

General Property

Q. NLH-NP-003 Reference: "2024 Capital Budget Application," Newfoundland Power Inc., June 22, 2023, sch. B, Gander Building Renovation, pp. 126–127.

A condition assessment of the building was completed in 2022. The condition assessment indicated that portions of the building's roofing and cladding systems have failed and others require remediation. The roofing and cladding system constructed in 1997 has failed, with multiple leaks present. Repair attempts on the roofing and cladding system in the form of patching have not been successful.

- a) Please provide a copy of the condition assessment.**
- b) Please confirm the material makeup of the building's cladding system.**
- c) Figure 2 appears to depict some localized coating system failure. Please describe any other issues Newfoundland Power has experienced with the building's cladding system.**

- A.
 - a) The 2022 condition assessment was completed by Newfoundland Power staff and is provided in Attachment A of this response. A roofing condition assessment was completed by Morrison Hershfield in 2019 and is provided in Attachment B of this response.
 - b) Newfoundland Power confirms that the building's cladding system is made up of corrugated metal panels as shown in Newfoundland Power's *2024 Capital Budget Application, Schedule B*, page 127, Figure 2.
 - c) The building's cladding system has protective coating loss and mechanical damage from snow and ice.

ATTACHMENT A:

General Properties Building Condition Assessment – Gander

General Properties Building Condition Assessment

Building Inspected | Gander Regional Office Building

Date of Inspection | November 23, 2022

Inspector | Alex Hawco, P. Eng.

Definitions | Good (Near new condition with no visible deterioration)
Fair (Minor deterioration not affecting performance)
Poor (Significant deterioration where performance is compromised)

Building System	Condition			Comments
	Good	Fair	Poor	
Yard				
Fencing		X		Perimeter fencing in fair condition. Minor damage observed.
Asphalt			X	Asphalt is in poor condition. Consider replacement
Gates	X			Vehicular and personnel gates in good conditions. No issues noted.
Storage Racking			X	Wooden storage racking in poor condition, consider replacement.
Building Envelope				
Roofing			X	Pitch and gravel roofing system over customer entrance and truck loading bay has failed and evidence of leaking exists. Built-up roofing over office space is generally in good condition. Consider adding new cap sheet to extend life. Metal roofing over warehouse in good condition. Consider re-caulking fasteners to extend life.
Cladding			X	Metal cladding on customer entrance and truck loading bay in good condition. Metal cladding on office space in poor condition with protective coating loss and damage from impact observed. Metal cladding on stores area in fair condition with coating loss observed.
Windows		X		Windows are in fair condition, no signs of leaking evident.
Pedestrian Doors		X		Pedestrian Doors are in fair condition.
Overhead Doors	X			Overhead doors are in good condition.

Building System	Condition			Comments
	Good	Fair	Poor	
Building Interior				
Interior Doors		X		Interior doors in fair condition. Some damage observed from years of use.
Ceiling		X		Ceiling is generally in fair condition. Damage from roof leaks evident. Note asbestos plaster present in gypsum board ceiling assemblies as noted in previous asbestos report.
Wall Coverings		X		Wall coverings are generally in fair condition, some wear and tear damage present. Note asbestos plaster present in gypsum board assemblies as noted in previous asbestos report.
Flooring		X		Flooring is in fair condition. Wear and tear present from years of usage.
Millwork		X		Millwork is fair with some damage evident from years of usage.
Furniture		X		Some new furniture present for new customer service representatives. Other furniture showing signs of wear.
Storage Racking		X		Interior storage racking in fair conditions.
Mechanical				
HVAC			X	Rooftop HVAC unit has a history of failures and is beyond the average useful life for similar unit. Not all rooms seem to have adequate supply of heated/cooled air, balancing and/or additional ductwork may be required. Bathroom ventilation provided by independent ventilation fans, sizing of these units should be confirmed to ensure they meet requirements. Controls are antiquated and do not allow for remote control, consider replacement.
Plumbing	X			Plumbing fixtures in good condition. No interior piping issues noted. No issues noted with water or sewer service.
Backup Generator	X			Backup diesel replaced in 2014, in good condition. No issues noted.

Building System	Condition			Comments
	Good	Fair	Poor	
Electrical				
Lighting		X		Building lighting consists mainly of legacy style light fixtures. Consider upgrading to LED fixtures in the future. Light switches are in fair condition, consider integrating occupancy sensors to increase energy efficiency.
Access Control	X			Building access control card system in place and no issues noted.
Security System	X			No concerns noted.
Fire Alarm System	X			No concerns noted.



ATTACHMENT B:

Gander Roof Condition Assessment



Roof Condition Assessment

Newfoundland Power

6 Magee Road

Gander, NL



Prepared for:

Newfoundland Power
55 Kenmount Road
St. John's, NL A1B 3P6

Report No. 1904860.00

Date: November 15, 2019

Introduction

Morrison Hershfield Limited (Morrison Hershfield) was retained by the Newfoundland Power (NL Power) to conduct a roof condition assessment of the Office Building located at 6 Magee Road in Gander, NL. The scope of our services was outlined in our proposal dated August 9, 2019. Client authorization to proceed was received via Work Authorization Agreement (WAA) on September 12, 2019.

In general, our roof condition assessment consisted of a review of available documentation and a visual review of the roof. No test openings to confirm the roofing construction or thermographic roof scans to confirm the presence of “wet” insulation were conducted as part of this review.

Scope of Work

As per our proposal, our review was based on the following:

- Document Review of the following provided documents:
 - Miscellaneous Details drawings 5-702-9-32, dated January 1, 1997, by Newfoundland Power.
 - Roof Plan and Detail drawings 5-702-9-45, dated March 25, 2004, by Newfoundland Power.
- An on-site meeting with a representative of the building at the time of our site visit to discuss the history of maintenance / repairs and any known problems, current issues or concerns
- A visual review of the building and systems to determine the general condition of building components and systems to establish significant repair requirements, to plan future projects (within the next 5-10 years) and to determine funding requirements to implement those projects.

Limitations

The Morrison Hershfield scope of work specifically excluded:

- Structural Condition Review;
- Mechanical & Electrical Equipment Assessment / Verification of Operation;
- Accessibility Compliance Audit;
- Inspection of concealed elements, intrusive openings, or opening of system components for internal inspection;
- Designated substance review

Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions.

No testing, detailed analysis or design calculations were conducted unless specifically noted. If the need for such procedures is identified during the course of the work they will be relayed to the client.

Conclusions are based on a visual review of a sampling of the roof and building elements for the purpose of identifying major deficiencies and existing condition of the roof and within the building and building elements. Observations were made only of those areas that were readily accessible during our review. The general findings reported may not be extended to portions of the facility that were unavailable for direct observation at the time of the Morrison Hershfield visits.

Any comments or conclusions within this report represent our opinions, which are based upon the documents provided to us, our review of physical conditions, and our past experience.

Background

The building is a one-storey office space with attached storage and parking space. The building is approximately 2,275 square meters and 10 meters in height. The original building (Roof #1) was constructed circa 1983. The building expanded through phasing which included the construction of the storage (Roof #2) and parking bay (Roof #3) and front vestibule (Roof #4); dates of additions are unknown. Roof replacement of Roof #1 was completed in 2004 (approximately 15 years old). Architectural drawings for 6 Magee Road were provided by NL Power for our review; the roof assembly consists of three assemblies.

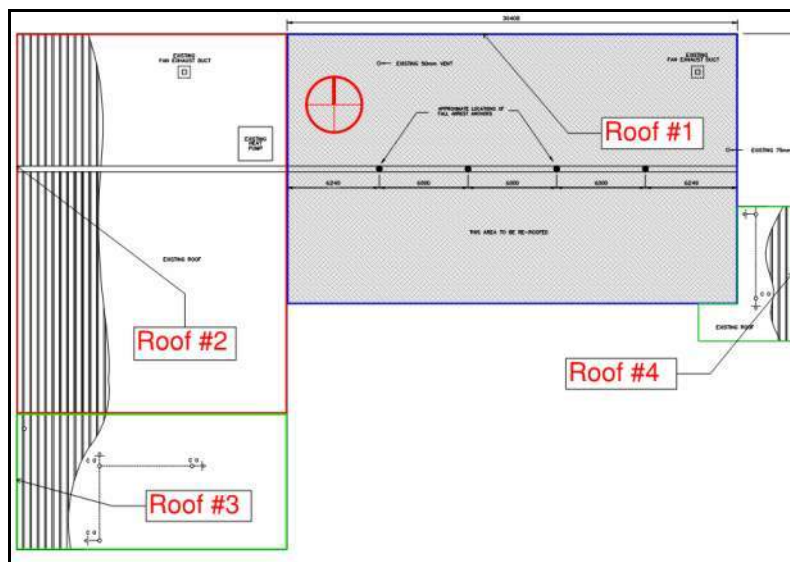


Figure 1: Roof plan provided by NL Power.

From the provided drawings, the roof assemblies were illustrated as follows:

Roof assembly No. 1 (Roof #1):

- 2-ply Modified Bitumen membrane
- 13mm protection board
- Insulation (unknown thickness)

- Air/vapour barrier
- 16mm plywood decking
- Structurally-sloped roof trusses;

Roof Assembly No. 2 (Roof #2):

- Pitched standing seams metal roof
- The standing seams are approximately 50mm in height and spaced at 400mm O.C. with a single crimp at approximately every 500mm.
- Pillow/bagged insulation at the underside of metal roof
- Structural Engineered steel framing; and

Roof Assembly No. 3 (Roof #3 and Roof #4):

- Mop applied asphaltic roofing membrane with aggregate
- 13mm protection board
- 150mm rigid insulation
- Air/vapour barrier
- 13mm exterior grade gypsum board
- Structurally-sloped corrugated steel decking.

The roof assemblies include several roof penetrations such as four roof anchors at the gable ridge of Roof #1 along with a roof vent and fan exhaust duct. Roof #2 has a fan exhaust duct and heat pump. Two roof drains are evenly spaced at Roof #3 with a vent. Roof #4 also has two roof drains.

During our review we spoke to the occupants of the office building who reported the following to Morrison Hershfield:

- The occupants indicated that a leak was present at the women's washroom of the main office building. The occupants reported that leak was found to not be a cause from the original roof of the building since the roof was replaced in 2004, but from a vent at the wall.
- Roof repairs were conducted at the pitched standing seam metal roof of the storage and parking bay due to reported leaks. The occupants indicated that prior to the repairs there was "considerable" water penetration and that it would run above the ceiling tiles. Water leaks have not been resolved since repairs have been completed on the roof.

Participants

This report has been prepared and/or reviewed by personnel within Morrison Hershfield. The following are the reviewers for which each was responsible.

- David Noel, P.Eng. as Principal Project Manager provided an overall quality assurance review.
- Samantha Grainger conducted a review of the roof assemblies and prepared this report.

Site Visit

Morrison Hershfield conducted the visual review of the roof of the building on September 25, 2019. We reviewed the interior of the building for any report leaks. Areas not reviewed due to lack of access were:

Observations and Discussion

The roof was accessed via ladder from the north elevation of the building to Roof #1. Observations were noted below and photos are found in Appendix A.

Roof #1 is a two-ply modified bitumen gable roof. The membrane appeared to fully adhere to the underlying substrate. The overall thickness of the membrane was not determined, however, provided drawings indicated that the membrane is Sopraply cap sheet by Soprema was installed. The roofs drainage is provided by eavestrough fixed to the north and south edges of the roof. Downspouts connected to the eaves trough directed water to grade.

Roof #3 and Roof #4 consists of a typical built-up roof, sloped to roof drains. The vestibule roof has a raised wall connecting to the main office at the east elevation. Roof #2 is a gable standing seam metal roof approximately 450mm higher than Roof #1. It is our understanding that Roof #3 was an addition to Roof #2 with a modified bitumen transitions sheet from the metal roof to the built-up roof. The roofing systems are in fair to poor condition.

The storage area consisted of a gable roof with pitched standing seam metal panels where drainage is provided at the north elevation where roof drains to built-up roof and drained to roof drains.

Morrison Hershfield has the following comments regarding the condition of the roofing systems at the property:

1. The modified bitumen membrane of Roof #1 appeared to be in good condition. The cap sheet of the modified bitumen membrane did not have any blisters or debonding of the sheet from the base sheet. Laps were sample measured to be approximately 75mm; which is standard roofing practice for this material assuming the architectural drawings specified the material used on the roof. Bitumen bleedout of the seams confirmed that the laps were bonded and it did not appear as though they were over or under torched.
2. The mechanical unit curb at the pitched standing seam metal roof on Roof #2 was completed with a modified bitumen membrane. Adhesion of membrane to the metal roof was fair; localized areas of the membrane were debonded approximately 12mm along the edge of the transition.
3. Roof #4 appeared to be in fair condition, moss and vegetation growth was noted at localized areas of the vestibule roof; most vegetation was noted along the joining wall of the main office building roof. No soft spots were detected below the roofing membrane that would indicate accumulated moisture in the roofing system.

4. The eaves trough at the north and south ends of Roof #1 were draining water to the eaves; drainage was noted from the rain at the time of site review. There didn't appear to be any leaf build-up at the reviewed eavestroughs. The downspouts and eaves trough should be checked and cleared, and debris removed as a means of maintenance so that it can drain freely.
5. Minor ponding of water was noted on Roof #3 and Roof #4. Ponding was concentrated between the two roof drains at Roof #3. Ponding of water (with a light precipitation at the time of review) was noted to be approximately 12mm deep.
6. The Roof #2 metal roof sheets were shingled to shed water down towards the eaves trough at the north. The finishing for the metal panels was in good condition with no major deficiencies that would affect performance. The ridge metal cap joints were covered with a 300mm wide strip of modified bitumen membrane.

Recommendations

Overall, Roof #1 and Roof #2 are in good condition, where Roof #3 and Roof #4 are in fair to poor condition. Many of the observed deficiencies, while not presently leaking, create the potential for premature roof failure. Repairs to the membrane at Roof #3 and Roof #4 were successful in stopping reported water infiltration. However, a visual review of the existing conditions would suggest that the membrane is near the end of its life expectancy. Note that a typical built-up roof would have a life expectancy of approximately 20 to 25 years (Roof #1 is approximately 15 years old). A typical metal roof would have a life expectancy of approximately 30 to 40 years (Roof #2 is approximately 28 years old).

Morrison Hershfield makes the following recommendations regarding the roofing systems, categorized as per the following:

1. **Safety Items** – Items that require immediate attention for health and safety reasons:
 - a. No related items noted during the site review.
2. **Capital Repair** – Recommended items to address life expectancies and existing conditions:
 - a. (G-CR-A) - Replace Roof #3 and Roof #4 in the next 2 years.
 - i. Estimated cost for replacement is \$100,000.00 + HST
 - b. (G-CR-B) - Replace Roof #2 in 8 years.
 - i. Estimated cost for replacement is \$125,000.00 + HST
 - c. (G-CR-C) - Complete roof review for Roof #1 in 3-5 years for condition assessment.
3. **Annual Maintenance** – Ongoing upkeep for assemblies:
 - a. (G-AM-A) - Clean out eavestroughs and downspouts at Roof #1.

Conclusion

There are no expected expenditures for safety-related items. We recommend completing the maintenance items as a means of annual upkeep to ensure roof systems are drained as per design. We recommend completing the capital expenditures at the time suggested.

Morrison Hershfield Limited has reviewed the roof of the NL Power Building at 6 Magee, Gander, NL in accordance with the Terms of Reference and Limitations outlined in the related section of this report.

If you have any questions regarding the information contained herein, please contact the undersigned.

MORRISON HERSHFIELD LIMITED



Samantha Grainger
Building Envelope Consultant



David Noel, P.Eng.
Principal, Senior Building Science Engineer

Appendix A: Photos



PHOTO 1: ROOF #1 SINGLE-PLY MODIFIED BITUMEN GABLE ROOF WITH ROOF ANCHORS



PHOTO 2: ROOF #4 BUILT-UP ROOF.



PHOTO 3: ROOF #2 - PITCHED STANDING SEAM METAL ROOF.



PHOTO 4: ROOF #3 BUILT-UP ROOF.



PHOTO 5: REPORTED LEAKS IN THE LINE PERSON DRYROOM.



PHOTO 6: VESTIBULE BUILT-UP ROOF WITH LOCALIZED MOSS AND VEGETATION GROWTH.



PHOTO 7: VESTIBULE BUILT-UP ROOF WITH ROOF DRAIN.



PHOTO 8: VESTIBULE ROOF EDGE AT THE METAL FLASHING/FASCIA.



PHOTO 9: EAVES THROUGH AT GABLE SINGLE-PLY MODIFIED BITUMEN ROOF.



PHOTO 10: TRANSITION WALL AT VESTIBULE ROOF AND MAIN OFFICE BUILDING ROOF.



PHOTO 11: ROOF ANCHOR INSTALLED ON THE SINGLE-PLY MODIFIED BITUMEN MEMBRANED ROOF.



PHOTO 12: CAPP SHEET OF SINGLE-PLY MODIFIED BITUMEN ROOF.



PHOTO 13: TRANSITION WALL BETWEEN THE MAIN BUILDING ROOF AND STORAGE AREA METAL ROOF.



PHOTO 14: NORTH SIDE OF THE PITCHED STANDING SEAM ROOF.



PHOTO 15: SEAM OF RIDGE FLASHING OF THE PITCHED STANDING SEAM ROOF COVERED WITH A STRIP OF MODIFIED BITUMEN MEMBRANE.



PHOTO 16: RIDGE SEAM MEMBRANE LAP.

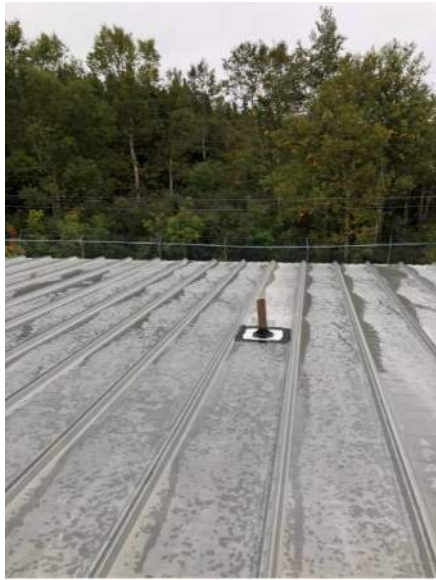


PHOTO 17: ROOF PENETRATIONS AT STORAGE METAL ROOF.



PHOTO 18: STAGGING AREA BUILT-UP ROOF WITH WATER PONDING.



PHOTO 19: ROOF TRANSITION BETWEEN STORAGE METAL ROOF AND STAGGING AREA BUILT-UP ROOF.



PHOTO 20: EAST END OF THE STAGGING AREA BUILT-UP ROOF WITH VENT.