any time using the finger print reader. As the employee checks in, the lights will automatically turn on - if they are not already on. They will not turn on if there is sufficient daylight.



The option for using radius lighting would also be valuable here, too. As the employee walks (or rides a fork truck) through the area, the lights within that moving radius will turn on and those outside the radius will turn off thereby saving energy. We would use the same infrared sensors and/or cameras.

Lighting Control

1. The lighting for the entire facility be high efficiency fluorescent lighting – even in the high-bay areas.
2. The desired fixtures include the use of T5 bulbs and electronic ballasts with universal input power feature (120-277VAC) and Powerline dimming controls. They also have a typical Power Factor Correction rating of 0.98 which the Power Company really likes.
3. With those capabilities, Load Shedding and Daylight Harvesting can be added to save more energy.
   Load Shedding is when the Power Company requests that you reduce your power consumption by reducing the amount of light being produced at each light fixture. There are usually four levels – 5%, 10%, 15%, and 20%. The reductions are gradual – 1% every 15 seconds – which means customers and employees will not notice the changes.
   Daylight Harvesting or Daylight Compensation is used to reduce wasted light by monitoring the amount of Daylight in, for example, an office. As Daylight increases the amount of light produced from each light fixture in that office is reduced proportionally. If a cloud passes by, the light from the fixtures will be increased accordingly. The objective is to maintain the desired light level for the employee while also minimizing the use of the light fixtures and the energy used.
4. With the above implemented, it is possible to negotiate with the Power Company for a lower power rate. Those who have done this typically get a 10% reduction in their rates.
5. If all these features are fully incorporated, there should be a 65% reduction in energy consumption.
6. With these fixtures, whole sections of the facility can be effectively managed – office, warehouse, tour area, shipping/receiving, etc.
7. There can be considerable material and labor savings with the electrical installation. Because the lighting for each section of the building (i.e., the offices) can be on one circuit breaker and because that string of fixtures are controlled by way of a network riding on the power wires and managed through a central PC, that means there is no need for a lighting panel and no need for light switches.

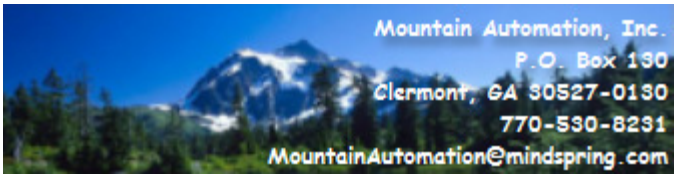
The objective of this control is to manage which lights are on, how much they're on, and when.

HVAC Control

1. The HVAC units available today can come with network capability meaning they can be monitored and controlled remotely. More importantly, they are considerably more efficient and, with the network, can be made to optimize that efficiency according to the load requirements. In the Cabbage Patch facility, the load moves with the customers. The HVAC can be zoned.
   Like the recommendation for using radius lighting, the HVAC can be made to do the same. As the employee walks (or rides a fork truck) through the area, the HVAC within that moving radius will control the temperature accordingly by zone. HVAC outside the radius are turned off or turned down thereby saving energy. We would use the same infrared sensors and/or cameras to control both lighting and heating.

Animation Control

1. The controls already described above can be made to also control the Animation – when to turn on and off. If there are no customers in the area, the Animation is turned off.
2. The same is true for Animation in displays in the Fourier, they turn on when customers are near and turn off when they move away.
3. The Animation and lighting outside the building can be controlled in a similar manner as described above.



Please note that we have met with the sign company in Clarkesville who has been commissioned to make the Cabbage Patch tree display. We have discussed the requirements for controlling the display and making "things" happen

Energy Savings (plus Materials and Labor)

1. The Access Controls do not, in and of themselves, provide any direct energy savings. However, there is some energy savings with regard to controlling access to various areas – keeping them isolated.
2. T5 light bulbs are as much as 65% more efficient than T8. T8 lights bulbs are 25% more efficient than the standard T12 light bulbs most people are familiar with. In fact, a standard T8 fixture can save $34/fixture/year over the conventional T12 fixtures. A standard T5 fixture can save $54/fixture/year over the conventional T12 fixture. And that's before adding Daylight Harvesting and Load Shedding.
3. There is also considerable material and labor savings from using the recommended lighting.
4. Energy savings for the HVAC depends on the unit purchased and the amount of zoning.
5. Animation savings is similar to the lighting except that a good deal of the lighting will be LED instead of incandescent or fluorescent which means even more energy savings and maintenance savings. The maintenance savings is due to LED's being good for at least 50,000 hours and up to 100,000 hours depending on the selected color. Incandescent are 2,000 hours. Fluorescents are 5,000–10,000 hours.

We are recommending the use of Beckhoff Automation products for this application as they will best meet your needs based on cost, flexibility, speed, and expandability. It was for this reason we used Beckhoff for the Head Ball Machine. In this instance, Beckhoff has considerable experience with Building Automation, Automation Controls, PC based controls, networking, and everything else Cabbage Patch requires for their facility.

David Fischhaber, the author of this recommendation, has 35 years experience with Automation Controls, networking, PC based controls, etc. David has also developed lighting projects, similar to what was described above, for PETCO in California and others.

More importantly, David has Project Management experience. He has managed many projects over those 35 years and has handled as many as four projects, valued at $25 million dollars each, at the same time. David has been a Maintenance Supervisor for General Motors and has also been a General Contractor on commercial and residential projects.

If there are any questions, comments, concerns, etc., please call.

Thank you,

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