

LARCH HILLS NORDIC SOCIETY

Annual General Meeting

Tuesday Mar. 9, 2021

7:30 PM,

Zoom Meeting

1. **Welcome- Suzy Beckner** – President Acknowledged that we are on the traditional land of the Secwepemc people.
2. **Quorum** – 32 (at least)
3. **Adopt Agenda** - Abbi May motioned to adopt, David Millard 2nd.
4. **Minutes of March 10, 2020 Annual General Meeting** - Clint Smith motioned to approve, Craig McBride 2nd.
5. **Business arising outstanding issues:** None
6. **President's Report** – Suzy Beckner
Thank you to Karen Tanchak for her second year as manager. Karen's contract is extended to April 15th.
Thanks to **Pauline Hickson** as the caretaker and **George Jackson** for the tracksetting as well as all of the tracksetters.
Dave Brubaker -volunteer mechanic for 25 years is retiring.
Abbi May is retiring as head coach of the ski team.
Thank you to the countless other fabulous volunteers!
7. **Treasurer Report-** Don - See attached report
Last meeting the executive voted to move \$15,000 to the lighting fund and \$15,000 to the tracksetter fund from the general account.
8. **Membership Fees Update** – Suzy
The executive has increased membership fees to:
Adult \$135 early, \$150 regular
Youth \$70 early, \$80 regular
Family \$270 early, \$300 regular
9. **Programs Report** – Abbi and Suzy
 - **Ski Team-** Abbi
The ski team would like to thank the tracksetters for doing a great job this year.
This week is the last week of training. The season has been great despite a lack of travel and races. David Miede and Lizzy Van Bergeyk came up with an intramural competition with 6 different

types of fun racing activities which was much enjoyed by the athletes.

Saturday will be a fun day to round up the season.

Congratulations to three young skiers (Samantha Vukadinovic, Isabelle Wilke, Zara Bucher) who skied 100km last weekend in one day!

Glenn Bond was hired to hold some training sessions for the coaches this year to upgrade their skiing and coaching skills.

Abbi is stepping down as head coach but she will remain involved with the team as a coach.

Lizzy Van Bergeyk has volunteered to take on the head coach role. We will be hiring Glenn Bond to write out training plans for the high school athletes. He will continue to be a volunteer coach as well.

- **Jackrabbits** program went well with a number of new families joining this year.
- **The school program** -Thanks to Antje Breugem (coordinator), Megan Weir and George Zorn as well as all of the ski hosts for a great season!
- **Masters program** was run by Glenn Bond on Thursday evenings. This went very well and there will likely be more demand. He returns 10% of his fees to the club.

10. **Lighting and Trail Committee** – Rob Van Varseveld.

All approvals are in place for phase 1 & 2 of the project (map is on the website detailing the phases). The plan is to mark out phase 3 in spring and push for approval. Thanks to Craig for all his work on this.

Fundraising – they have raised \$180,000 to complete phase 1 and the goal is to start work in July. Nordiq Canada has a fundraising program right now. Thanks to all who have donated!

Line of Credit – larger grants require us to pay for the project and they reimburse with receipts. The executive support application for line of credit from SASCUC for bridge financing, contingent on being approved for such a grant. The PB will be an asset against the Line of Credit. Line of Credit is \$100,000 at prime +2%. Only cost is registering security on the groomer. Rob requested a motion to proceed with the line of credit. **Peter moved to proceed with the obtaining the line of credit from SASCUC for this purpose. Clint 2nd. All in favor.**

11. **Land Use and Trail Planning Committee** – Craig

- We meet approximately every two months
- Last year we worked on the following
 - o Updating our 2018 maps
 - o Stakeholder engagement through Shuswap Roundtable and other meetings
 - o Met with Rec Sites and Trails to review our Partnership Agreement.

- o Link Trail planning- 2 year plan linking sky trail and LH road.
- o Dog Trail extension planning
- o Trail clearing including groomed, non-trackset and snowshoe trails
- o Discussions with private landowner on Dog trail extension
- o We are on the Summer Advisory group with STA and Rec Sites and Trails.
- Upcoming work:
 - o Finalize proposed Link Trail location. Start the S57 process, referrals, consultation etc.
 - o Finalize routing for Dog Trail extension. Construction tentatively to start this summer.
 - o Install 27 metal sign map signs to replace the outdated coroplast map signs throughout the groomed network.
 - o Contract out deciduous whip brushing on Whoopees, Far East, South Loops and Hunters Range View.
 - o Allan Bahen has made an application on behalf of LHNS TO extend our Salvage Permit which is expiring April 20. There are two locations where the Fir Beetle has attacked Douglas Fir. If we can get the Rappattack crew to remove the trees, we anticipate a couple of truckloads, making us around \$5-10k.

12. **Facilities/Chalet Report** – Rob – see attached reports. Roof Repairs

Problems:

- Heat Loss.
- Severe ice damming and heavy icicle formation.
- Melt water backing up and leaking into overhangs and soffits.

Diagnosis, Analysis and Findings:

- Randy Smith, P.Eng a building envelope engineer from Williams Engineering was hired to analyze the situation and produced a report and some recommendations (see attached).
- Original drawings called for SIP panels. We were not supplied with a true SIP panel.
- Inadequate air seal and vapor barrier causing heat loss resulting in a lot of snow melt leading to

ice formation at the overhangs.

Recommendations:

1. Unvented System – Remove drywall and white EPS foam block and spray foam 5”-6” of 2lb foam tight to underside of roof sheathing

- forming an air-tight and vapor-tight seal and increased R value (minimum R30).
2. Vented System - Remove drywall and white EPS foam block. Create 2 1/2" vent cavity directly under roof sheathing and spray foam 5"-6" of 2lb foam forming air-tight and vapor-tight seal and increased R value (minimum R30). Requires ridge vent with raise cupolas to clear snow depth. Requires adequate soffit venting. Airtight seal very critical in this case. Benefit - any heat loss escapes through vents rather than through shingles.

Proposed Solution:

The research shows there is an ongoing debate between vented and unvented systems for cathedral ceilings. If only I had a nickel for every opinion I found... Although Williams engineering has had success with both systems, they recommended the unvented system for it's simplicity and felt it had less overall risk. The spray foam suppliers that were contacted were also adamant that the unvented system is the preferred method and have sprayed many successful unvented roofs from Revelstoke to Silvers

Estimated Costs:

- Demo - \$0 volunteers
- 2lb Spray Foam - \$7 /Ft2 @ 2000 Ft2 = \$14,000
- Hang Drywall - \$2 / Ft2 @ 2000 Ft2 = \$4,000
- Mud & Tape - \$0 Reg Walters has volunteered.
- Paint - \$/Ft2 @ 2000 Ft2 = \$2000
- 15% Contingency - \$3000
- Total Estimate - \$23,000

Rob has not yet approached the builder to recoup costs from him. Don is confident that we have enough money to pay for the repairs.

Rob van Varseveld motioned to go ahead with the required roof repairs at an estimated cost of \$23,000. Ed Bouma 2nd. All in favour.

13. Tracksetter update – George

Dave Brubaker is retiring after around 25 years of service, working on replacement PB mechanic.

PB and skidoos have been operating with minimal downtime and maintenance expense.

Bill Prytula has moved up from spare board in Dec to take over the Tuesday PB shift.

Day to day PB grooming has been going smoothly. Wayne has been coordinating extra gang duties.

Keep on sending in special grooming requests.

Report any possible safety concerns with the trail grooming to Karen or myself.

Spring conditions on the hill so you will see more of the Ginzue, trying to protect our snow base and minimise icy conditions.

“L/H FLEX GROOMER” may be up and going for next season, details are top secret at this point.

14. Manager Report -Karen

I would like to first thank everyone for their commitment to following COVID Guidelines and helping in keeping the Chalet and trails open for all. Many of you decided not to enter the chalet often and I appreciated those of you who knocked on my window to say hi.

The job description continues to be varied and will continue to evolve over time. This year, my first task was to research and develop a COVID Safety Plan.

COVID resulted in a few additions to my responsibilities:

- Staying current with information provided by the Public Health Orders, Via Sport and updating the plan as required.
- Keeping members informed of regulations and posting signs with most current rules as they changed.
- Cleaning and sanitizing the Chalet on a more regular basis throughout the day.
- Maintaining and sanitizing the two outhouses near the chalet and the additional port-a-potties that were installed.
- Ensuring hand sanitizer and disposable masks were available.

Highlights of this year:

- Introduced day trail fee payments accepted by e-transfer. This became a very popular transaction. The number of day users definitely increased this season as the numbers Don reported demonstrate.
- I continued to update the early morning Trail Report Daily. Thank you to Jim Nadler for taking on the major content of updating and keeping members informed with the detailed track setting information.
- I continued to prepare the E-news and appreciate no one complaining about the constant updates for COVID early on in the season.
- Involved with the Ski School program to assist Antje where needed and teachers as they were required to register on Zone 4 this year.
- Involved with the RKS Virtual Loppet, collecting entries, posting your great photos and distributing the wonderful prizes donated by our Sponsors. Thanks again to John's Ski Shack, Skookum Cycle and Ski, Kintec, Wear Abouts, Rancho Vignola, Heart and Stroke Foundation and LHNS. Thank you to the members who participated with enthusiasm, set

the courses, track set and groomed the routes, ordered t-shirts and donated to the Heart and Stroke Foundation. It was a great success with lots of positive feedback.

- o Still a few t-shirts and prizes need to be picked up.

15. Registrar's Report – Jan2020-2021 Registrar's Year End Report

Registration – 1475 members, an increase of 325 people over last year

Totals (2019-2020 in brackets)

350 Ski Family (280)

318 Ski Individual (220)

23 Snowshoe Family (11)

24 Snowshoe Individual (19)

6 Youth 9-18 (11)

11 Student 18-25 (7)

9 Child 8 and under

A reminder to members that Ski Team registers in October. Those who want to have their children in Jackrabbits should also register in October.

The bulk of our members are paid up early in December. Thank you.

It seems that etransfer was very popular. Although some people don't appreciate paying the fee to Zone 4 for doing our registrations, it is a very efficient way of managing it.

16. Announcements:

- a. Need volunteer coordinator for RKS Loppet 2022. Brad Calkins will be chief of competition.
- b. Long Term Planning Committee – Has been formed.
- c. Tom's Shelter Committee – needs members to volunteer.
- d. Lantern Ski New Coordinators – Kerry Miller and Kari Wilkinson.

17. Elections – Positions up for election: Pauline Waelti and Hermann are the election committee. Thank you to Clint Smith and Brad Calkins for their work on the executive.

- a. Treasurer – Don Miller is letting his name stand
- b. Director – Pauline Waelti is letting her name stand
- c. Director – Rob van Varseveld is letting his name stand
- d. Director - Open
- e. Director – Open

Dave Millard will volunteer as a director.

Craig nominated Bill Prytula.

There were no other nominations or volunteers.

The new executive will be:

President - Suzy Beckner

Vice President - Abbi May

Treasurer - Don Miller

Past President – Ed Bouma

Secretary - Laura Hepburn

Directors - Rob van Varseveld, Pauline Waelti, Dave Millard, Bill Prytula,
Jonathan Baker, Craig McBride,

18. Adjournment 9:05 pm- Pauline Waelti motioned to adjourn. Allan Bahen 2nd

LARCH HILLS NORDIC SOCIETY

TREASURER'S REPORT

ANNUAL MEETING

MARCH 9, 2021

Financial statements for the fiscal year ended September 31, 2020

It's important to recognize that these statements cover the "active" season for the winter of 2019-2020.

A few comments may be useful in reviewing the statements

- Cash:
 - Includes \$ 39,909 funded by donations and internally restricted and designated for the lighting project
- Short term investments:
 - Include Track setting term deposits of \$ 108,152 and;
 - Term deposit in the amount of \$ 100,000, funded by donations and internally restricted for the lighting project
- Capital Assets:
 - During the fiscal year a recovery of previously paid GST was realized. Under terms of the Excise Tax Act the organization is able to recover a portion of the GST previously paid on assets that are in the organization at the time of registration for GST. In our case an estimated \$ 33,000 relating to GST paid on the equipment and more specifically on the chalet addition was recovered. Accounting principal call for this amount to be applied to reduce the recorded cost of the particular assets. Accordingly the cost value of the assets has been reduced.
 - During the fiscal year
 - The chalet project was completed with expenditures of just over \$ 21,000.
 - A used Ski-doo was purchased for \$ 7,500
- Receipts:
 - Membership increased marginally
 - Fundraising donations were primarily the result of the Lighting committee group
 - Timber sales – These receipts were the result of the project spearheaded by Alan Behan harvesting the timber downed in the major storm in early January 2020, together with, as I recall, selective falling of other timber adjacent to the trails. The cost of completing this project has been reflected in the disbursements. According to my records the direct costs of the timber sales was just over \$ 70,000, a near breakeven for the project.
- Expenditures:
 - Repairs and maintenance - You will notice a significant increase in the repairs and maintenance expenditures. This increase is almost totally caused by major repairs to the Pisten Bulley during the summer of 2020. I understand that the mechanic is an experienced PB mechanic and he thoroughly serviced the machine.

- Fuel – The fuel costs are markedly higher. I have compared the details of the two years and can offer the following possible explanations:
 - In the 2018-2019 fiscal year the skiing season was late in starting. There were no fuel purchases in October through December and were only \$ 1,925 in January and only approximately \$ 3,500 in each of February and March.
 - In 2019-2020 the season similarly was late with fuel cost starting in December but expending over \$ 6,600 in January. I believe that the PB was used extensively, together with the other equipment to deal with the large number of downed trees as a result of the storm.
 - The equipment was again active in the May, June and July period as part of the timber project mentioned earlier. Normally there are no fuel costs in the summer while expenditures of \$ 5,000 were made in the April – August period in 2020.
- Payroll – The 2019-2020 fiscal year was the first year of employment for Ms. Karen Tanchak.

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Jan Naylor

Registrar, LHNS

LARCH HILLS NORDIC CHALET ROOF INSULATION REPAIRS

MARCH 2021



Problems:

- Heat Loss.
- Severe ice damming and heavy icicle formation.
- Melt water backing up and leaking into overhangs and soffits.

Diagnosis, Analysis and Findings:

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- 15% Contingency - \$3000
- Total Estimate - \$23,000

WEC File No. 044829.00

February 22, 2021

Via Email: robvanv@telus.net

Larch Hills Nordic Centre
c/o Rob Van Varseveld, P.Eng.
3181 28th Street N.E.
Salmon Arm, BC V1E 3K8

Attention: Rob Van Varseveld, P.Eng.

Subject: Ice Damming Investigation
Larch Hills Nordic Centre,
Salmon Arm, B.C.

As per your request, Williams Engineering Canada Inc. (WEC) conducted an investigation excessive ice damming occurring at the Larch Hills Nordic Centre near Salmon Arm B.C. The following lists our findings and recommendations.

Background

The Larch Hills Nordic Centre is comprised of an original log chalet (constructed circa 1980s) with gabled roof and mezzanine. An addition was added to the building in 2016. Included in the addition was the installation of a shed dormer on the original building (see Sketch #1). The design of the addition was completed by New Town Services of Kelowna, B.C. Construction drawings were provided for our review.

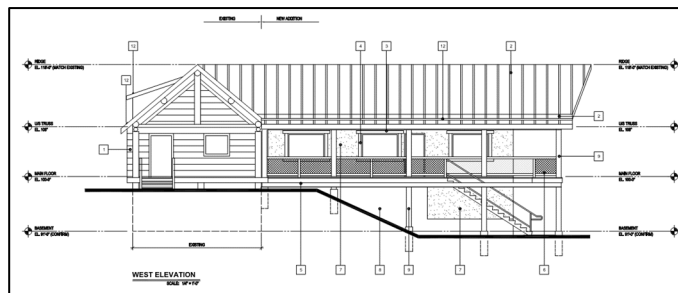
Since completion of the addition, excessive ice damming has been reported on all elevations of the building, including the new shed dormer area.



Photo #1: East Elevation



Photo #2: Ice Damming

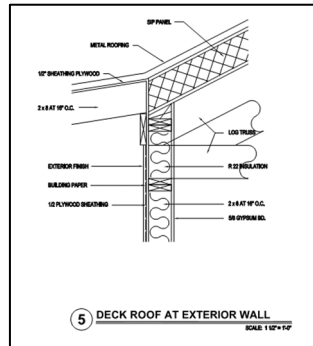


Sketch #1: West elevation (construction drawings)

Observations

A site visit was conducted on February 16, 2021, by Mr. Randy Smith P.Eng., Practice Leader, Building Science, from Williams Engineering Canada Inc. The site visit was also attended briefly by Mr. Rob van Varseveld, representative for the Nordic Centre. The weather at the time of the site visit was -3°C and cloudy. The interior of the building was 13°C with an interior relative humidity of 30%.

Examination of the construction drawings found the roofing system was not constructed as designed. The proposed structural insulated panel system (SIPS) slated for the new roof portion had not been installed.



Sketch #2: Proposed roof design



Photo #3: Common SIPS panel design

Instead the roof structure appears to be common 305 mm (12") roof I-joists (TJIs) with expanded polystyrene block insulation (EPS) inserted between the joists. The insulation is held in place with wood blocking.



Photo #4: Open ceiling drywall



Photo #5: Insulation recessed between joists

On the west portion of the new roof, where the roof angle changes and extends over the exterior walkway, it appears 2x8 dimensional lumber joists were used instead of TJIs. The space between the dimensional lumber joists were completely filled with expanded polystyrene.



Photo #6: Framing and insulation at roof slope transition

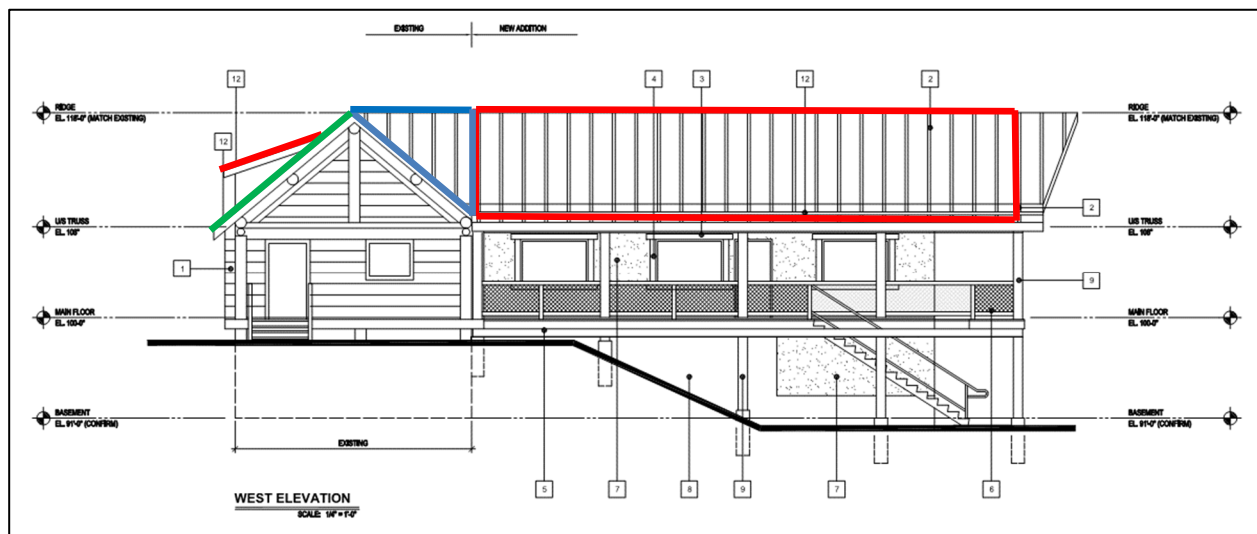


Photo #7: Ceiling to wall junction

In the existing roof area, the remaining roof structure along the south slope appears to have been insulated with $\frac{1}{2}$ lb/ft³ density, open cell, spray-applied, polyurethane foam, with a 25 mm thick layer of foil-faced, polyurethane insulation installed inboard, over the new roof framing. Please note that this foil-faced insulation was not used behind the tongue and groove (T&G) ceiling finish.

At the time of the site review, the ceiling drywall where the new roof joins the existing roof, had not been installed. The north portion of the existing roof appears unmodified with fibreglass batt insulation and polyethylene vapour retarder. The shed dormer is constructed in a similar fashion to the roof in the new area although a carbon-infused expanded polystyrene has been used which has a slightly higher thermal resistance (R-value) per inch.

It should be noted that, in all new construction areas that were examined, no polyethylene vapour retarder was found between the insulation and interior ceiling drywall.



Sketch #3: Insulation in various roof areas

- EPS Insulation between roof joists (addition)
- Original Batt Insulation with Poly Vapour Retarder
- Open Cell Spray Foam and Foil-Faced Polyurethane Board

The Ice damming observed during the site visit occurred on all elevations, except the south as no eave exists on that elevation. The amount of ice damming varied depending on location.



Photos #8, #9, #10: Examples of ice damming

Discussion

Ice damming can occur during cold weather when snow is present on the roof. If the roof sheathing is heated from below, the snow will melt at the shingle/snow interface. The meltwater runs down the roof to the eave. As the eave is typically outboard of the building envelope, the sheathing is at the outdoor ambient temperature. If the outdoor temperature is below 0°C, the water will freeze to the shingles. Subsequent melting events will add layers of ice to the eave, eventually forming a dam at the eave edge. The meltwater then backs up behind the dam which can then migrate under the shingles. Depending on whether underlayment has been installed below the shingles, and the type used, water penetration through the roofing system can occur.

Please note that, depending on the direction of roof exposure, icicle formation at the eaves can also occur due to solar heating of the shingles. This should not be confused with ice damming as the cause is completely different. Depending on the level of snowpack on the roof, and shingle colour, the shingles may be subjected to sufficient solar heat gain to melt the snow, producing runoff. If the water is not collected or controlled at the eave edge with eavestroughing or other water management systems, icicle formation will occur.

The control of ice damming requires the control of heat loss and air leakage through the roofing system. It is therefore important to construct a continuous thermal barrier with a suitable thermal resistance (R-value) as well as a tight air seal.

Conclusions and Recommendations

The current level ice damming on the building is caused by non-continuous thermal insulation and ineffective control of air leakage within the roofing system.

The portions of the original roofing system that still exist, with the batt insulation and polyethylene vapour retarder, are operating as designed but would still be inadequate to control warm air leakage to the underside of the roof sheathing.

The portions of the original roofing system that have been retrofitted with open cell spray foam insulation and foil-faced polyurethane insulation boards should perform significantly better than the original system however, the open cell foam does not provide an effective or durable air seal due to its open cell structure. Although a poly vapour retarder was not installed, the foil-facing on the foam board (with taped joints) will provide effective control of water vapour diffusion. It should be noted though that, although the board joints and terminations were taped, unsealed penetrations through the foam board will reduce its effectiveness as a vapour retarder.

The use of EPS insulation in the addition and dormer sections is acceptable from an insulation perspective however, little to no effort appears to have been made to make the underside surface of the EPS airtight at joints and connections. Further, given the position of the log framing, there would be certain areas where creating an effective airtight connection would be exceedingly difficult.

The restoration options fall into the three categories shown below and are based on the roof restoration design. A discussion of each option is provided. All options include replacement of interior finishes.

1. Unvented roof
2. Vented Roof
3. Insulated roof

Option #1: Unvented Roof

This option requires the removal of the existing drywall, interior finishes, and insulation materials to expose the roof structure and underside of the roof deck. The underside of the roof deck would then be sprayed with 150 mm (5") of 1.8 – 2.0 PCF density, closed cell, spray-applied polyurethane foam insulation (BASF "Waltite", Icynene "MD-C-200", etc.). The insulation would be applied in maximum 50 mm lifts to ensure any cavities that form in the billowing foam are sealed. The thermal resistance of the roofing system would be approximately R-30. Please note that although spray foam is very effective in creating a tight air seal, vapour seal and thermal blanket, it is unreasonable to assume that all holes will be eliminated. The benefit of spraying to the underside of the roof deck is that, if a small hole (or "inlet") in the foam exists, as there is no ventilation space between the foam and the underside of the roof deck, there is no "outlet" to allow for air to escape. Air flow is therefore significantly restricted if not completely eliminated. Another issue may pertain to the warranty of the shingles installed on the building. A number of shingle manufacturers will not warrant their products in an unvented application as it is believed that without the ventilation space below, excessive solar heat gain would reduce the life span of the shingles. This would have to be confirmed with the manufacturer of the shingles used on the building.

Estimated Cost Option #1: \$14,000 - \$18,000

Option #2: Vented Roof

This option is similar to Option #1 in that the roof structure and deck would be exposed and 1.8 – 2.0 PCF density, closed cell, spray-applied polyurethane foam insulation would be used to create the air barrier, vapour seal and thermal blanket. The difference here would be that cardboard baffles would be installed between the roof joists to create a 63 mm (2.5") ventilation gap between the underside of the roof sheathing and insulation. This would have to be installed in conjunction with ridge and soffit ventilation required by the BC Building Code for a roof of this type. The ventilation area requirement is 1/300th of the insulated roof area relatively evenly split between the soffits and ridge. Therefore, a ventilated soffit and ridge venting would need to be constructed. As the soffit is currently constructed of T&G boards covering the structural elements, this would need to be removed so a vented soffit could be constructed. Further, as it appears there is horizontal blocking between the joists at the building-to-walkway roof transition on the west elevation, this would have to be modified to allow for air flow from the ventilation space through the soffit. At the roof peaks, a continuous ridge vent would need to be constructed as it appears that the roof sheathing was not strapped. Given the heavy winter snowpack, the ridge vent would need to be a raised "dog house" style to ensure the vent is not covered over with snow. As stated above in Option #1, some minor air flow through the spray foam is possible. As this methodology provides an "outlet" through the roof vent space, air leakage may occur. The requirement of the spray foam installer achieving a tight air seal is therefore much more critical. Please note this methodology can be used with simple batt and poly in lieu of spray foam insulation however, achieving a tight air seal is exceedingly difficult and is not recommended.

Estimated Cost Option #2: \$22,000 – 26,000

Option #3: Insulated Roof

This option also requires the removal of the existing drywall, interior finishes, and insulation materials to expose the roof structure and underside of the roof deck. The shingles and underlayment would also be removed. A new self-adhered membrane would then be installed over the entire roof. One layer of 75 mm (3") rigid insulation would be installed over the membrane, held in place with 75 mm (3") vertical Z-girts. A second layer of 75 mm (3") insulation would then be applied over top with the Z-girts installed horizontally to reduce thermal bridging. The thermal resistance of the roofing system would be approximately R-30. The assembly would be covered with an underlayment and the roof finished with a sheet metal system. Shingles could be applied, but an additional layer of exterior sheathing would be required over the Z-girts to allow for fastening of the shingles. This method effectively seals the roof and moves the roof joists to within the building envelope.

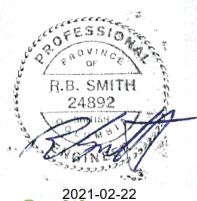
Estimated Cost Option #3: \$45,000 - \$55,000

CLOSURE

This report has been prepared based upon the information referenced herein. It has been prepared in a manner consistent with good engineering judgement. Should new information come to light, Williams Engineering Canada Inc. requests the opportunity to review this information and our conclusions contained in this report. This report has been prepared for the exclusive use of the client, and there are no representations made by Williams Engineering Canada Inc. to any other party. Any use that a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties.

Yours truly,

Williams Engineering Canada Inc.



Randy Smith, P.Eng., LEED AP
Practice Leader – Building Science

T 778.484.3900 M 250.870.3698
E rsmith@williamsengineering.com

Reviewed by,

Williams Engineering Canada Inc.

A handwritten signature in black ink, likely belonging to Matthew Osterhout, positioned above a horizontal blue line.

Matthew Osterhout, Diplo. Tech
Technologist - Building Science

T 604.851.7576 M 250.681.4114
E mosterhout@williamsengineering.com

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