



Campus Renewal Partnership

Work In Progress Newsletter



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Editors Note:

Over the years member institutions have been dealing with risk management issues arising from aging facilities and deferred maintenance. This article outlines one approach to building renewal undertaken by McMaster University that should also reduce the loss exposures associated with aging infrastructures.

The Result

The Campus Renewal Partnership (CRP)

Campus renewal is the goal and a partnership approach helps create new value in terms of building renewal. CRP is an energy reduction plan and facility renewal plan co-developed by McMaster University and Ameresco Canada to provide creative ways to relieve funding challenges, advance facility renewal more rapidly and maximize the value of McMaster's physical assets.

The Program

Launched in the Fall of 2003, the program is expected to lower energy cost and consumption by 23% and have a 20-year payout of \$28.5 million in facility renewal improvements. Initial measures and improvements were planned for completion over the three years. As a result of lowering energy costs and consumption, McMaster will save approximately \$1.5 million annually, with energy consumption savings of 89 thousand gigajoules. Achieved savings as of March 15, 2004 were \$314 thousand, beyond our anticipated savings of \$267 thousand. The environmental impact of these measures will mean a reduction in greenhouse gas emissions of 20 to 30%. This comprehensive program will reduce McMasters' outstanding deferred maintenance to a value of \$154 million from the current identified deferred maintenance total of \$178 million.

Key Initiatives

- lighting retrofits to replace inefficient T12 bulbs with T8 bulbs, which use less energy, have less glare, and provide up to 16% higher light levels with a whiter light closer to daylight.
- new occupancy lighting sensor controls to create energy efficiencies during unoccupied times
- water efficiency measures with water efficient flush valves and aerators reducing usage
- refurbished air handling units to improve air quality
- energy efficient window replacements
- steam trap renewal program with significant impact on energy savings
- water conservation program to reduce water waste
- weather-stripping and caulking to reduce heat and cooling costs
- heating/ventilation/air conditioning renewal
- staff training program to teach appropriate staff about the program

Benefits

- improved system reliability
- renewal of aging equipment

- better air quality
- reduction in energy consumption and costs
- reduction in greenhouse gas emissions (20-30%)
- a more comfortable campus for students, faculty and staff

What's Next

While the various retrofitting projects continue across McMaster, other measures will be undertaken to involve everyone on campus in energy conservation. For example, “we’re working on launching a campus-wide program for the Fall to encourage everybody to turn their computers off when not in operation,” says Bob Dunn.

Staff will be involved in other ways as well. Where appropriate they will be trained in the successful operation of the new components. “It’s critical that they understand the long term need to run their systems efficiently,” says Tony Cupido.

Grant Miles notes that as a result of all of the components of the Campus Renewal Partnership Program planned to date, there will be a total reduction in greenhouse gas emissions of approximately 8,605 metric tonnes. “This emission reduction will equate to the impact of displacing 3,000 cars,” he notes.

As for future involvement of Natural Resources Canada, Miles says, “the program will unfold and there will be choices open for them to access further monies later, should they wish to apply for further retrofits down the road”.

Advice Comes From Experience

“Picking the right partner and having the right management and planning in place to make it happen is fundamental to the success of any good energy program,” says Cupido.

“Getting endorsement from all levels of the university sector is key. We had full endorsement from our Board of Governors, our appropriate committees and faculty, staff and students.”

“Any institution considering energy and renewal should explore this type of project for their campus and in doing so they need to work with the appropriate skilled professionals to ensure that it’s successful” advises Karen Belaire.

For Bob Dunn the keys to a successful project of this type and size are “good coordination patience and communication.”

“It’s a holistic approach,” says Miles, “and one that we would recommend to other campuses”.

Joe Medeiros sums up: “McMaster has taken the initiative to ensure that we are stewards of the environment and that we will put all the necessary components into place to ensure that we are efficiently and effectively utilizing our natural resources to run this operation.”

The McMaster

STAKEHOLDERS - SHARE PERSPECTIVES

Karen Belaire, Vice-President, Administration

Tony Cupido, Director of Physical Plant

Bob Dunn, Assistant Director, Physical Plant

Joe Medeiros, Project Manager, Physical Plant

Joan Smith, Circulation Reserve Stakes Supervisor, Thode Library

Marie Lynne Tremblay, Chief, Institutional Sector, Natural Resources Canada

Grant Miles, Senior Program Officer, Institutional Sector, Natural Resources Canada

Motivation For A Renewal Strategy Was Strong

"Like many other organizations such as school boards, universities and even

The Challenge

To renew the physical condition of over 50 aging buildings across the McMaster campus in order to assist in the delivery of quality education and ensure a safe and healthy learning and working environment. To reduce energy use and to maximize energy savings in the fact of rising energy costs.

The Strategy

Our energy partner, Ameresco Canada, came to McMaster with a new perspective, which incorporated facility renewal along with energy savings. Through the introduction of the partnering process with Ameresco and its Campus Renewal strategies, McMaster is well on its way to accomplishing its goals and meeting its challenges.

municipalities who have long-term renewal challenges ahead of them, much of the infrastructure that is a part of the public domain has not been, in my opinion, adequately funded over the years,” says Tony Cupido. “There are huge challenges ahead of us to renew a lot of those components. It’s obvious that the governments simply do not have the funds necessary to provide the renewal needs. So we’re looking at creative ways to handle that. And one of the ways is looking at an energy conservation program that through payback can be extended to incorporate a lot of renewal component.”

"This was not a very difficult sell," says Karen Belaire. "We had established some goals with regard to substantially and obviously energy reductions was one of those."

“This was not a very difficult sell,” says Karen Belaire. “We had established some goals with regard to substantially and obviously energy reductions was one of those. At the same time, our Board understands our infrastructure deficiencies so this was a very creative way to tackle both of these elements at the same time.”

“We are an energy conscious university, so it makes sense from every angle. First we’ll be saving energy and secondly there are the building renewal aspects,” says Joe Medeiros. “Energy conservation is a major issue and with the energy savings we can make a lot of improvements to our buildings.”

The Energy Innovators Initiative, sponsored by Natural Resources Canada, was an obvious fit for the McMaster projects as, according to Marie Lynne Tremblay, “its objective is to decrease energy consumption in commercial and institutional buildings and it’s meant for the retrofitting of existing buildings.”

“We were very pleased to work with McMaster because the project is one of the largest we had at that time for a university, the largest savings we had seen,” says Tremblay. “It is very important for us to develop models that will inspire other universities and colleges. McMaster has developed a vision and foresight in the way they are managing their facilities, maintaining them properly and reducing energy consumption. We were very pleased to work with such a proactive institution.”

Partnership Makes Renewal A Feasible Reality

“This will likely be the trend over the next few years to partner with a firm who can help the implementation and our financing of it and have a return that’s fair and reasonable. In our case it’s 20 years,” says Cupido.

Any project with a large financial package such as this (\$28.5 million) must get started on the right foot. “So far with the help of Ameresco and our management team we’ve been able to plan and coordinate this activity and procure materials and installers to do the work. It’s come in on budget and in some cases under budget. We’re pleased at how this project got off the ground.” Cupido comments.

“Partnership, for a lot of institutions, is the only way that they can engage in energy savings in the long term because budgets are quite limited,” says Tremblay.

“Getting the right partner is a key issue. We went through an extensive process and Ameresco was certainly the company that came out with the best capacity and the capability to undertake such a large project.” concludes Cupido.

A Visible Difference For Students, Faculty and Staff

One of the first lighting retrofits to be carried out was in the Thode Library with demonstrable results.

Joan Smith comments: “The lightning improved dramatically for us, especially in out stack areas. The staff, who were away for a while and then came back to it, thought the sun was shining all the time!”

Students will also notice the difference. “In some areas we’ve even put lighting directly in carrels,” says Smith.

“The light is closer to actual daylight,” says Medeiros. “And there’s no flicker. Students will see a much brighter university. And they’ll also see buildings that are updated with healthier and more comfortable temperature control.”

“We’re starting to see energy savings in a very tangible way,” reports Cupido. “One of the components of the program was to meter each of our 50 plus buildings. We’re starting to become more aware of the actual consumption across campus. The key thing we are seeing is that there is a very tangible reduction in energy uses attributed to lighting our buildings and providing steam heating.”

“We are able to budget for reduced operational needs. The benefits of replacing lighting were not only its attractiveness and improved light levels, but also we know we have no operational impact to replace lamps or ballasts during their warranty periods,” says Cupido.

Dealing With The Challenges

“As a three-year program, it’s very time-consuming to coordinate, so full implementation is a challenge,” says Bob Dunn. “Coordinating with occupants, staff and contractors is not an easy project.”

“We appreciate the accommodation people have made,” he adds. There is also not a lot of storage space to put large quantities of material to carry out the work so temporary arrangements have had to be made. “It’s very complicated in a university setting.”

“We are working well through the challenges and Ameresco has done a good job helping us with that,” says Cupido.

“The other challenge we always have is communicating the program to everyone,” notes Dunn. “As well intended as we are, there’s a lot of detail people want to have. It can be difficult to get to all the individuals who are impacted by such a large program.”

Ongoing updates about the program are available at the Physical Plant website as well as through online and offline CRP newsletters and events.

From the business point of view “there were no challenges,” according to Belaire, who notes that two years ago the campus developed a master plan that incorporated an environmental policy. ■

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BULLETIN:

The new date for the Eastern CURIE Regional Workshop has been changed to January 25, 2005. For information contact Ron MacDonald of Interuniversity Services Inc. at rcm@interuniversity.ns.ca

Keeping Your Patent Costs Under Control

Partnering with Business



This is Part II of a three-part article which discusses the strategies that educational institutions can use to protect their intellectual property, while keeping associated costs under control. In Part II, we discuss the second of three strategies to be covered, **Partnering with Business**. You can find a link to Part I at www.cwilson.com/cgi/webadmin/jump.cgi?ID=793.

In Part III of this series (which will appear in our next issue of *Campus Counsel*), Michael Roman will discuss the third strategy, **Minimizing (Delaying) Patent Prosecution Costs**

Partnering with Business

Because there are so many good ideas available for commercialization, it can be challenging to attract the right business partners.

(a) Developing a Marketable Reputation

The most direct way to secure partners from industry is to build a reputation for technical and business acumen, at least in select fields, so that businesses will either come calling to discover what technology is available for commercialization or will at least be receptive to a direct pitch. Institutions that have developed a marketable reputation also tend to enjoy collaborative research partnerships with industry, in which industry funds both commercialization and additional pure research. As well as cultivating world-class researchers and performing world-class research, an institution can further develop a marketable reputation by encouraging its faculty and students to become integrated into industry and business networks, both local and virtual, in addition to academic networks. Faculty who are skilled at preparing successful grant applications enjoy enhanced reputations within their institutions and in the world at large.

(b) Banding Together with Other Institutions

Very few institutions have the size and resources to go it alone in all fields, so partnering arrangements with other institutions are important to consider. For example, Centres of Excellence and associations of Industry Liaison Offices provide a forum for institutions to pool their research, interact with industry, and actively pursue solutions to specific industry needs.

Westlink Innovation Network Ltd. (www.westlink.ca) is an association of Industry Liaison Offices from mainly Western Canadian institutions. Westlink's mission is to:

- bundle the intellectual property of its member institutions into comprehensive portfolios that can be marketed to targeted industries; and
- provide consulting services to business clients to find solutions to their specific needs by assembling bundles of member technology.

There is also a relatively recent trend in which institutions identify key market sectors and place their patents into pools that can be easily and widely accessed by standard-form, easy-to-administer licenses.

(c) Internet Invention Marketplaces

Not surprisingly, the Internet is also driving the creation of marketplaces that facilitate transactions in intellectual property. While many institutions post information about their

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licensable technology on their own websites, this approach has limitations because potential licensees are more likely to search for solutions by technology, not by institution. Therefore, other Internet marketplaces have developed to meet this need. For example, www.yet2.com is a large Internet marketplace used by blue-chip multinationals to advertise their technical needs and licensable technology. Closer to home, Flintbox, a Vancouver company founded by the University of British Columbia and Westlink Innovation Network Ltd., has developed a low-overhead electronic commerce engine to enable institutions to track interest in and grant click-wrap licenses for their technology. Flintbox is particularly well suited to high-volume, low-cost technology that might not warrant patent protection at all, because it can be sufficiently and more efficiently protected contractually through licensing.

Flintbox's Bob de Wit explains, "We created Flintbox (www.flintbox.ca) to improve the connection between university researchers and the end-users of their inventions. By enabling click-wrap licensing of any technology and affordable wide-scale distribution of software and content over the Web, we have enabled tech-transfer organizations to quickly gather market information about new discoveries. This information can prove critical in their decision to convert provisional patent applications into full submissions.

Flintbox can also save institutions the trouble of trying to target likely receptors of new technology; in several instances, Flintbox has already helped prospective licensees from the most unlikely places to find the technology that they need and then to obtain a click-wrap license from the institution that owns the technology.

Overall, we expect this new tool to not only improve institutions' licensing and dissemination results, but also to reduce their overall patenting expenses, because institutions will be better able to decide to forego patent protection for poorly received inventions and for inventions that are generating an adequate click-wrap royalty stream." ■

An Overview of Construction Claims: How They Arise and How to Avoid Them

The Problem

Institutions of higher learning are undertaking major capital projects to deal with aging infrastructure, deferred maintenance and the demand of a burgeoning student population. This has forced institutions to deal with projects which require skills which are very different from those required for the institutions' core missions of education and research. In many instances, capital projects have been plagued with construction claims both during and following completion of the work. These claims can cause significant legal expense and also create a huge drain on personnel whose time could be better spent on more productive matters.



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How do Construction Claims Arise?

Construction claims can be caused by a number of factors. Understanding what causes construction claims is the first step in avoiding them. In general, construction claims occur because of the following:

- delays in construction and completion of the contract;
- delays in the delivery and supply of materials;
- weather which slows down or prevents construction from proceeding;
- owner requested changes;
- changes which occur even though not requested by the owner;
- poor management and administration of the construction site;
- site conditions which differ from those expected;
- work becomes impossible to perform due to unavoidable circumstances, such as force majeure;
- inadequate plans and specifications;
- failures to disclose information which is material to the construction;
- conflicts and failures to co-operate among consultants, contractors and subcontractors involved in the project;
- acceleration of the work;
- failure to adequately schedule and co-ordinate the work; and
- insolvency of contractors, subcontractors or key suppliers.

General Recommendations for Avoiding Construction Claims

Owners who have been involved in construction claims, and especially those which have resulted in arbitration or litigation, are well aware of the costs, disruption and often ill will, caused by such claims. In many cases, construction claims can be avoided if effective risk management is performed at the outset.

Effective risk management to avoid construction claims involves a cost/benefits analysis at each stage of the project. It may not be practical to take all or even most of the steps set out below for avoiding construction claims. However, if an owner undertakes some of these steps the owner is likely to incur significant savings in the long term.

12 Steps to Avoiding Construction Claims

1. The best way to ensure that something occurs or does not occur is to put it in the contract. Obtain good legal advice before entering into key contracts in order to ensure that your objectives are properly and adequately reflected. The standard general conditions contained in industry standard documents may not be adequate for your needs, and in particular, they commonly contain limitations on liability which are not fully understood by the owner and may be inappropriate in the circumstances. This is particularly true of public entities which have special and diverse needs and interests.
2. Owners should try to hire contractors and consultants with whom they have a good relationship and who have a good reputation in the industry, are credit worthy and are qualified to undertake any specialized work required for the project. An owner is well advised to investigate the reputation and qualifications of its general contractor [or?]any key subcontractor. Bonding will address some of these concerns.
3. Owners should realize that the lowest bid is not always the best bid.
4. Owners should ensure that the contract allows them to have some say in the general contractor's selection of subcontractors, especially when any element of the project requires specialized expertise.
5. The parties to a contract should ensure that they understand their duties and obligations and that they have the ability to perform these duties and obligations as required by the contract.

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6. Owners should ensure that the project is well planned from the outset to minimize the need for change orders. Changes are likely to cause additional costs, in and of themselves, but are also likely to increase the risk of construction claims due to delays and impacts caused by the changes.
7. Owners and contractors should do what they can to ensure proper management and administration of the project, including proper and adequate staffing and co-ordination of the project and trades, establishment
8. of protocols for site meetings and provision of timely responses to requests for review of working drawings and for provision of instructions.
9. All parties benefit from an atmosphere of mutual trust and respect and each party should do what it can to engender such an atmosphere among the parties and their advisors.
10. While it may be initially attractive to a party to shift all of the risk in the contract to the other party for risks such as insufficient plans and specifications and unexpected site conditions, a contract which is skewed in favour of one party often results in a higher chance of a dispute and hence, a construction claim. A contract that recognizes and balances the interests of all parties and that does not include an overly unfair allocation of risk will result in a decreased likelihood of construction claims.
11. Ensure proper and adequate documentation for the project.
12. Acknowledge and settle claims which have merit at an early stage.
13. Ensure that the contract has an adequate process for dispute resolution. Try to provide for a range of solutions from discussions between key personnel, through mediation and culminating in binding arbitration. Provide for how the project will proceed pending resolution of a dispute. ■

The staff at C.U.R.I.E. wish all our readers a happy holiday season!



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