Garland Canada Inc.

Roof Asset Management Program

20221027 - Keys Building - Roof Inspection & Recommendations

Prepared For

Bill Murray

October 27, 2022

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THE GARLAND COMPANY, INC.

BUILDING ENVELOPE SYSTEMS

PHONE: (613) 889-4240
Matthew McNeely
mcneely@garlandcanada.com

October 27th, 2022

Mr. Bill Murray
Renfrew County District School Board
1270 Pembroke Street West
Pembroke, Ontario
K8A 4G4

Subject: Roof Inspection- Keys School

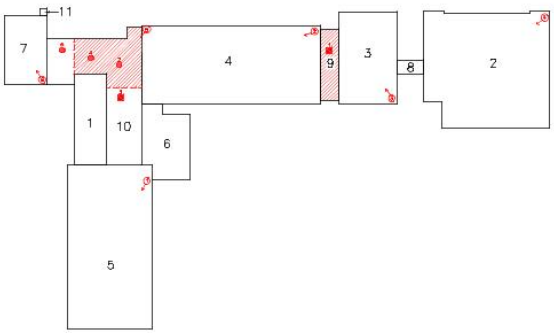
Mr. Murray:

After our discussions and roof inspection, please accept the roof inspection report for the above facility.

OBSERVATION:

Currently, there are no present leaks entering through the insulation and into the building. During the inspection, we noted minor maintenance needed to continue with the expected roofs life cycle. This includes clearing roof drains, adding a flood coat over wind scorn areas, cutting trees back from the roof surface etc. These items are normal maintenance that should be budgeted for annually.

Section 1 – 1995 – 27 years
Section 2 – 1995 – 27 years
Section 3 – 2016 – 6 years
Section 4 – 2001 – 21 years
Section 5 – 2001 – 21 years
Section 6 – 2011 – 11 years
Section 7 – N/A
Section 8 – 2016 – 6 years
Section 9 – 2016 – 6 years
Section 10 – 2014 – 8 years



RECOMMENDATION:

- Maintenance repairs $1000
- Thermal Scan - $2200 (We highly recommend moving forward with a Thermal Scan to determine a base line moving forward.)

Please do not hesitate to contact me should you have any questions and/or require any additional information.

Sincerely,

Matt McNeely
Building Envelope Specialist
Garland Canada Inc.
Mobile - 613.889.4240
Email – mcneely@garlandcanada.com

Facility Summary

Client: Renfrew County District School Board

Facility: Keys Building

Facility Data	
Address 1	167 Brockhouse Way`
City	Deep River
Province	ON
Postal	K0J 1P0
Type of Facility	School
Square Footage	35,504

Asset Information

Name	Date Installed	Square Footage	Roof Access
1	1995	1,584	Ladder Needed
2	1995	7,625	Ladder Needed
3	2016	2,924	Ladder Needed
4	2001	7,656	Ladder Needed
5	2001	7,623	Ladder Needed
6	2011	1,758	Ladder Needed
7	NA	1,632	Ladder Needed
8	2016	200	Attached Ladder
9	2016	689	Ladder Needed
10 (Old area C)	2014	3,788	Ladder Needed
11		25	Ladder Needed

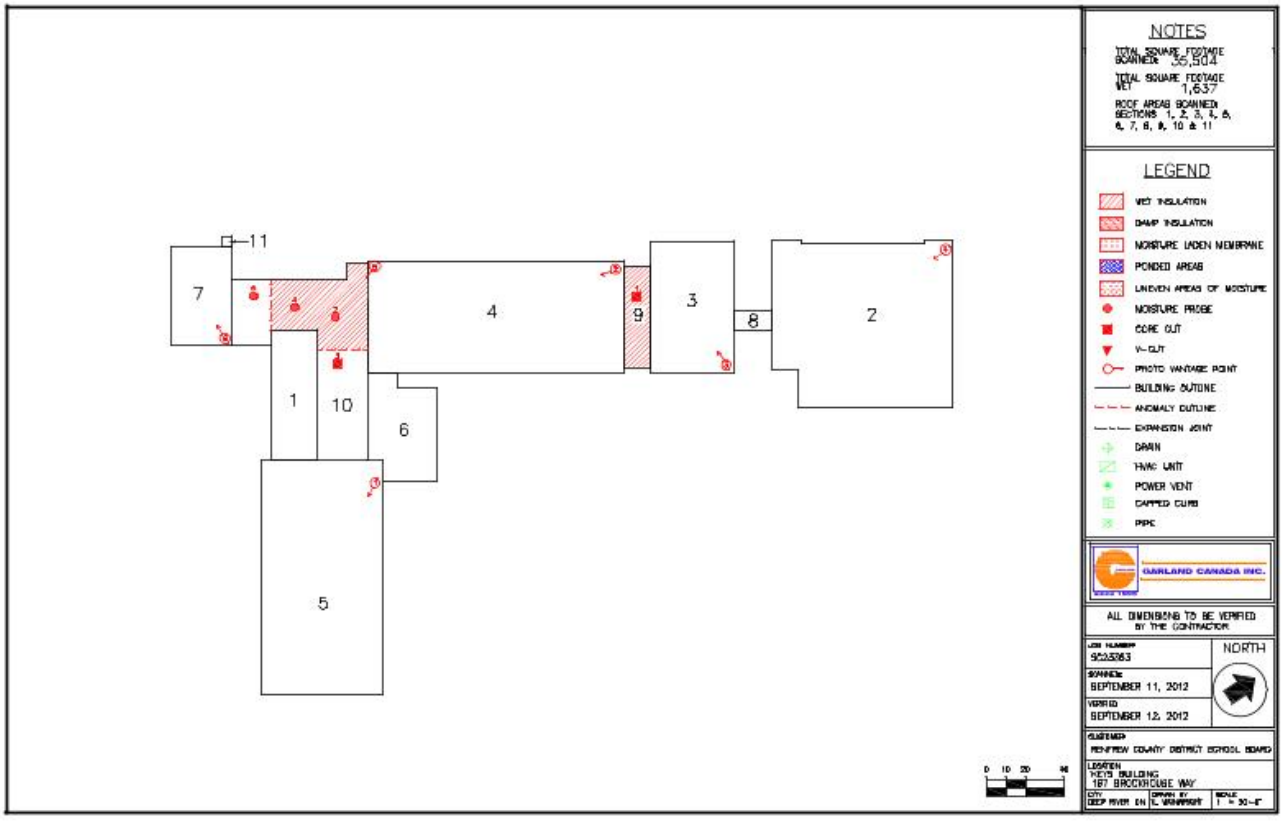

11
7
4
9
3
8
2
1
10
6
5
0 10 20 40
NOTES
TOTAL SQUARE FOOTAGE SCANNED 35,504
TOTAL SQUARE FOOTAGE WET 1,637
ROOF AREAS SCANNED SECTIONS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11
LEGEND
WET INSULATION
DAMP INSULATION
MOISTURE LADEN MEMBRANE
PONDED AREAS
UNEVEN AREAS OF MOISTURE
MOISTURE PROBE
CORE CUT
V-CUT
PHOTO VANTAGE POINT
BUILDING OUTLINE
ANOMALY OUTLINE
EXPANSION JOINT
DRAIN
HVAC UNIT
POWER VENT
CAPPED CURB
PIPE
GARLAND CANADA INC.
ALL DIMENSIONS TO BE VERIFIED BY THE CONTRACTOR
JOB NUMBER 903383
SCANNED SEPTEMBER 11, 2012
VERIFIED SEPTEMBER 12, 2012
NORTH
CUSTOMER RENFREW COUNTY DISTRICT SCHOOL BOARD
LOCATION KEYS BUILDING 187 BROCKHOUSE WAY
CITY DEEP RIVER ON
DRAWN BY L. VANWYNSBERGHE
SCALE 1" = 30'-0"

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 2

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo 5

Confirmation of wind scorn area.

Wind Scour is a common phenomenon as wind speed increases as the air is pushed over the roof of the building after it impacts the walls. This is typical to the same properties with an airplane wing. This causes a vortex in air circulation creating negative pressure at the roof surface. Loose aggregate or ballast is easily moved under these conditions. Roof aggregate or ballast serves a few functions, 1) to protect the surface of the roof system from UV degradation while increasing the fire rating of the assembly and 2) to hold the roof system in place specifically on ballasted systems. If areas of the roof are exposed due to wind scour, protection of the roof to the elements is also removed and in the case of ballasted roof systems damage and eventual blow off of the system can occur.

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 3

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo Report

Client: Renfrew County District School Board

Facility: Keys Building

Roof Section: 4

Report Date: 10/27/2022

Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo 5

Confirmation of wind scorn area.

Wind Scour is a common phenomenon as wind speed increases as the air is pushed over the roof of the building after it impacts the walls. This is typical to the same properties with an airplane wing. This causes a vortex in air circulation creating negative pressure at the roof surface. Loose aggregate or ballast is easily moved under these conditions. Roof aggregate or ballast serves a few functions, 1) to protect the surface of the roof system from UV degradation while increasing the fire rating of the assembly and 2) to hold the roof system in place specifically on ballasted systems. If areas of the roof are exposed due to wind scour, protection of the roof to the elements is also removed and in the case of ballasted roof systems damage and eventual blow off of the system can occur.

Photo 6

Confirmation of previous repair around the drain.

Photo 7

The next two (2) photos are confirmation of trees along the parapet wall. The trees should be cut back away from the roof.

Debris – Leafs and Pine Needles: Pine needles and other leaves build up on the roof membrane causing plugged drains and scuppers thereby causing ponding water and structural weight loading. As the leaves and pine needles rot a "compost effect" occurs, this in effect causes soil to form on top of the roof membrane. This soil creates a perfect medium for plant and weed growth. When seeds take hold the roots will often penetrate through the membrane causing immediate leaks and damage internally.

Photo 8

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 5

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of the roof section.

Photo 3

Photo 4

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 6

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 7

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo 5

Confirmation of deteriorated shingles attached to the building.

Shingle Deterioration: As organic three-tab shingles are exposed to the elements they become brittle and shrink. This in turn causes the shingle to "crumble" and "curl". Once the mineral surfacing "crumbles" apart it exposes the underlying organic felt, which rapidly deteriorate when exposed to freeze/thaw cycles. This in turn allows ice and water to enter the building causing internal damage and leaks.

Photo 6

Confirmation of existing vent. During the next roof replacement, ensure curb is above the finished roof height by 12".

Photo 7

Confirmation of clogged drains due to debris.

Debris – Leaves and Pine Needles: Pine needles and other leaves build up on the roof membrane causing plugged drains and scuppers thereby causing ponding water and structural weight loading. As the leaves and pine needles rot a "compost effect" occurs, this in effect causes soil to form on top of the roof membrane. This soil creates a perfect medium for plant and weed growth. When seeds take hold the roots will often penetrate through the membrane causing immediate leaks and damage internally.

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 8

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

General view of the roof section.

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 9

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

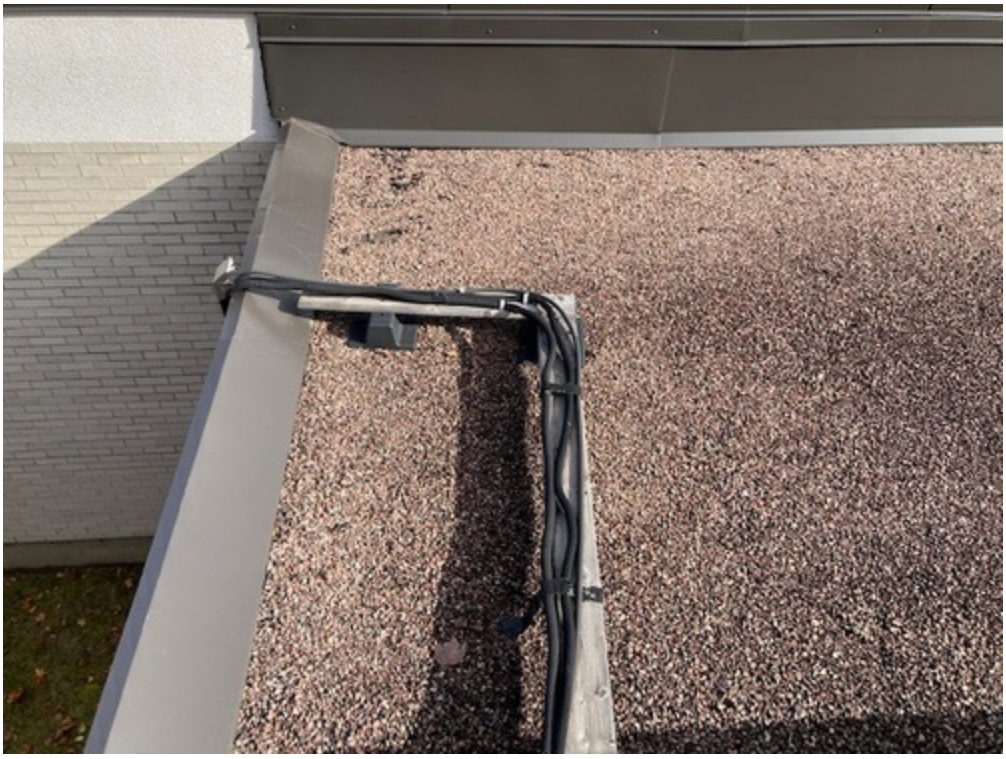


Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo Report

Client: Renfrew County District School Board
Facility: Keys Building
Roof Section: 10 (Old area C)

Report Date: 10/27/2022
Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo 5

Confirmation of roof debris.

Debris – Leafs and Pine Needles: Pine needles and other leaves build up on the roof membrane causing plugged drains and scuppers thereby causing ponding water and structural weight loading. As the leaves and pine needles rot a "compost effect" occurs, this in effect causes soil to form on top of the roof membrane. This soil creates a perfect medium for plant and weed growth. When seeds take hold the roots will often penetrate through the membrane causing immediate leaks and damage internally.

Photo 6

Confirmation of a previous caulking repair.

Photo 7

Confirmation of a redundant penetration. During the next replacement, ensure penetration is removed down to the deck.

Photo Report

Client: Renfrew County District School Board

Facility: Keys Building

Roof Section: 1

Report Date: 10/27/2022

Title: Roof Inspection

Photo 1

Photo 2

The first three (3) photos are a general view of this roof section.

Photo 3

Photo 4

Photo 5

Confirmation of wind scorn area.

Wind Scour is a common phenomenon as wind speed increases as the air is pushed over the roof of the building after it impacts the walls. This is typical to the same properties with an airplane wing. This causes a vortex in air circulation creating negative pressure at the roof surface. Loose aggregate or ballast is easily moved under these conditions. Roof aggregate or ballast serves a few functions, 1) to protect the surface of the roof system from UV degradation while increasing the fire rating of the assembly and 2) to hold the roof system in place specifically on ballasted systems. If areas of the roof are exposed due to wind scour, protection of the roof to the elements is also removed and in the case of ballasted roof systems damage and eventual blow off of the system can occur.

Photo 6

Confirmation of existing vent. During the next replacement, ensure curb is above the finished roof height by 12".