



March 16, 2022

LON-22007315-A0

Mr. Dan Best, MBA, BA  
322 Main St S,  
Exeter, ON  
N0M 1S6

VIA Email

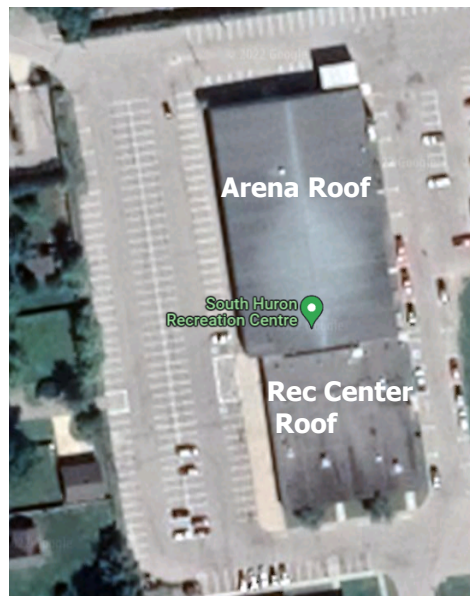
Re: **Roof Condition Assessment  
South Huron Recreation Center  
Exeter, ON**

Dear Mr. Best,

As requested, EXP completed observations of the apartment building located at 94 Victoria Street East, in Exeter, Ontario. These services were provided per your request to develop an opinion regarding the condition of the roof. The following report will serve to document the results of our visual observations and review, along with our opinions regarding the condition on this project.

## **1. Purpose and Scope**

The purpose of our site visit was to review and document the existing conditions of the roof at the above-mentioned property and provide our opinion on the condition of the two roof areas noted below on the site plan.



Site plan

## 2. Background

EXP understands that the building underwent a roof replacement on both roof areas circa 1999/2000.

Since that time miscellaneous repairs have been performed however, no major roof restoration has been carried out, reportedly.

EXP was provided with two roof reports, by Garland Co., one for the upper roof area and one for the lower roof area. Both reports were dated 05/06/2021. Where necessary, EXP has commented in relation to these reports.

## 3. Description of Building and History

The Arena Facility is a 1-storey (extended height) facility that houses the arena and ice equipment. The exterior façade is a combination of brick and metal siding. The roof was reportedly replaced circa 1999/2000 which places its age around 21-22 years old. The roof system on this facility is a multi-ply, modified bitumen (sanded surface) roof system. The composition below the membrane is unknown as no core cuts were taken. There is a small facility located on the rear (north) side of the arena that is finished with a metal roof, age unknown.

The Recreation Center is a 1-storey (extended height) facility that houses pickle ball courts and miscellaneous mechanical equipment. The façade on this facility matches the façade on the arena and consists of brick and metal siding. The roof at this building was reportedly replaced circa 1999/2000 which places the age around 21-22 years old. The roof system on this facility is a multi-ply, Built Up Roof (BUR), gravel surfaced. The composition below the membrane is unknown as no core cuts were taken.

## 4. Observations and Discussion

### 4.1 Arena Roof

- 4.1.1 EXP observed the modified bitumen membrane to be in fair-to-poor condition (Reference Photo Exhibit Nos. 1-4).
- 4.1.2 Throughout the roof area, EXP observed evidence of hail damage. Hail strikes ranged from 1/4" to greater than 1" in size/diameter. The impact damage to the membrane has exposed the bitumen and roofing felts to UV light, which contributes to premature roof membrane failure (Reference Photo Exhibit Nos. 5-9).

- 4.1.3 At select locations, EXP observed blisters in the roof membrane. Blisters within the roof system will accelerate deterioration of the roofing system and could lead to water infiltration into the building envelope (Reference Photo Exhibit Nos. 10-12).
- 4.1.4 Varying levels of debris were observed on the roof. Fasteners and stones were observed scattered across the roof area. If not addressed, these can cause damage to the roof membrane (Reference Photo Exhibit No. 13).
- 4.1.5 At the east edge of the roof, EXP observed ponding water adjacent to the roof edge (Reference Photo Exhibit Nos. 14 and 15).
- 4.1.6 Sealant and/or unknown repair methods at the east edge of the roof at various seams and joints in the roof membrane were observed to have failed (Reference Photo Exhibit Nos. 16 and 17).
- 4.1.7 “Alligatoring” and damaged cap sheet were observed throughout the roof area. This type of failure indicates that the roof membrane is at/nearing the end of its useful service life (Reference Photo Exhibit Nos. 18-20).

## **4.2 Recreation Center Roof**

- 4.2.1 EXP observed the BUR at this area to be in fair-to-poor condition (Reference Photo Exhibit Nos. 21-24).
- 4.2.2 Large areas of ponding water were observed throughout the roof area. If left unattended these areas can cause accelerated deterioration of the roof (Reference Photo Exhibit Nos. 25-27).
- 4.2.3 EXP observed “blueberries” throughout the roof area. These deficiencies occur when water is trapped within the system and expands. This can lead to premature roof failure and water infiltration into the building (Reference Photo Exhibit Nos. 28-30).
- 4.2.4 Deteriorated sealant was observed at the metal cap flashing joints at most locations at the roof perimeter and expansion joint locations on this roof area. Additionally, the metal was observed to be near level/flat which prevents water from shedding off in a timely manner (Reference Photo Exhibit Nos. 31 and 32).

- 4.2.5 Fastener holes and unsealed wall penetrations were observed at the metal high wall location between the lower roof area and the upper roof area. These are a likely source of water infiltration into the building (Reference Photo Exhibit Nos. 33 and 34).
- 4.2.6 Minor amounts of organic growth were observed on the roof at various locations. EXP also observed growth around many of the roof drains on this roof area. This growth can lead to accelerated deterioration of the roof membrane by retaining moisture on the roof membrane/flashings and preventing water from draining off the roof in a timely manner (Reference Photo Exhibit Nos. 35 and 36).

## 5. Conclusions and Recommendations

### 5.1 Arena Roof

- 5.1.1 EXP recommends performing a roof restoration on this area in the next 0-2 years.
- 5.1.2 Based on the observed condition of the roof, as well as the composition of the roof, EXP believes this roof area would be an excellent candidate for a “re-cap/re-cover”. This would involve overlaying a brand-new cap sheet (modified bitumen membrane) on top of the existing roof. Prior to performing this restoration work, various items would need to be carried out (as a requirement of the new cap-sheet membrane manufacturer, to meet their workmanship/material warranty);
  - 5.1.2.1 An Infrared scan of the roof area to locate/verify any areas of wet insulation and/or cover board beneath the roof membrane.
  - 5.1.2.2 Repairs/replacement of any areas of wet insulation and/or cover board beneath the membrane.
  - 5.1.2.3 Core cuts on the roof (could be carried out if/when insulation is replaced above for expediency and cost savings).
- 5.1.3 The process above is a requirement of the membrane manufacturer and should be carried out by a licensed professional engineer and/or building envelope specialist, familiar with the site and conditions of the roof.



- 5.1.4 In Lieu of a cap sheet re-cover, a Polymethyl Methacrylate (PMMA), liquid applied roofing/waterproofing membrane could be considered, however it will likely be marginally more expensive.
- 5.1.5 The restoration project is recommended to be designed, specified and detailed by a licensed professional engineer in the province of Ontario as well as overseen by the designer of record through construction. Bidding out the project to 3 or 4 qualified contractors is also recommended.

## 5.2 Recreation Center Roof

- 5.2.1 EXP recommends carrying out a roof restoration on this roof area in the next 0-3 years. Based on the roof composition an Infrared scan will not be possible on this roof. Garland's report called out the requirement for an IR scan on this roof area, however this can sometimes be extremely difficult on a gravel surfaced roof, due to ponding water and/or vegetation growth between stones and/or on the roof.
- 5.2.2 Based on the observed condition, as well as the composition of the roof, EXP recommends carrying out a full replacement of the roof, down to the roof deck.
  - 5.2.2.1 Alternative, overlay systems could be considered, however may be similar in cost and/or effort due to the existing roof composition.
- 5.2.3 The replacement project is recommended to be designed, specified and detailed by a licensed professional engineer in the province of Ontario as well as overseen during construction by the designer of record.
- 5.2.4 Bidding out the project to 3 or 4 qualified contractors is also recommended.

## 6. Budget Projections

EXP's estimated budget projects are below;

Roof Area	Arena	Recreation Center
Square footage (approx.)	30,000 Sq.ft.	16,000 Sq.ft.
Unit Cost (Modified Bitumen Membrane options)	\$2.00-\$5.00 per square foot (repairs)	\$15.00-\$35.00 per square foot (replacement)
Estimated sub-total for Roofing work	\$60,000 - \$150,000	\$240,000 - \$560,000
Engineering Design, specifications and detailing, and Quality Assurance	\$6,000-\$15,000	\$17,000 - \$35,000

Based on the current market and supply chain issues, the budget costs (material) above are somewhat volatile. In conversations with manufacturers and contractors, it is anticipated that material costs will rise by approximately 5-15%, per month.

We trust this information is sufficient for your requirements. If you have any questions or require any further clarification, please do not hesitate to contact this office.

Yours truly,

EXP Services Inc.

Anthony Travaglini, P.Eng.  
Team Lead  
Building Science Division



Jeff Boivin, P.Eng.  
Discipline Manager  
Building Science Division

## 7. Limitations

This report was prepared by EXP Services Inc. for the sole account of **Municipality of South Huron**. The observations, comments and recommendations in it reflect the judgement of EXP Services Inc. in light of the information available to it at the time of preparation. Any use, which a Third Party makes of, this report, or any reliance on decisions based on it, are the responsibility of such Third Parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report. Any opinion on potential budget cost estimates in no way is intended to warrant the total cost of any item or all future costs. This report is not intended to confirm that the various building components or systems are capable of fully performing their designed or required functions.

In order to achieve the objectives outlined, EXP arrived at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

The client has agreed that EXP's employees, officers, directors and agents shall have no personal liability to the client in respect of a claim, whether in contract, tort and/or any other cause of action in law related to this report. Accordingly, the client expressly agrees that it will bring no proceedings and take no action in any court of law against any of EXP's employees, officers, directors, or agents in their personal capacity.

The client has agreed to the following limitations of liability of EXP and its consultants and sub-consultants: EXP shall have no liability to the client or any third party, in contract or tort for related claim obligations including those arising from the presence, discharge, release, escape or effect of mould, mildew, or other fungus in any form contaminants, or any other hazardous, dangerous or toxic substance. EXP's total aggregate liability direct or indirect for this project is limited to the lesser of the limit of our standard insurance or the amount set out in our proposal for this project.

EXP Services Inc. has conducted this service in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, expressed or implied, is included or intended. It is understood that EXP is entitled to rely upon the accuracy and completeness of all information provided.

This report and any budget projections were obtained at a time when the current Global Pandemic (Covid 19) and European markets are causing large disruptions to supply chain, oil prices and labor shortages and therefore effecting costs of construction, all over. Best efforts were taken to obtain accurate pricing, however until a project is bid out, pricing will not be known.



**Photo Exhibit No. 1**  
**Overall of arena Roof. Fair-to-poor condition.**



**Photo Exhibit No. 4**  
**Overall of arena Roof. Fair-to-poor condition.**



**Photo Exhibit No. 2**  
**Overall of arena Roof. Fair-to-poor condition.**



**Photo Exhibit No. 5**  
**Large amount of hail damage present on roof.**



**Photo Exhibit No. 3**  
**Overall of arena Roof. Fair-to-poor condition.**



**Photo Exhibit No. 6**  
**Large hail strikes on the roof.**





**Photo Exhibit No. 7**  
**Large hail strikes on the roof.**



**Photo Exhibit No. 10**  
**Large blister beneath cap sheet.**



**Photo Exhibit No. 8**  
**Large hail strikes on the roof.**



**Photo Exhibit No. 11**  
**Large blister beneath cap sheet.**



**Photo Exhibit No. 9**  
**Large hail strikes on the roof.**



**Photo Exhibit No. 12**  
**Large blister beneath cap sheet.**

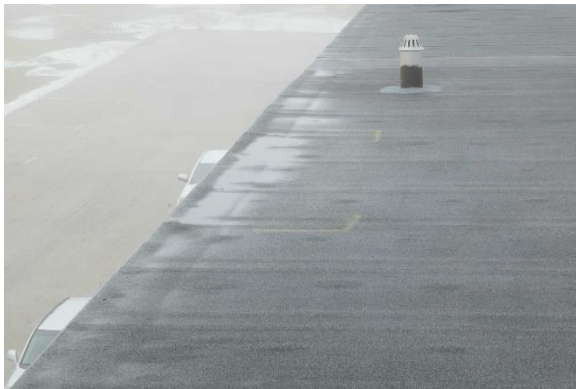




**Photo Exhibit No. 13**  
Fastener/debris on roof area.



**Photo Exhibit No. 16**  
Failure of sealant/repair.



**Photo Exhibit No. 14**  
Ponding water at roof edge.



**Photo Exhibit No. 17**  
Failure of sealant/repair.



**Photo Exhibit No. 15**  
Ponding water at roof edge.



**Photo Exhibit No. 18**  
Alligatoring/damaged cap sheet membrane.





**Photo Exhibit No. 19**  
**Alligatoring/damaged cap sheet membrane.**



**Photo Exhibit No. 22**  
**Overall of recreation center roof.**



**Photo Exhibit No. 20**  
**Alligatoring/damaged cap sheet membrane.**



**Photo Exhibit No. 23**  
**Overall of recreation center roof.**



**Photo Exhibit No. 21**  
**Overall of recreation center roof.**



**Photo Exhibit No. 24**  
**Overall of recreation center roof.**





**Photo Exhibit No. 25**  
**Large area of ponding water.**



**Photo Exhibit No. 28**  
**Blueberries on roof area.**



**Photo Exhibit No. 26**  
**Large area of ponding water.**



**Photo Exhibit No. 29**  
**Blueberries on roof area.**



**Photo Exhibit No. 27**  
**Large area of ponding water.**



**Photo Exhibit No. 30**  
**Blueberries on roof area.**





**Photo Exhibit No. 31**  
Nearly flat metal flashing, note standing water.



**Photo Exhibit No. 34**  
Fastener hole in metal above recreation center roof.



**Photo Exhibit No. 32**  
Failed sealant joint at metal flashing, in location of standing water.



**Photo Exhibit No. 35**  
Organic growth at/beneath metal flashing.



**Photo Exhibit No. 33**  
Large gap in the metal at pipe penetration above recreation center roof.



**Photo Exhibit No. 36**  
Growth/debris at drain preventing drainage of water.