

# The time is right for a building retrofit program

Most building managers today face a daunting list of challenges:

- reduced operating budgets
- rising utility costs
- demands for quality and comfort from building occupants
- ageing facilities and equipment

A retrofit program can turn your ageing facilities into the financially viable assets they once were and, at the same time, improve environmental impact.

## A building retrofit program is the best solution

A comprehensive retrofit program saves taxpayers dollars year after year. When you decide on a comprehensive retrofit, you take charge of your spending. The energy efficiency measures you choose will demonstrate leadership and sound planning.

A retrofit program can:

- significantly reduce utility costs, recouping the cost of the program itself within a few years
- cut system repair and maintenance costs
- improve occupant well being; reduce occupant complaints
- increase overall energy efficiency
- reduce the risk of costly emergency repairs
- generate up to 20 local jobs for every \$1 million invested
- enhance safety and productivity in your work and community spaces

The Federation of Canadian Municipalities (FCM) can help you make a successful retrofit program become a reality. There is no cost for our services. You can start today by enrolling in our *Municipal Building Retrofit Program*. Safe, modern, efficient buildings, permanent energy and environment benefits and ongoing savings: it's a win-win-win solution.

## It worked in London



Several Canadian municipalities have already invested in retrofit programs with excellent results. In 1998, London, Ontario implemented a comprehensive retrofit program in municipally owned and operated buildings. The infrastructure investment was \$3.7 million. The energy reduction is expected to result in a utility cost savings of \$478,000 annually. The project will pay for itself in eight years. For London, retrofitting buildings was the right thing to do.

## Retrofit means everybody wins



*Rod Higgins, Director of Operations, City of Moncton, New Brunswick*

*“Once a feasibility study was completed, the City of Moncton and the energy service company entered into an energy performance contract and retrofitted 16 civic buildings. The cost of the retrofit was \$1.6 million with guaranteed annual energy savings of \$214,000. This program allowed us to overhaul many buildings with much-needed new state-of-the-art lighting, HVAC, controls and energy efficient technology. The overall reaction to the program has been very positive and has positioned the City of Moncton favourably in its quest to be a responsible, progressive, environmentally friendly city.”*

## Sounds great, but how do we get started?

You may not know how much your municipality is currently spending on utilities. You may not know how to determine the potential savings that a building retrofit program can provide. In addition, the retrofit process may require specialists that you don't have on staff. You may need help in working out the best arrangement with your consultants or with an energy service company.

FCM's *Municipal Building Retrofit Program* helps overcome these obstacles. We give you the tools you need to develop the business case for the resources required to mount a successful building retrofit program. Our services are free. Our staff, and the partners we've recruited from municipalities and consulting firms, know how to get the job done and are ready to advise you in a number of key areas. We take a step-by-step approach that will allow you to reach your goals in manageable phases. We also provide you with model documents, manuals and workshops especially tailored to meet the needs of municipalities.

## A comprehensive approach works best

The retrofit program that we support is comprehensive. We help you look at your entire portfolio of buildings for retrofit opportunities. As building engineers know, systems interact and therefore when one component is changed, there is usually an impact on the others. For this reason, it is more efficient and cost effective to look at all of your building assets at once. Our program shows you how to determine the feasibility, costs, and short and long term savings involved in a comprehensive retrofit program. In addition, working on a larger scale lowers purchasing costs and provides more competitive pricing from suppliers.



*Ray Romanetz, Chief Administrative Officer, Town of Drumheller, Alberta*

*"Our program included the retrofit of environmental systems, six municipal facilities with a total project cost of \$670,000 resulting in energy savings of \$85,000 per year. The project paid for itself through energy savings over eight years providing a rate of return of 13 per cent based on simple interest. The whole program allowed us to bring our environmental systems up to state-of-the art standard while introducing significant energy savings. Council and the public-at-large recognize the benefit to the community and support any initiatives that will benefit the environment while saving tax dollars..."*

## A retrofit program puts new, reliable equipment in your buildings

New equipment and processes mean greater reliability, energy savings and efficiency. There are many areas that a building retrofit program can address.

### Mechanical and plumbing systems are modernized

- replacing old, inefficient boilers, fans, motors, pumps and cooling systems with high-efficiency units
- using modern digital control systems to control ventilation and heat more precisely and to allow for better scheduling
- adding low-flow and flow-control devices to reduce water waste
- installing renewable energy technologies such as solar pool heaters, ground source heat pumps or solar walls

### A variety of cost-effective improvements to electrical systems are possible

- high-efficiency lighting technology, such as T8 lighting with reflectors or high-intensity discharge lighting, to provide better illumination at lower cost
- motion sensors to ensure equipment is only used when needed
- digital lighting control systems
- conversion from electric heat to natural gas
- adding solar power sources to share the electrical load
- installing power factor correction capacitors to reduce utility charges

### Management and operating practices are enhanced

Not only will your equipment be renewed, but your facility management practices will be enhanced. A fresh look at management and operations practices can be an important component of a comprehensive retrofit program. Some improvements might include:

- designing operating strategies and schedules to ensure that equipment is only running when required and that optimum settings are in place
- purchasing and maintenance practices established to ensure high-efficiency equipment is used
- performance monitoring and reporting programs put in place to make certain that program goals are met

## A building retrofit will pay for itself

Our *Municipal Building Retrofit Program Guide* takes you through a variety of options for managing and paying for the retrofit. We help you collect and provide all the information that decision-makers will need to choose their preferred option for financing and implementing the retrofit initiative.

You may decide that your own staff is the best team to carry out a retrofit program. On the other hand, you may decide that engaging local contractors and consultants or an energy service company suits your particular needs best. Similarly, you may choose to finance a retrofit program from your municipality's capital budget or you may choose an internal revolving loan fund or an outside lender whom you will repay over time from utility savings. Your feasibility study or a particularly innovative building retrofit concept may also qualify your municipality for support from FCM's Green Municipal Funds or the Infrastructure Canada program.



*Brian Phillips, Manager, Property Services, City of Fredericton, New Brunswick*

*“The cost of our retrofit program was \$2 million with a payback period of only ten years AND with no impact whatsoever on our budget. We were able to improve 18 facilities – arenas, police depots, City Hall and others. Rink managers can adjust ice hardness, cut temperature, and control the level of lighting and heating all from a laptop. Greenhouse emissions are being cut by 25 per cent per year. It was money well spent.”*



# We help you achieve your retrofit goals, one step at a time

## Step One – Memorandum of Understanding



All it takes to get started is a simple letter, a Memorandum of Understanding, that demonstrates senior management support for participation in FCM's *Municipal Building Retrofit Program* and designates a contact person for your municipality. To help you create this memorandum, we supply a template and guide. When we receive your finished memorandum, you are automatically enrolled in our program.

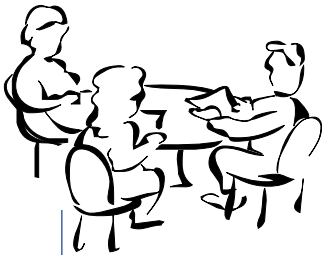
## Step Two – Green Leaf Assessment



Green Leaf is a rating system that provides a two-phase assessment to evaluate a municipality's readiness for a retrofit program. The goal of the assessment is to uncover potential savings and investment opportunities, as well as identify areas of priority for the action planning phase.

We provide you with a questionnaire to shape the assessment and to draw out the necessary information. We also give you resource material on data collection and opportunity assessment.

## Step Three – Post Assessment Review



This stage involves a meeting facilitated by our *Municipal Buildings Retrofit Program* staff. It begins the team building process, develops consensus and fosters commitment to creating a viable action plan. Areas that need support and/or training are immediately identified. Templates are provided that outline a proposed meeting agenda, a suggested participant list and model presentation material.

## Step Four – Action Plan



In this phase, your team creates an action plan that presents council with the broad financial and organizational framework for a retrofit program. The action plan requires only strategic level information at this stage. Using your assessment results and industry benchmarks, you can arrive at an estimate of potential savings and other benefits. Your council then decides whether to commit the necessary resources to move forward with a project proposal.

We help you at this stage by providing a framework for your presentation, as well as resources on life-cycle cost analysis. We also offer training in team building, strategic energy planning, and participation in our Municipal Exchange Program.

### Step Five – Project Proposal



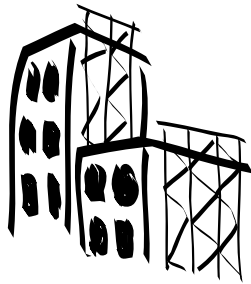
With commitment from council, this stage involves the production of a specifically detailed project proposal. More information on scope and objectives is included, as well as a priority list of buildings to be renovated, a specific financial mechanism and commitment, and implementation options. This requires information at the building level such as estimated savings potential and budget using industry benchmarks for building type and size.

### Step Six – Feasibility Study



This study confirms detail on specific measures, building by building. It requires information on particular building equipment. Savings potential and budget are developed from engineering calculations based on in-field audits and detailed costing. Once again, at this stage, we provide an array of templates to walk you through the process. We also supply resource material on building audits, energy accounting, auditing and consulting. Spot the Opportunity training is provided as well to help you uncover retrofit opportunities of which you may not have been fully aware.

### Step Seven – Construction



In this stage municipal staff members work with and supervise contractors implementing the action plan. We provide resource material on appropriate methods of waste disposal, model requests for proposals and model contracts to simplify your task at this stage.

### Step Eight – Monitoring and Verification



With the bulk of the project completed, this important stage involves creating management tools and procedures to maintain and verify operational savings. We supply you with resource material on building maintenance and energy efficiency and we provide training in monitoring and verification.



## Choosing to retrofit – the right decision at the right time

The Federation of Canadian Municipalities has been the voice of Canada's municipal governments for over 100 years. As is true for most Canadians, our organization is committed to working toward cost reduction, energy efficiency and sustainability in our municipalities. We are proud to offer you the benefit of our *Municipal Buildings Retrofit Program* and encourage you to enroll now. With your commitment and our guidance and support, a comprehensive retrofit can become a reality in your community.



*Jack Layton, Councillor, City of Toronto*

*"...We are talking about improving the quality of life for people in towns and cities...and we are breaking down the artificial myth that environmental improvement comes at the expense of other city services. The happy truth is that we can improve services, save money and create jobs AND improve our environment!"*

## For more information call today

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**Canada**

*The Municipal Building Retrofit Program is offered to municipal governments through a contribution agreement with Natural Resources Canada's Office of Energy Efficiency (OEE) and the Renewable Energy Deployment Initiative (REDI).*

