

**DATE:** December 15, 2014

**FILE:** 0890-20/curling centre

**TO:** Chair and Directors  
Comox Valley Sports Centre Commission

**FROM:** Debra Oakman, CMA  
Chief Administrative Officer

**RE:** Update on curling centre

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### **Purpose**

To update the sports centre commission on the curling centre renovation project.

### **Policy analysis**

The following motions were passed at the board meetings:

THAT the curling ice rink facility be transferred from the Comox Valley exhibition ground service, function 660, to the Comox Valley recreation complexes service, function 645 was passed - October 2013

THAT an alternate approval process (AAP) be held to determine if the constituents of the member municipalities and electoral areas would approve the borrowing of \$1,900,000 for the renovation of the CVRD curling facility - March 2014

THAT the 2014 – 2018 financial plan and capital expenditure program for Comox Valley recreation complexes function 645 be amended by adding a capital project in the amount of \$1,900,000 in 2014 for building improvements, including architectural and project management services, of the Comox Valley curling centre to be funded by debt financing - July 2014

THAT the contract to provide engineering and contract management/construction oversight services for the CVRD curling centre renovation project be awarded to Bruce Carscadden Architect, in association with Thomas Dishlevoy Architecture Ltd. in the amount of \$199,175.00 excluding disbursements and taxes – November 2014.

### **Executive summary**

The CVRD owns the curling facility and leases the building to the Comox Valley Curling Club, CVCC. The CVRD entered into a 5 year agreement with the CVCC in 2010 with a total annual rent of \$6,726.66 per year.

Under the terms of the agreement the club is responsible for operating the facility year round. In exchange the club uses the facility as a curling facility during the ice season and is able to rent out the facility for community functions and special events during the non-ice season. All curling registration fees and rental income goes directly to the CVCC.

The curling facility has been an important fixture in the Comox Valley since the early 1950's. The curling clubs membership is approximately 550 and has experienced a slight growth over the last couple of years.

In 2011 a peer review committee of CVRD staff and curling club members was asked to prepare an analysis of replacing the facility versus renovating the facility. The committee determined that aspects of the facility and its equipment were well past their life expectancy and in need of replacement; however, the task proved to be complex and required specialty skills.

In 2012 RDH Building Engineer Ltd. (RDH) was contracted to do a feasibility study on the curling rink. The scope of this study included an analysis of present conditions of the curling rink, supporting services, (which includes change rooms, kitchen facilities, meeting rooms, common areas, lounges etc.), equipment and the estimated cost of:

1. Performing the minimum work in order to keep the facility operational;
2. Renovating the structure and equipment, curling facilities and/or supporting services;
3. Constructing a new curling facility.

The final report (appendix A) proposed many options ranging from doing the minimum work, at a cost of \$682,950, to the construction of a new building, at a cost of over \$10,000,000.

In reviewing the five options, doing the minimum six would “bandaid” the situation, which would arise again within five years. Building a new facility will present its own unique problems and may be hard to justify for 500 athletes using a facility for six months of the year. It was felt that somewhere in between lay a solution. It is inevitable that without the renovation to the curling rink, curling will cease to exist in the Comox Valley. The supporting services are in need of an update and have a somewhat dysfunctional floor plan; however, they are usable. The logical and financially responsible decision was to proceed with a renovation of the curling rink component and do the minimum work for the supporting services component, at an estimated cost of \$1,900,000 including a \$100,000 hazardous material contingency fund.

The 2013 preliminary budget included the curling rink renovation project. However, the curling club was going through some financial difficulties and had to cut back on their financial contribution to the project. Consequently, if the project was to move forward the CVRD’s financial commitment would need to increase, which would mean seeking electoral approval for borrowing the funds before proceeding. The project was dropped from the 2013 budget, knowing that if the project did receive approval there were issues to deal with before the project could start.

One of the issues was the environmental condition of the site. A phase I environmental site assessment, ESA, was commissioned and completed in February 2014.

The detailed assessment of the current and historical operations of the subject property resulted in the identification of three areas of potential environmental concern (APEC), presented in the table below:

Area of Potential Environmental Concern (APEC)	Description
APEC 1	Historical and current leaking of calcium chloride refrigerant from the header trench in the curling rink
APEC 2	Historical dumping of melted curling ice containing sheet line paint and associated waste onsite.
APEC 3	Presence of hazardous materials within the building and site infrastructure due to the age of the property

At a sports commission meeting earlier this year it was determined that based on the findings in the Phase 1 ESA, a Phase II ESA should be completed at the curling rink site prior to moving forward with the renovation project.

The Phase II ESA was initiated to assess the presence or absence of soil and groundwater impacts above applicable BC Contaminated Sites Regulation standards at four exterior locations at the curling rink. The investigation was limited to the perimeter of the building. Interior areas were not accessible due to the under slab piping systems associated with the facility cooling mechanisms. This work was completed with some positive results but monitoring of the wells will continue for two more seasons.

In March 2014 the board passed the motion to hold an alternate approval process (AAP) to determine if the constituents of the member municipalities and electoral areas would approve the borrowing of \$1,900,000 for the renovation of the CVRD curling facility;

Elector approval was received at the close of the AAP on June 13, 2014. Subsequently, Bylaw No. 327 was approved by the board in June 2014, authorizing the borrowing of \$1,900,000 for the CVRD to carry out the planning, study, design and construction of works and facilities in connection with the capital improvements to the Comox Valley curling centre. Works will include building upgrades as well as mechanical upgrades and replacement.

With the positive outcome of the curling centre renovation AAP, the CVRD was in a position to move ahead with the project. Prior to this, the project and financing must be reflected in the 2014 financial plan. At the July 2014 board meeting, the 2014 – 2018 financial plan and capital expenditure program for Comox Valley recreation complexes function 645 was amended with the addition of a capital project in the amount of \$1,900,000 in 2014 for Comox Valley curling centre building improvements, including architectural and project management services.

Prior to the start of the project a geotechnical study of the site needed to be completed. This was conducted during two trips to the site - one on September 26, 2014 and another on October 8, 2014. The geo-tech results led to some concerns about the potentially liquefiable layer of soil. Further review, however, clarified that the recommended changes to the structure in the the RDH report would meet the building code requirements and failure of the foundation is not predicted.

A request for proposals (RFP) to provide engineering and contract management/construction oversight services was issued in August 2014. Of the five compliant proposals received, the proposal best meeting the criteria set out in the RFP was Bruce Carscadden Architect, in association with Thomas Dishlevoy Architecture Ltd. at a cost of \$199,175.00 excluding disbursements and taxes.

In October 2014 the Curling Centre facility was moved from the Comox Valley exhibition ground service, function 660, to the Comox Valley recreation complexes service, function 645. This aligned all CVRD indoor recreation facilities, particularly the arenas, under one service.

The tender is scheduled to go out January 22, 2015 with a closing date of February 19<sup>th</sup>. The project is slated to commence mid April and be completed by December 2015.

**Recommendation from the chief administrative officer:**

This staff report is for information purposes only, no recommendations are being made.

Respectfully:

***D. Oakman***

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Debra Oakman, CMA  
Chief Administrative Officer

Submitted by:

***D. Walters***

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Darcy Walters  
Senior Manager of Recreation Services

Concurrence:

***T. Ian Smith***

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T. Ian Smith, MCE  
General Manager of Community  
Services

# Comox Valley Curling Rink Renovation Study Report **DRAFT**

Comox Valley Curling Rink, 4835 Headquarters Road, Courtenay, BC



CLIENT Mr. Darcy Walters  
Comox Valley Regional District  
600 Comox Road  
Courtenay BC V9N 3P6

SUBMITTED BY RDH Building Engineering Ltd.  
730 Grant Avenue #208  
Courtenay BC V9N 2T3

PROJECT # 6463.00

DATE October 31, 2012

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# 1. Introduction

## 1.1. Terms of Reference

RDH Building Engineering Ltd. (RDH) was retained by the Comox Valley Regional District (Regional District) to evaluate the feasibility of renovating (Study) the Comox Valley Regional District curling rink (Facility) located at 4835 Headquarters Road, Courtenay, B.C. This report documents the results of that evaluation.

This report has been undertaken for Comox Valley Regional District and is not to be relied on by others.

## 1.2. Building Components

For the purposes of this report, the Facility is considered to be composed of two components as defined below:

**Rink Component:** The area of the building containing the curling rink sheets and the adjacent mechanical rooms.

**Social Component:** Ancillary facilities to the curling rink such as the kitchen, banquet room, washrooms, offices, viewing area, etc. These facilities are located in the southern portion of the building, south of the rink viewing windows.

## 1.3. Report Organization

Background information relevant to this building and the report is provided in this Section 1.

Section 2 includes brief summaries of the reports of each of the disciplines that reviewed the building and references their full reports. Those reports are included in the appendices to this report.

Section 3 provides an overview of the results of the study.

## 1.4. Background

The Comox Valley Curling Rink (Facility) was originally constructed in 1959 with additions constructed in approximately 1972 and 1988.

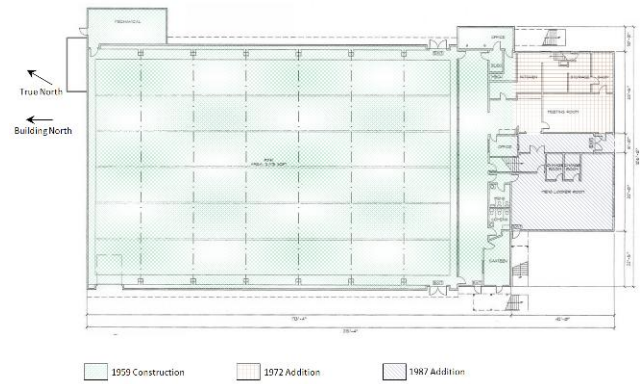


Fig. 1.4.1 Plan view of ground floor of Facility  
See Appendix A for a larger version of this drawing.

Photographs of the principal elevations are shown in the following photos.



Fig. 1.4.2 West elevation.



Fig. 1.4.3 North elevation.





Fig. 1.4.4 East elevation.



Fig. 1.4.5 South elevation.

Adjacent to the single storey curling rink (Rink Component) is a two-storey structure containing ancillary services (Social Component).



Fig. 1.4.6 View of the Social Component of the Facility.

The current building contains:

- 6 curling lanes.
- Viewing areas.
- Change and washrooms.
- Administrative space.
- Banquet and lounge space.
- Commercial kitchen facilities.

To assist in managing the Facility, the CVRD retained PBK Architects who submitted a Condition Assessment Report dated May 2005. PBK's assessment:

- Was based on visual review only.
- Included accessible locations only.
- Did not include a wind or seismic assessment.
- Did not include any testing for hazardous materials.
- Did not have access to original design drawings.

Subsequently, the CVRD retained CEI Architecture who conducted a "needs" assessment and feasibility study concerning the provision of winter sports programs and facilities" and submitted a report dated April 14, 2008.

To date, some of the high priority / lower cost recommendations from the PBK report have been implemented. Higher price / medium and future priority recommendations have not been implemented.

## 1.5. Scope Of Services

The following summarizes the Study's scope of services:

- a) Consider aspects of the Facility falling under the following disciplines:
  - i) Hazardous materials evaluation
  - ii) Architectural design
  - iii) Mechanical engineering
  - iv) Structural engineering
  - v) Electrical engineering
  - vi) Building enclosure assessing
- b) Consider current codes applying to design and renovation of buildings and requirements of authorities having jurisdiction.
- c) Consider kitchen facilities.



- d) Interview the Facility manager, and a representative of the Curling Club, to confirm historical information, current issues, and objectives for the future.
- e) Review past reports on the Facility.
- f) Access the current condition of the Facility through visual review, spot exploratory openings, and sample analysis for hazardous materials.
- g) Recommend repairs / renewals should the Regional District wish to continue to operate the Facility generally in its current form.
- h) Investigate and comment on the feasibility of replacing the current rink slab versus constructing a new rink slab over the existing one.
- i) Investigate and comment on the possibility of renovating the Social Component of the Facility.
- j) Investigate and comment on the possibility of demolishing and re-building the Social component of the Facility.
- k) Investigate and comment on the possibility of demolishing the entire Facility and building a new Facility of the same square foot area.
- l) Where appropriate, provide conceptual sketches to compliment recommendations.
- m) Provide Class “D” estimates of significant recommendations.
- n) Prepare and submit a draft report on the findings. The draft report will integrate the findings of all the disciplines.
- o) Meet with the CVRD to discuss the draft report.
- p) Revise the draft report, as appropriate, after consideration of the CVRD’s comments on the draft report, and issue it in final form.

## 1.6. Consultant Team

To address the multi-discipline nature of the Study, a consultant team of experts was formed and is identified below:

Prime Consultant: RDH Building Engineering

Hazardous materials: Pacific Environmental Consulting

Architectural: Vic Davies Architect

Mechanical: AME Consulting Group

Structural: Read Jones Christoffersen

Electrical: Muir Engineering

Building enclosure: RDH Building Engineering

## 1.7. Recommendation Nomenclature

At the outset of the Study, a meeting with representatives of the Regional District and the Curling Club agreed that the Study should address three primary options:

Status Quo Prolonged

Existing Facility Upgraded

New Facility

These options are then applied to both the Rink Component and the Social Component of the Facility. The following recommendation nomenclature is used in this report:

### 1.7.1 Curling Rink Component (CR)

Option CR-1: Status Quo Prolonged

This option addresses any failed assemblies / failed components or likely imminent failures. This is a maintenance / repair option intended to extend the current Rink Component’s service life by approximately 5 years pending decisions on the future of the Facility or completion of renovations or alternate facilities.

Option CR-2: Existing Rink Component Upgraded

This is a renewal option intended to achieve a new service life, say 30 years or more, not just an extended service life.

Option CR-3: New Rink Component

A new rink component of similar area to current quality standards.

### 1.7.2 Social Component (Social)

Option Social-1: Status Quo Prolonged

This option addresses any failed assemblies / failed components or likely imminent failures. This is a maintenance / repair option intended to extend the current Social Component’s service life by approximately

5 years pending decisions on the future of the Facility or completion of renovations or alternate facilities.

Option Social-2: Re-Configure

The overall concept for this option is to retain whatever structure that is practical, while achieving a new more functional layout. Code compliance issues are addressed. Within that context, building enclosure upgrading / incidental replacement will take place. This option is intended to achieve a new service life, 30 years or more.

Option Social-3: Replacement

The overall concept for this option is the demolition of the existing social component and replacement with a fully new social component of similar area.

**1.8. Documents Reviewed**

The documents provided to and reviewed by the consultants on the team are listed in Table 1.8.1.

Table 1.8.1 Documents Reviewed

DOCUMENT DESCRIPTION	
Dan’s Design & Drafting	Courtenay Curling Rink (Expansion) March 1987
Thomas Dishlevoy Architecture	West Coast Hockey School Drawings SK1 & SK2 September 2002
PBK Architects	Condition Assessment Report May 2005
PBK Architects	Ice Plant Improvements Drawings 1 & 2 Rev. 1, August 2007
CEI Architecture	Comox Valley Feasibility Study For Curling and Ice Rink Facility April 14, 2008
Smart Ice	Building, Ice and Rocks Assessment February 13, 2012

The Regional District was not able to track down copies of the 1959 original design drawings or the 1972 expansion drawings.

## 2. Summary By Discipline

The following are brief summaries of the reports of each of the disciplines that reviewed the Facility. To fully appreciate the rationale for actions required in each option, the full reports need to be read. Those reports are included in the appendices to this report.

The summaries are broken down into the six categories noted in Sub-Section 1.7. They begin with a general description of work to be performed and, where appropriate, are followed by work items in bullet format.

An overview of the study results is provided in the following Section 3.

### 2.1. Hazardous Materials Survey (Appendix B)

A hazardous materials assessment was performed by Pacific Environmental Consulting. The purpose of the assessment was to identify any hazardous materials in the Facility and give direction if current action is required, or if action is required upon modification or demolition of the Facility.

#### CR-1

No action required.

#### CR-2

Removal and disposal of lead containing paint (white paint on rink walls and blue paint on Header covers) requires precautions to be taken.

#### CR-3

Removal and disposal of lead containing paint (white paint on rink walls and blue paint on Header covers) requires precautions to be taken.

#### Social-1

No action required.

#### Social-2

Removal and disposal of asbestos containing ground floor kitchen drywall joints and upstairs bar sink anti-sweat coating requires precautions to be taken.

#### Social-3

Removal and disposal of asbestos containing ground floor kitchen drywall joints and upstairs bar sink anti-sweat coating requires precautions to be taken.

### 2.2. Architectural Report (Appendix C)

#### CR-1

No major work is required. Minor work should include:

Ice Plant: Tape and fill the existing fire rated gypsum board.

Ice Plant: Install an exit device on the exterior door.

#### CR-2

Sprinklers to be installed to comply with the current building code. Wall finishes to be updated. Rink / Social Component divider wall to be shifted to give more circulation space behind rink.

Install a dry sprinkler system.

Re-coat all wall finishes.

Modify perimeter doors and landings to accommodate slab-over option if a new rink slab is constructed over the existing rink slab.

Shift Rink / Social divider wall 30" into existing Social Component.

#### CR-3

New construction to current standards.

#### Social-1

The only imminent hazard is the worn carpet in the upper lounge which is a trip hazard.

Replace carpet in upper lounge.

#### Social-2

To allow for better functionality, the layout is re-configured generally within the current footprint. A small area increase is recommended for efficiency purposes and to make up for space lost to an elevator and expanded washrooms.

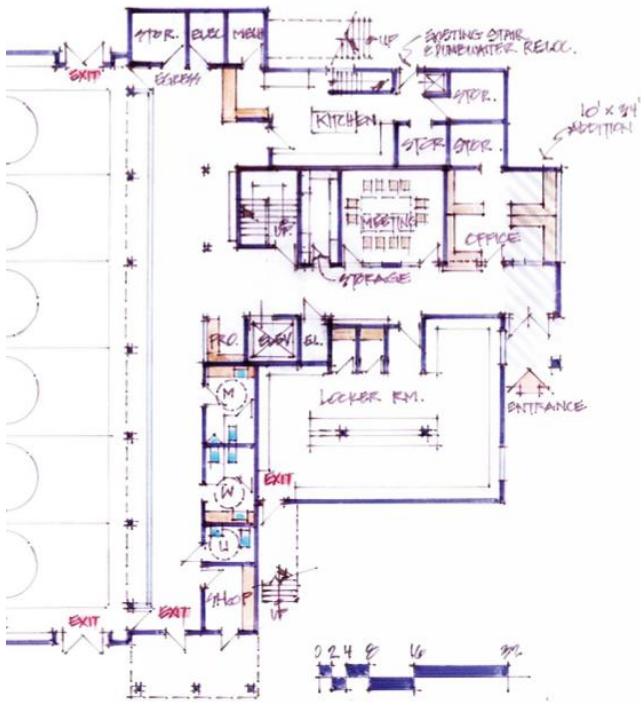
Re-construct the Rink / Social Component common wall as a 1 hour fire separation with fire shutters or sprinkler protected glazing.

Install a sprinkler system.

Replace all floor, wall, and ceiling finishes including the associated mechanical and electrical components.

Install an elevator.

Add 340 sq. ft. on each floor.



OPTION: SOCIAL 2 - MAIN FLOOR PLAN SK-1

October 10, 2012

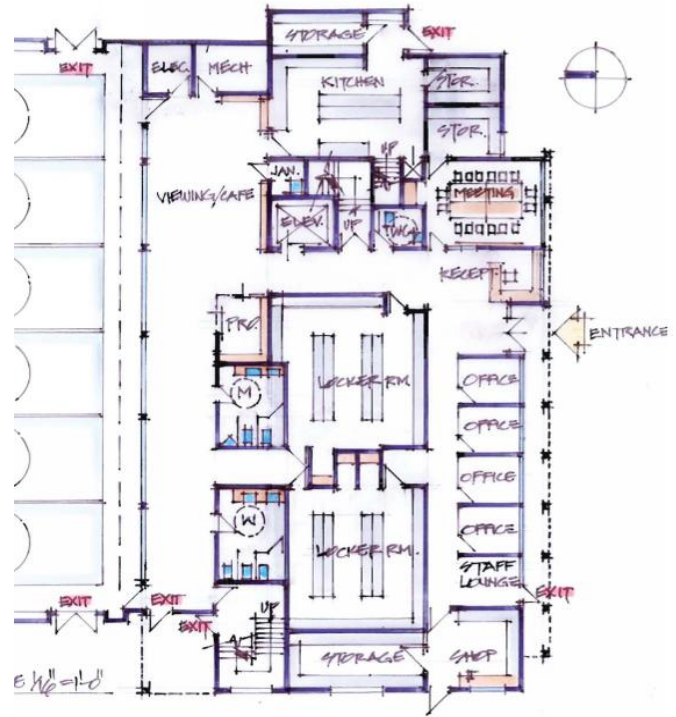


Fig. 2.2.1 Excerpt from Vic Davies Architectural Report

**Social-3**

Although the initial intention was to consider a replacement option of approximately the same area as the current Social Component, the concept presented for Social-3 is 30% larger than the current Social Component. This represents the reality that, if the Social Component is replaced, its design and area should be optimized for the functions that it is to address. That has led to the realization that a larger Social Component is likely the best solution.

New construction to current standards.



OPTION: SOCIAL 3 - MAIN FLOOR PLAN SK-4

October 10, 2012



Fig. 2.2.2 Excerpt from Vic Davies Architectural Report

**2.3. Mechanical Assessment Report (Appendix D)**

**CR-1**

The first four items in the following list are located in the room known as the ice plant in the north-east corner of the Rink Component. Most of them are older than their expected service lives.

- Replace curling rink brine pump
- Replace curling rink brine chiller
- Replace curling rink condenser
- Replace curling rink compressor
- Replace curling rink de-humidifier 1
- Replace curling rink de-humidifier 2



Fig. 2.3.1 Curling rink brine pump

**CR-2**

Perform the items noted for CR-1 plus the following:

- Replace rink wash boiler
- Replace rink wash hot water tanks
- Replace curling rink slab pipes
- Install heaters in curling rink.

**CR-3**

New construction to current standards.

**Social-1**

- Replace Change Room heater
- Replace Heat Pump 1
- Replace Heat Pump 3

**Social-2**

- Replace furnace
- Replace Change Room heater
- Replace Heat Pump 2
- Replace Kitchen Exhaust Fan 1
- Replace Kitchen Exhaust Fan 2
- Replace DHW (domestic hot water) heater

**Social-3**

New construction to current standards.

**2.4. Structural Assessment Report (Appendix E)**

**CR-1**

No action required.

**CR-2**

To upgrade the Rink Component for seismic and snow loading, modifications to the perimeter walls and glulam frames are required.

Add new wood frame shear walls along west and east walls.

Add new metal plate connections and tie rods to existing glulam frames.

Install new concrete grade beam ties to replace the original sub-slab glulam frame tie rods.

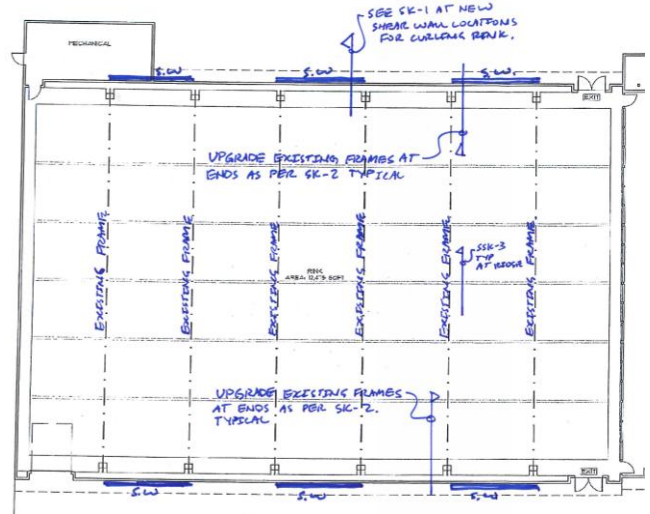


Fig. 2.4.1 Excerpt from RJC Structural Assessment Report Plan view showing areas to be modified.

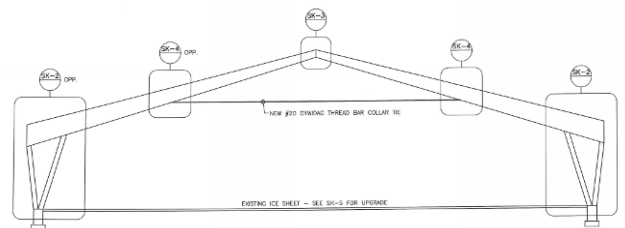


Fig. 2.4.2 Excerpt from RJC Structural Assessment Report Cross-section showing areas to be modified.



**CR-3**

New construction to current standards.

**Social-1**

No action required.

**Social-2**

Major structure work is required to upgrade the Social Component to current building code requirements for seismic and snow loading and to accommodate interior layout revisions.

Upgrade roof and support structure for snow loading.

Add new wood frame shear walls and new concrete pad and strip foundations.

Upgrade or replace existing unreinforced concrete block.

Add new beams, posts, and foundations.

Install foundation and framing for new elevator.

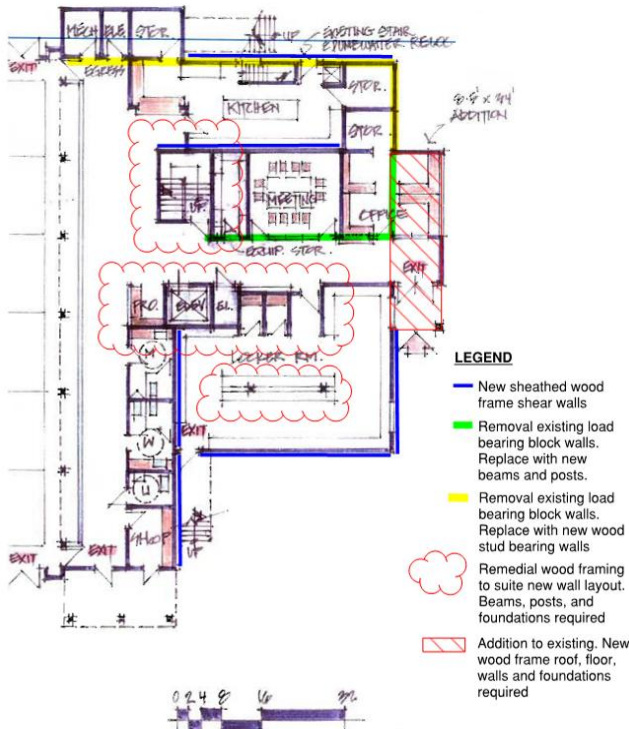


Fig. 2.4.3 Excerpt from RJC Structural Assessment Report Structural modifications of main floor marked up on Vic Davies drawing.

**Social-3**

New construction to current standards.

**2.5. Electrical Assessment (Appendix F)**

**CR-1**

Perform maintenance to prolong life of miscellaneous equipment.

**CR-2**

Completely replace electrical distribution equipment for the 480V service.

Completely replace electrical distribution equipment for the 240V service.

Replace or verify the main grounding system.



Fig. 2.5.1 Corroded 480 volt electrical panel.

**CR-3**

New construction to current standards.

**Social-1**

Perform maintenance to prolong life of miscellaneous equipment.

**Social-2**

Replace several subpanels on the 120/240V system. In one case, a set of three panels should be combined into one larger panel, rotated 180 degrees to face the corridor.

Replace main fire alarm panel to support monitoring of the exhaust hood fire suppression system and the addition of a remote annunciator at the building entry.

Replace interior non-ice lighting with modern fixtures. Lighting in certain areas should be controlled via occupancy sensing devices.

Consider additional exterior lighting on the sides of the building.



Fig. 2.5.2 Panels to be combined and rotated to face, and be accessed, from corridor.

**Social-3**

New construction to current standards.

**2.6. Building Enclosure Condition Assessment Report (Appendix G)**

The figure below is a small scale version of the figure identifying the location of various exterior wall assemblies. Wall Assembly #1, shown in red, is the typical wall assembly of the Curling Component. The other wall assemblies are associated with the Social Component.

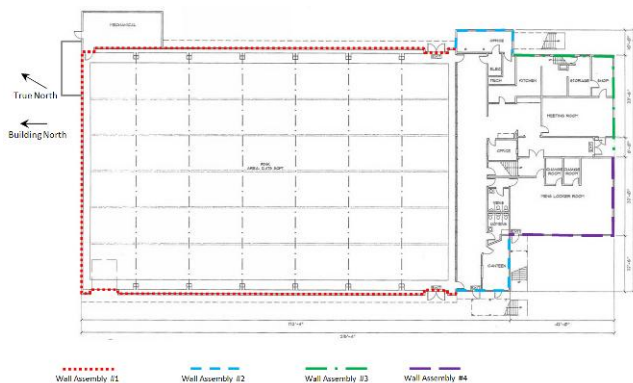


Fig. 2.6.1 Small scale excerpt from Building Enclosure Assessment Report.

**CR-1**

Wall Assembly #1: Perform spot repairs to vinyl cladding.

**CR-2**

Wall Assembly #1: Remove the vinyl cladding, strapping, building paper, and expanded polystyrene. Install a continuous air / vapour / moisture barrier over outboard sheathing, then an optimized level of insulation, spacers, and durable cladding.

Exterior doors: Install energy efficient doors and frames integrated into the adjacent assemblies in accordance with current good practice.

Roof Assembly #1: Repaint corroded metal at eave edges of standing seam roofing.

**CR-3**

Wall Assembly: Utilize a continuous air / vapour / moisture barrier over outboard face of sheathing, then an optimized level of insulation, spacers, and durable cladding.

Exterior doors: Utilize energy efficient doors and frames integrated into the adjacent assemblies in accordance with current good practice.

Roof Assembly: The optimum assembly will depend upon architectural and structural decisions for the new Facility.

**Social-1**

Roof Assembly #2: Install strainers to roof drains.

**Social-2**

Wall Assembly #2: Rebuild the wall assembly in association with structural and architectural recommendations. The optimum assembly for the circumstances will depend upon the extent of structure work.

Wall Assembly #3: Rebuild the wall assembly in association with structural and architectural recommendations. The optimum assembly for the circumstances will depend upon the extent of structure work.

Wall Assembly #4: Rebuild the wall assembly in association with structural and architectural recommendations. The optimum assembly for the circumstances will depend upon the extent of structure work.

Roof Assembly #2: If the architectural and structural recommendations for this option retain the current roof, apply zinc paint to corroded flashing.

Exterior windows: Install insulated glazing units set in energy efficient frames with casement-style operable vents.

Interior windows: Install insulated glazing units set in energy efficient frames.

Exterior doors: Install energy efficient doors and frames integrated into the adjacent assemblies in accordance with current good practice.

Balcony: Rebuild the balcony in association with structural and architectural recommendations.

**Social-3**

Wall Assembly: The optimum assembly will depend upon architectural and structural decisions for the new Facility.

Exterior windows: Utilize insulated glazing units set in energy efficient frames with casement-style operable vents.

Interior windows: Utilize insulated glazing units set in energy efficient frames.

Exterior doors: Utilize energy efficient doors and frames integrated into the adjacent assemblies in accordance with current good practice.

Balcony: The optimum balcony assembly will depend upon architectural and structural decisions for the new Facility.

**2.7. Cost Estimate Report  
(Appendix H)**

Based on the items identified in the reports of the preceding disciplines, Heatherbrae Builders prepared a cost estimate. Heatherbrae’s estimates of each of the options are summarized below:

CR-1 .....	\$372,000
CR-2 .....	\$1,160,500
CR-3 .....	\$3,245,000
Social-1 .....	\$99,000
Social-2 .....	\$2,456,900
Social-3 .....	\$3,842,500

### 3. Overview Of Study Results

Section 2 provided brief summaries of the detailed recommendations of each of the disciplines that reviewed the Facility. This section provides an overview putting the issues and recommendations into context and noting their estimated costs, rounded off to the nearest one hundred thousand dollars.

#### 3.1. CR-1: Curling Rink Component Status Quo Prolonged

This option addresses any failed assemblies / failed components or likely imminent failures. This is a maintenance / repair option intended to extend the current Curling Rink Component's service life by approximately 5 years pending decisions on the future of the Facility or completion of renovations or alternate facilities.

For this option:

- There are no issues to be addressed regarding hazardous materials.
  - There is some minor building code upgrades required related to the ice plant room.
  - Most of the mechanical equipment in the ice plant is at the end of its service life and is recommended to be replaced. If not, failure of the equipment will likely lead to the loss of the sheet ice. Reinstatement of the sheet ice, even on an accelerated schedule will take approximately 8 days after receipt and installation of replacement equipment. The replacement process for failed equipment could take approximately 5 months.
- It should be noted that, in a planned replacement process, equipment could be specified to perform in the existing facility and then be re-used in an upgraded or replacement facility.
- Although most of the electrical equipment is of advanced age, imminent failure cannot be predicted. As such, a maintenance approach has been presented. Nevertheless, it should be recognized that there are risks associated with this approach, namely, electrical equipment failure could result in loss of sheet ice and associated down time.

- There are no structural issues requiring immediate action.
- There are no major building enclosure issues requiring immediate action. Minor spot repairs to cladding are recommended.

This option is estimated to cost approximately \$400,000.

#### 3.2. CR-2: Curling Rink Component Existing Rink Component Upgraded

This is a renewal option intended to achieve a new service life, say 30 years or more, not just an extended service life.

For this option:

- Work related to the renewal program will require the removal and disposal of lead containing paint (white paint on rink walls and blue paint on Header covers). This work must be performed utilizing specific precautions. The precautions and disposal are not particularly onerous and, as a result, are anticipated to add only minor expense to the project.
- Upgrading to current building code requires a sprinkler system to be installed.
- To upgrade for seismic and snow loading, modifications to the perimeter walls and glulam frames are required. New concrete grade beam ties are needed replace the original sub-slab glulam frame tie rods.
- As noted above, perimeter walls will be affected by the structural work. This presents an opportunity to upgrade the walls of the building enclosure and interior and exterior finishes to those walls. Upgraded walls will result in greater energy efficiency (lower operating costs) and more uniform rink ice conditions.
- In the course of the work, the Rink / Social Component divider wall can be (optional) shifted 30" into the existing Social Component space to allow greater circulation space for the curlers.
- A new rink slab over the exiting rink slab (slab-over option) would require perimeter doors and landings to be modified to accommodate the increased rink slab elevation. Also, there is the requirement for new concrete grade beam ties to replace the original sub-slab glulam tie rods. The combination of these factors will result in the slab-over option costing a similar amount as the removal and replacement of the existing slab.

- Perform the mechanical items noted for CR-1 plus:
  - Replace rink wash boiler.
  - Replace curling rink slab pipes.
  - Install heaters in curling rink.
- Completely replace electrical distribution equipment and replace or verify the main grounding system.

Down time for this option could be in the order of 4 months.

This option is estimated to cost approximately \$1,200,000.

### 3.3. CR-3: Curling Rink Component New Rink Component

This is a completely new rink option of similar area to the existing rink, but constructed to current quality standards.

For this option:

- If the existing Rink Component is demolished, the work will require the removal and disposal of lead containing paint (white paint on rink walls and blue paint on Header covers). This work must be performed utilizing specific precautions. The precautions and disposal are not particularly onerous and, as a result, are anticipated to add only minor expense to the project.
- Architectural, structural, mechanical, electrical, and building enclosure aspects of the building will be new construction to current standards.

It should be recognized that a new Curling Rink Component in the same location as the existing rink will result in down time of approximately 8 months.

This option is estimated to cost approximately \$3,200,000.

### 3.4. Social-1: Social Component Status Quo Prolonged

This option addresses any failed assemblies / failed components or likely imminent failures. This is a maintenance / repair option intended to extend the current Social Component's service life by approximately 5 years pending decisions on the future of the Facility or completion of renovations or alternate facilities.

For this option:

- There are no issues to be addressed regarding hazardous materials.
- There are no required building code upgrades. The only imminent hazard is the worn carpet in the upper lounge which is a trip hazard. That carpet should be replaced.
- Some mechanical equipment is at, or near, the end of their service lives, e.g. the heat pumps and the change room heater. They should be replaced.
- Maintenance is recommended to prolong the life of miscellaneous electrical equipment.
- Materials should be removed from within 1 m of electrical panels.
- There are no structural issues requiring immediate action.
- Minor maintenance should be performed on Roof Assembly #2

This option is estimated to cost approximately \$100,000.

### 3.5. Social-2: Social Component Reconfigure

The overall concept for this option is to retain whatever structure that is practical, while achieving a new more functional layout. Code compliance issues are addressed. Within that context, building enclosure upgrading / incidental replacement will take place. This option is intended to achieve a new service life, 30 years or more.

For this option:

- Work related to the reconfigure program will require the removal and disposal of asbestos containing ground floor kitchen drywall joints and upstairs bar sink anti-sweat coating. The areas affected are not extensive and, as a result, are anticipated to add only minor expense to the project.
- To allow for better functionality, the layout is re-configured generally within the current footprint. There is a small area increase for efficiency purposes and to make up for space lost to an elevator and expanded washrooms.
- Building code upgrades are performed such as the installation of a sprinkler system throughout the space plus fire protection of the common wall / glazing with the curling rink.



- All floor, wall, and ceiling finishes, including associated mechanical and electrical components, are replaced.
- Major structure work is required to upgrade the Social Component to current building code requirements for seismic and snow loading and to accommodate interior layout revisions. The work includes, for example, upgrading or replacing the existing unreinforced concrete block walls and adding new wood frame shear walls and concrete foundations.
- The structural work noted above will affect the perimeter walls. This presents an opportunity to upgrade the walls of the building enclosure and interior and exterior finishes to those walls. Upgraded walls will result in greater energy efficiency (lower operating costs) and more comfortable interior conditions.



COMOX VALLEY REGIONAL DISTRICT      OPTION: SOCIAL 2 - SOUTH ELEVATION SK-3  
 CURLING RINK RENOVATION STUDY      October 13, 2012  


Fig. 3.5.1 Excerpt from Vic Davies Architectural Report  
 Concept design of reconfigured Social Component, south elevation.

Down time for this option could be in the order of 7 months.

This option is estimated to cost approximately \$2,500,000.

### 3.6. Social-3: Social Component Replacement

The overall concept for this option is the demolition of the existing Social Component and replacement with a fully new Social Component of similar area.

For this option:

- If the existing Social Component is demolished, the work will require the removal and disposal of asbestos containing ground floor kitchen drywall joints and upstairs bar sink anti-sweat coating. The

areas affected are not extensive and, as a result, are anticipated to add only minor expense to the project.

- Architectural, structural, mechanical, electrical, and building enclosure aspects of the building will be new construction to current standards.
- Although the initial intention was to consider a replacement option of approximately the same area as the current Social Component, the concept presented for Social-3 is 30% larger than the current Social Component. This represents the reality that, if the Social Component is replaced, its design and area should be optimized for the functions that it is to address. That has led to the realization that a larger Social Component is likely the best solution.



COMOX VALLEY REGIONAL DISTRICT      OPTION: SOCIAL 3 - SOUTH ELEVATION SK-6  
 CURLING RINK RENOVATION STUDY      October 13, 2012  


Fig. 3.6.1 Excerpt from Vic Davies Architectural Report  
 Concept design of replacement Social Component, south elevation.

It should be recognized that a new Social Component in the same location as the existing one will result in down time of approximately 10 months.

This option is estimated to cost approximately \$3,800,000.

### 3.7. Additional Comments For Consideration

- For comparison purposes, the following are combined costs for each option Level:
  - Level 1: CR-1 plus Social 1 ..... \$500,000
  - Level 2: CR-2 plus Social 2 ..... \$3,600,000
  - Level 3: CR-3 plus Social 3 ..... \$7,100,000
- It is worth emphasizing that the Level 1 options (CR-1 and Social-1) are intended to be minimal cost approaches to allow those components to continue to operate at a reasonable level pending decisions on the future of those components or the completion of renovations or alternate facilities. The CR-1 and Social-1 options are not long term options for the Facility.

- ....> The Level 2 options are long term options. They are considerably less expensive than the Level 3 options, but due to the constraints imposed by the existing building shell, they do not fully allow functional optimization. Also, they would need to be carefully scheduled to minimize operational downtime.
- ....> Level 3 options are also long term options. They are significantly more expensive than the Level 2 options, but, freed from existing building design constraints, they can achieve functional optimization. In that regard, the Social 3 option presented is 30% larger than the current Social Component.
- ....> If Level 3 options are located at the current locations, there will be significant operational downtime. If they are located elsewhere, there could be no loss of operational time.
- ....> Both CR-2 and CR-3 options will allow for improved / more uniform ice conditions and more comfortable conditions for curlers.
- ....> The reader is reminded that the designs that have been presented are concepts only. Their purpose is to show what is possible and to allow the preparation of order of magnitude cost estimates.

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Harvey Goodman, P.Eng.

### 3.8. The Next Steps

There are many potential variations to the options presented in this study. For the next steps in the process, the Regional District and the Curling Club should consider the following:

- ....> Carefully review the information in this study, including the individual reports of all the disciplines.
- ....> Review the level of risk they are willing to assume in the operation of the Facility.
- ....> Review the Facility quality level they wish to achieve.
- ....> Review the level of investment they are willing to make.
- ....> Review existing and potential funding capabilities.
- ....> Confirm a preferred renovation / upgrading / replacement program to be explored in greater detail.

# Appendix A

Plan Of Ground Floor Of Facility

# Appendix B

## Hazardous Materials Survey

# Appendix C

## Architectural Report



# Appendix D

## Mechanical Assessment Report

# Appendix E

## Structural Assessment Report

# Appendix F

## Electrical Assessment Report

# Appendix G

Building Enclosure Condition Assessment Report

# Appendix H

## Cost Estimate Report