

## Introduction

This section looks at the steps that should be undertaken when planning a building or maintenance project for a typical rink or arena. With minor adaptations, the procedure should work for nearly any major investment. It was written primarily with the needs of the management committee in mind.

This section considers the renovation of existing facilities, addition of new areas to existing facilities, and the construction of an entirely new facility. Typical construction costs and practical examples are included.

Treat your facilities and projects as rental properties, using a business model to generate a profit. If your committee sets your profit goal at zero or less, provide an appropriate place for that option.

The energy efficiency and energy management ideas presented throughout this manual should form part of the planning process in your facility, now and in the future.

## Project concept

Start with the assumption that somebody out there has a good idea for a project – anything from a whole new building, to an addition, to a renovation or maintenance-type job.

In many instances management and building committees will be established to nurture or kill ideas that are brought forward. In the absence of these groups, the idea person(s) must develop the concept. Either way, think of the following factors that should be considered for the idea.

### Demand forces

Define the forces that are creating a demand for your project.

- » Who will use the project?
- » What will they pay to use it?
- » What features will they want?
- » How soon do they need it?
- » Can you do it profitably?
- » How will it affect other programs?

To answer these basic questions and many more, you must do your homework and learn more about your facility and your market.

**Economic base analysis**

You need to determine the economic and demographic forces that will shape your decisions. An overall analysis of your community is an excellent point of departure for your study. If the community is weak and exhibiting a decline in economic vitality, financing will be difficult to secure. If your community is strong, with economic growth and a solid base of employment, financing should be attainable.

**Demographics.** To understand the basic principles of demographics for your community, the issue of a person's life stage needs must be considered.

Look at your community, the surrounding towns and your district to determine if the population is increasing or decreasing. What age brackets are increasing and which are decreasing? If you are considering a hockey rink and the residents of the community age 6 - 39 are on the decrease, your analysis should project a future demand that is less than current levels.

On the other hand, if you are looking at a curling rink and the group ages 30 - 69 are steadily increasing, then your projection should suggest an increase in future demand from current levels. Sounds simple, right? Remember that those 20 - 29 year olds will be 30 - 39 year olds in 10 years.

Population statistics and economic development for most communities are available from:

- » Statistics Canada – [www.statcan.ca](http://www.statcan.ca)
- » Saskatchewan Regional Economic Development Authorities (REDAs) – [www.ir.gov.sk.ca](http://www.ir.gov.sk.ca)
- » SaskTrends Monitor – [www.sasktrends.ca](http://www.sasktrends.ca)

**Employment.** Who will pay? If you expect people to pay for the benefits that they receive from using your facility, then they will need a stable income.

On a community basis you must look at employment levels, historical employment levels and expected changes in total jobs. Unemployment statistics can be misleading, so try to obtain data that lets you know how many people are working in your community and your district.

Your knowledge of the community will be necessary to analyze any unique factors influencing the employment prospects of your town. Look at local employers; is your community dependent on one or a few industries? How would a work stoppage affect things?

Consider a simple example. In 1988 the Town of Hudson Bay, SK replaced a fire damaged ice rink facility with a new \$1.2 million expanded facility. In 1990 the town's largest employers pulled out, the population dropped, and income in the community fell. If this could have been forecasted, some decisions may have been made differently.

**Income.** The average income level of the people in your district is available from Statistics Canada. This data will help you to make decisions on the public's ability to support your facility – both in terms of user pay benefits and for general fund raising (if applicable).

Even though your population statistics indicate a strong demand for services, if the people in your town can't pay for these services, then chances are you won't be in a position to provide them.

Examine the case where a community has a large number of people with a very low average income. Those individuals will only be able to afford modestly-priced services. Don't plan on much beyond recreational hockey, public skating or recreational curling.

**Competition.** To evaluate your competition you must consider all factors involved in the average person's decision to support your facility. Only then will you know who your competition is.

If your town doesn't have a rink or an arena, that doesn't mean you don't have any competition. What you are really selling is leisure, recreation, sports and entertainment, and maybe even more. Let's look at both direct and indirect competitors.

Direct competitors consist of facilities that provide the same services you propose to provide. Consider other rinks and arenas in your district, within 50 km and within 100 km.

Indirect competitors consist of alternate sources of leisure activities in your marketplace. They may include:

- » Bowling alleys
- » Malls
- » Movie theatres
- » Pool halls
- » Swimming pools
- » Restaurants
- » Community halls
- » Tennis clubs
- » Bars and taverns
- » Dance clubs
- » Television

Your customer has a finite supply of time and money. You must convince yourself, your banker, and the public that some of the people's time and money will be spent at your facility. Each of these indirect competitors takes people's time and money and holds a certain number of people away from your facility.

**Unique Circumstances.** Does your community have some other unique factors that will enhance the viability of your project? Are there unique opportunities that could be pursued to enhance a project's worth?

Seek out special circumstances. If a new or improved recreational facility could be built, would people be attracted to relocate into your area? Would it sway a large employer to locate in your town instead of somewhere else? Would it keep the town vibrant, attracting new families to shop in the local stores?

Look at the availability of land and the availability of services for your project on an easily accessible site. There may be good land 10 km from town but 5 km from natural gas or power lines. Servicing costs would probably make the project impractical.

Look at reducing costs by sharing facilities or expanding your services to incorporate other needs. If a rink was located near the local school and the students used it during the day as part of their physical education, your utilization and revenue would increase. If you can provide a meeting room for a local senior citizen's group, thus renting out more than just ice time, your idea may come closer to reality.

Examine the other groups, organizations, service clubs, and institutions in your community. Look for joint opportunities; you'll find some. An existing facility has basic overhead costs that must be covered by the basic operation of the facility. Increasing the use of the building for meetings, shows, concerts, weddings, and clubs increases revenue, increases utilization, but only marginally increases total operating cost.

**Political Developments.** For lack of a better name, politics occasionally create situations that influence the viability of certain projects. Grants, loans and subsidies are made available at certain times for a variety of reasons and purposes. Watch for them and use them if practical – once you know all the facts and implications.

Don't count on using grants alone to pay for new projects. As many communities can attest, grants can be withdrawn or modified, creating severe difficulties for unprepared organizations.

## Market needs

Your project must fulfill a need of the society you plan to serve. To be successful you must provide that service better than your competition at a price that people are willing to pay, and that meets your cash flow requirements.

Once you have determined the need you will fill and the people who will benefit, figured out your competition and tied down a good location, it is time to talk about money.

## Planning process

In the beginning, there is nothing except an idea. At this point there are no constraints and no limitations. Anything is possible. Then reality sets in. Budgets are limited, costs are prohibitive, your site is only so big and retractable roofs don't work well at -40°F (-40 C). The planning process shapes those good ideas into practical solutions.

**Organization.** It is important to establish early on in the planning who and how decisions are to be made. This often consists of a building committee with an appointed chairperson. Occasionally there is a parallel committee responsible for financing and fund raising. Together, you have one committee raising money while the other committee spends it.

This approach has been particularly successful in hospitals, nursing homes, universities, and similar public service institutions. A review of how these organizations raise money is

certain to help you raise money, but will not be covered in these guidelines. It is very important to establish the procedures to be followed by the building committee:

- » Who do they report to?
- » Who has the final say in decisions?
- » What records must be kept?
- » What is the schedule?

If your project is small, the whole job may be delegated to one person. For example, you might ask Joe, a person you trust, to get the public address system replaced. You'll want him to look at PA. systems in buildings in the vicinity, talk to system suppliers and electricians, get prices from two or three contractors and report to the Board of Management in one month. Joe knows what to do, what information to collect, and he has a timetable in which to do it.

**Elements of Planning.** To take the idea and make it a reality requires a few basic steps:

- » Analyzing need
- » Collecting solutions
- » Reviewing alternatives
- » Establishing budgets
- » Establishing costs
- » Prioritizing options
- » Planning options

These basic elements of the planning process apply to any size and type of project. As the project grows in size and complexity, the process of producing a final solution will grow in size and complexity.

At some time every owner needs the help of professional planners. These include architects and engineers who specialize in the design of rinks, arenas and recreation buildings. Their training and experience will assist in the planning process. In most projects funded by public money or over a certain dollar value, the use of professional engineers and/or architects is a legal requirement to satisfy funding rules and provincial bylaws. The Saskatchewan Association of Architects and the Consulting Engineers of Saskatchewan will be pleased to forward the names of qualified firms.

Additional sources of basic information are contractors, wholesalers, distributors, manufacturers, and other sales organizations. Talk with other facility owners to learn about their experiences. You can benefit from their successes and avoid their mistakes.

**Planning Options.** When you are considering a project, you must review some options such as: to build new, to replace, to repair, to renovate, or to add-on. Virtually every need will be fulfilled by one or more of these options.

## Planning for energy efficiency

When considering energy efficiency projects, you are dealing with a different type of need. First consider a need to save money – financial need. Second, consider a need to save energy – an environmental need. The analysis of these needs requires a full understanding of some financial concepts.

### Cost avoidance

If the current monthly electricity bill in your facility is \$2,000/month and you are planning an energy efficiency project that will save \$500/month, you are looking at avoiding future electrical costs of \$500/month. This is referred to as cost avoidance.

The trouble with cost avoidance is that it never shows up anywhere. You will never get a cheque, nor a credit; nothing to tell you that you just saved \$500. But the savings are real. Without your energy efficiency improvement project, the \$500 would be in the utility's bank account, not yours.

### Inflation

In energy efficiency projects, you can assume that energy prices escalate at a rate from zero to 5 per cent per annum. Assume that a budget is established to pay the utility bills at that steadily increasing level. When you do your analysis of an energy efficiency project, the savings show up as the difference between the budgeted utility costs and the projected utility costs. The savings must be large enough to justify the cost of your energy project.

Using the previous example of \$2,000 a month current costs and a cost avoidance of \$500/month, and assuming inflation at 5 per cent, the inflated values are shown in the following table:

**Table 10.1 - Effects of inflation on cost avoidance**

Year	Electrical bill (Before)	Electrical bill (After)	Cost avoidance
1	\$2,000	\$1,500	\$500
2	\$2,100	\$1,575	\$525
3	\$2,205	\$1,654	\$551
4	\$2,315	\$1,736	\$579
5	\$2,431	\$1,823	\$608

The effects of inflation result in cost avoidance being inflated. Because future costs will be inflated, the dollar savings increase at the same rate as inflation.

### Financial analysis

When examining the finances of your project, remember that inflation has an effect on the future value of the money that you are using to pay your financing cost or energy costs. This is referred to as the net present value of money. To help you get a feel for the relative cost of different construction and repair options, consult the following table of work and related costs. See more on financial analysis in Section 3.

### Typical repair and replacement costs

This manual uses figures adjusted for inflation using the Consumer Price Index (CPI in 1999 was 110.5; CPI in 2006 is 129.5) and added for material cost to generate the following numbers. They should only be used as a very rough guideline. An architect, consulting engineer, or contractor will be able to help you with current pricing.

**Table 10.2 - Typical repair and replacement costs**

Replace existing hockey rink concrete floor with new concrete floor including hot deck		\$400,000
Replace refrigeration compressor (ammonia)	50 ton	\$26,000
	60 ton	\$31,000
	75 ton	\$35,000
	100 ton	\$45,000
Replace brine pump	10 hp	\$ 6,000
	15 hp	\$ 7,000
	20 hp	\$ 7,500
Replace evaporative condenser (ammonia)	50 ton	\$29,000
	60 ton	\$34,000
	75 ton	\$39,000
	100 ton	\$54,000
Renovate public areas	\$110/ft <sup>2</sup> (\$1200/m <sup>2</sup> ) of floor area	
Renovate wash/change rooms	\$140/ft <sup>2</sup> (\$1,500/m <sup>2</sup> ) of floor area	
Add R 15 to exterior wall	Stud wall	\$7.00/ft <sup>2</sup> (\$70/m <sup>2</sup> ) of wall
	Masonry wall	\$30.00/ft <sup>2</sup> (\$300/m <sup>2</sup> ) of wall
Add R 20 to roof	Attic (blown insulation)	\$1.00/ft <sup>2</sup> (\$10/m <sup>2</sup> ) of roof
	Inverted roof	\$20.00/ft <sup>2</sup> (\$210/m <sup>2</sup> ) of roof
	Flat	\$60/ft <sup>2</sup> (\$650/m <sup>2</sup> ) of roof
	Sloped metal	\$85/ft <sup>2</sup> (\$900/m <sup>2</sup> ) of roof
Install Low E ceiling		\$35,000
Demineralized Water		\$25,000
Brine Pump with VSD		\$19,000 - \$22,000
Liquid pressure amplifier		\$ 5,000 each

**Table 10.3 - Typical costs of new construction**

New hockey rink 24,000 ft <sup>2</sup>		
-new rink with ice plant		\$950,000
-new rink without ice plant		\$850,000
Ice plant for new rink including 5" concrete floor slab		
-50 ton winter-only operation		\$110,000
-75 ton year-round operation		\$135,000
New curling rink with washrooms and lounge plus viewing areas:		
	<b>Building</b>	<b>Refrigeration</b>
2 sheet	\$225,000	\$40,000
3 sheet	\$350,000	\$50,000
4 sheet	\$450,000	\$55,000
6 sheet	\$700,000	\$60,000
Extra public area	\$100/ft <sup>2</sup> (\$1100/m <sup>3</sup> )	
Extra rink/warehouse area	\$30/ft <sup>2</sup> (\$320/m <sup>3</sup> )	
Mezzanine space	\$75/ft <sup>2</sup> (\$800/m <sup>3</sup> )	
Architects and engineers	8 per cent of construction value	

## Planning check list

### Phase I - Needs analysis

Establish need for service:

- » Address unmet needs
- » Meet competition with better service
- » Location

Consider competition:

- » Who is your direct competition?
- » Where are they located?
- » What other services are competing for your customers' time and money?

Demand forces:

- » Population (growing, steady, declining)
- » Employment (stable workforce, transient)
- » Income level (high, average, low)
- » Unique factors

Finances & Grants:

- » Budgeted expense
- » Loans and mortgages
- » Grants
- » Cost of service
- » Operating and maintenance
- » Price for service
- » Local fund raising
- » Local operating grants

### Phase II - Plans and specifications

Scope of work:

- » Define size of project
- » Define budget constraint
- » Establish time table

Consultation:

- » Building committee
- » Hire consultants as required
- » Talk to other owners
- » Talk to contractors

Planning:

- » Prepare preliminary floor plans
- » Re-examine project and financial plans
- » Prepare final plans
- » Look at the details of the project
- » Confirm that all needs are addressed
- » Check budget again

## Specifications:

- » Establish quality expected
- » Establish energy efficiency goals expected
- » Communicate expectations clearly

## Tendering:

### Bidding

- » Sole source, negotiated
- » Invitational
- » Public tender

### Pricing

- » Cost plus (time and material)
- » Fixed price

## Phase III - Construction

### Tender evaluation:

- » Select contractor
- » Bid bond - if required
- » Insurance during construction
- » Check references
- » Is it within the budget?
- » Is contractor qualified?
- » Construction schedule

### Pre-construction meeting:

- » Prepare and sign contracts
- » Establish lines of communication
- » Establish limitations (if applicable)
- » Establish payment procedure
- » Establish grievance procedure

### Construction:

- » Review progress
- » Ensure that you get what you paid for, review workmanship
- » Communicate changes promptly
- » Try to keep changes to a minimum
- » Pay promptly once claims approved

### Post construction:

- » Obtain maintenance manuals
- » Receive operator training