

# Roof Inspection Report

Prepared for:

Mr. Greg Boettger  
Bellevue Schools  
&  
Mr. Ralph Gladbach  
GP Architecture, LLC.

Prepared by:

Roofing Solutions, Inc.  
6728 W. 153<sup>rd</sup> Street  
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## Project Location

Bellevue Elementary  
12001 Timberridge Drive  
Papillion, NE 68133

**Facility:** Bellevue Elementary  
12001 Timberridge Drive  
Papillion  
Nebraska  
68133  
U.S.A.



**Contact Name:** Greg Boettger

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**Contact Fax:** ( ) -

**Date of Last Inspection:** Mar 28, 2017

**Type of building:** School

**Type of Neighborhood:** Residential

### Roof Section List

Photo	Section / Name / Year Installed	Size / Height	Roof Type	Condition Index / *RCI / ASLR(Yrs)	Estimated Replacement Value
	Roof A A 2009	69,224 sq. ft. 12 ft.	Asphalt Shingles	Fair 55 7(Yrs)	\$380,732.00
	Roof B B 2009	3,927 sq. ft. 12 ft.	(SBS) Modified Bituminous Membrane Roofing	Fair 55 7(Yrs)	\$39,270.00
<b>73,151</b>					<b>\$420,002.00</b>
*RCI Rating 0 -100 where 100 is excellent					

### Recommendation Summary

Section ID	Budget Year	Activity Type	Action Item ?	Allocation	Urgency	Budget Amount
Roof A	2017	Repair	Yes	Expense	High	\$3,000
Roof B	2017	Repair	Yes	Expense	High	\$4,500
						<b>\$7,500</b>

**Expense Budgets - 5 Years**

<b>Section ID</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Roof A	\$3,000	\$0	\$0	\$0	\$0
Roof B	\$4,500	\$0	\$0	\$0	\$0
	<b>\$7,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**Total Budgets - 5 Years**

<b>Section ID</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Roof A	\$3,000	\$0	\$0	\$0	\$0
Roof B	\$4,500	\$0	\$0	\$0	\$0
	<b>\$7,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**Roof Name:** A**Roof Size:** 69,224 sq. ft.**Est. replacement Cost:** \$ 380,732.00**Existing System Type:** Asphalt Shingles**Year Installed:** 2009**Assessed Service Life Remaining (Years) :** 7**Height:** 12 Ft.**Slope:** 05:12**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** Unknown**History of Leaking?** Yes**Drainage and Leak Details:** Roof Section A slopes to the eave edges and drains to an external guttering with downspouts that empty into an underground plumbing system.

Past leak issues were reported and building personnel were not sure if the leaks have been resolved.





## Existing Roof System Construction

Layer Type	Description	Method Of Attachment
Deck	OSB Board	Nailed
Underlayment	Ice & water shield	Cold Adhesive
Membrane	Shingles	Nailed

## Overall Core Condition

Roofing layers were determined at an eave edge view. An under view of the structure revealed an OSB plywood decking with a wood truss framing. There is a layer ice & water shield underlayment and the membrane is a nailed, laminated shingle.

**Core Photos**

Photos	Date	Description
	Mar 28, 2017	Deck Underside
	Mar 28, 2017	Membrane

## Overall Roof Inspection Assessments

Date	Inspection Type	Inspecting Company	Inspector
Mar 28, 2017	Phase 1 Roof Inspection	Roofing Solutions, Inc.	Garry Hendrickson

Roof Section A refers to the steep sloped roof system at the Bellevue Elementary School and is an eight (8) year old laminated shingle system. The roof is a hip design with valleys at the offsets in the building. The valleys are flashed with a "W" metal valley flashing. The roof system has eave vents in the soffits with a vented ridge detail and attic vents on rear sides of the building. There are also raised roof areas with louvers on the sides of the structures. The rake wall details are flashed with metal shingles.

Defects and conditions found during the inspection include the following:

- Random areas with splits observed in the shingles
- Random areas with high roofing nails or exposed nail heads
- Cut shingles observed by a roof vent flashing
- Random areas with roof mastic repair attempts to the shingles
- Past repair attempts to the valley and rake edge metal flashings
- Broken or missing shingles observed
- No starter rows of shingles used on the dormer roof areas
- The curb units have a narrow metal flange and no additional metal flashings
- Metal flashing is bowed up at one (1) area

Overall, the roof system is in only fair working condition due to the above referenced defects. With the aforementioned defects addressed, in addition to routine maintenance and regular inspection, the roof system should remain effective for the duration of its assessed service life. There was no warranty information available for this roof section at the time of inspection.

## Recommendations Details

Budget Year	Activity Type	Action Item ?	Allocation	Urgency	Quotation \$
2017	Repair	Yes	Expense	High	\$3,000

RSI recommends repairs be completed in accordance with the attached deficiency list.

**\$3,000**

**Roof Name:** B**Roof Size:** 3,927 sq. ft.**Est. replacement Cost:** \$ 39,270.00**Existing System Type:** (SBS) Modified Bituminous Membrane Roofing**Year Installed:** 2009**Assessed Service Life Remaining (Years) :** 7**Height:** 12 Ft.**Slope:** 1/2" per ft.**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** Unknown**History of Leaking?** Yes

**Drainage and Leak Details:** The B roof areas slope toward the valleys on the shingle roof areas with roof drains at the ends of the areas.

There has been an ongoing leak issue on the B-6 roof area and building personnel were not sure if the leaks have been resolved.



## Existing Roof System Construction

Layer Type	Description	Method Of Attachment
Membrane	Modified bitumen	Hot Asphalt
Surfacing	Granules	Factory Installed

## Overall Core Condition

No core cuts were performed on this roof section. The membrane is a modified bitumen with a granulated surfacing.



## Core Photos

Photos	Date	Description
	Mar 28, 2017	Membrane

## Overall Roof Inspection Assessments

Date	Inspection Type	Inspecting Company	Inspector
Mar 28, 2017	Phase 1 Roof Inspection	Roofing Solutions, Inc.	Garry Hendrickson

Roof Section B refers to the modified bitumen valley roofs at the Bellevue Elementary School facility. The roof system is an eight (8) year old modified bitumen with a granulated surfacing. The roof section includes the B-1 thru B-7 areas. The B-3 & B-4 areas sit between the northern pod roof areas. The B-6 roof area is a larger rectangular roof area located at the east end of the building. The sides of the roof areas are flashed with the same type of modified bitumen which extends under the shingles. The ends of the valley area have the modified bitumen sealed to the valley metal for the shingle roof areas.

Defects and conditions found during the inspection include the following:

- Loose modified bitumen lap edges observed on the B-6 roof area
- The drain flashings are wrinkled and buckling
- Roof mastic repair attempts to the drain flashings near the reported leak area on the B-7 roof area
- Numerous open drain flashing laps and loose modified bitumen lap edges on wall flashing laps on B-6 area.

Overall, the roof system is in fair working condition due to the above referenced defects. With the aforementioned defects addressed, in addition to routine maintenance and regular inspection, the roof system should remain effective for the duration of its assessed service life. There was no warranty information available for this roof section at the time of inspection.

Please Note: Repairs should include proper re-flashing all of the roof drains with sumps around the drains.

**Recommendations Details**

<b>Budget Year</b>	<b>Activity Type</b>	<b>Action Item ?</b>	<b>Allocation</b>	<b>Urgency</b>	<b>Quotation \$</b>
2017	Repair	Yes	Expense	High	\$4,500
RSI recommends repairs be completed in accordance with the attached deficiency list, which should include proper re-flashing all of the roof drains with sumps around the drains.					
					<b>\$4,500</b>

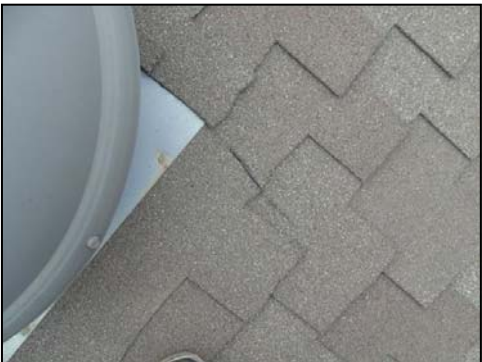
Photos and Deficiencies



<b>Defect Code:</b>	<b>6</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>First Year</b>
Description: Split in membrane.					
Repair: Cut out splits and repair membrane with similar membrane material. Extend repair material a minimum of 6" in all directions past repair areas.					



<b>Defect Code:</b>	<b>10</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>First Year</b>
Description: Tented membrane at fastener.					
Repair: Remove fasteners that are loose or not flush with the substrate. Remove underlying substrate materials including insulation and coverboard and replace with matching materials of similar thicknesses to provide for a smooth flush surface.. Install new fasteners and plates per manufacturer's recommendations for system type and apply new membrane repair materials of similar type, gauge, and plies as existing roof system.					



<b>Defect Code:</b>	<b>23</b>	<b>Quantity:</b>	<b>1</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Physical damage to membrane including cuts, holes, tears, scrapes, scuffs, or abrasions.					
Repair: Apply repair membrane over damaged area, extending repair material a minimum 6" past damage.					



<b>Defect Code:</b>	<b>24</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Evidence of past problem and previous repair.					
Repair: Investigate for chronic leak problems and repair any areas that are suspect.					

Photos and Deficiencies



<b>Defect Code:</b>	<b>29</b>	<b>Quantity:</b>	<b>5</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Missing, loose, or broken shingles					
Repair: Remove all damaged shingles and replace all damaged and missing shingles with shingles of like kind and color.					



<b>Defect Code:</b>	<b>58</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Inadequate, incomplete, nonconforming membrane flashings or flashing details.					
Repair: Complete membrane flashing repairs in accordance with NRCA recommendations and good roofing practices. Follow manufacturer requirements on warranted systems.					



<b>Defect Code:</b>	<b>75</b>	<b>Quantity:</b>	<b>Under 10 LF</b>	<b>Priority:</b>	<b>First Year</b>
Description: Inadequate attachment of metal flashings.					
Repair: Reattach metal flashings a maximum of two EPDM washered fasteners per side of curb or attach a maximum of 12" O.C for flashings more than 24 " in length.					

Photos and Deficiencies



<b>Defect Code:</b>	<b>3</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>First Year</b>
Description: Open lap in field membrane.					
Repair: Clean lap of all dirt and close seam. Overlay edge of affected seam with strip-in of new membrane of like material. Extend a minimum of 4" in all directions past seam edges and repair areas.					



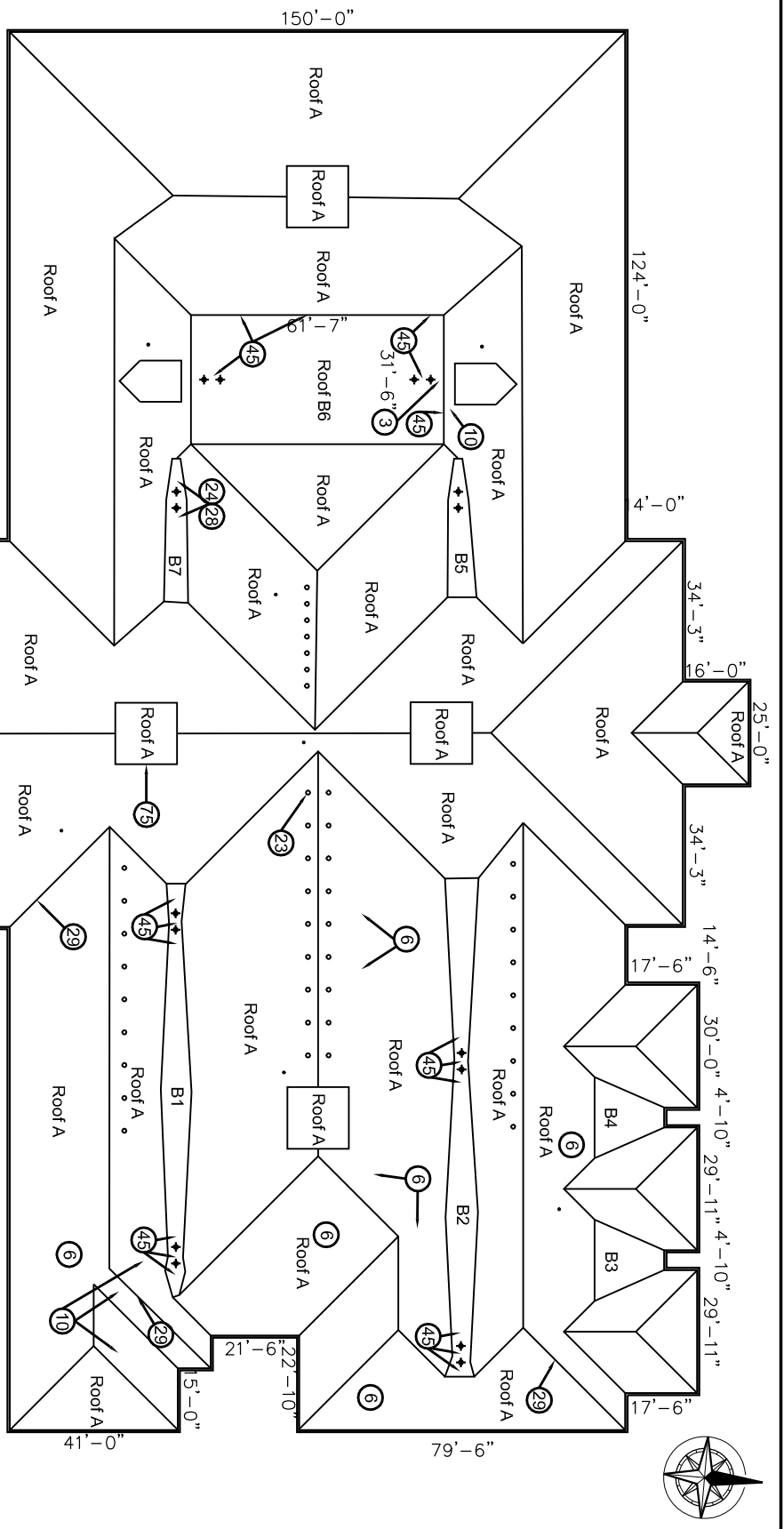
<b>Defect Code:</b>	<b>7</b>	<b>Quantity:</b>	<b>Widespread</b>	<b>Priority:</b>	<b>First Year</b>
Description: Wrinkle in membrane.					
Repair: Cut out wrinkles and loose membrane. Apply new membrane of like material and plies to cover cuts and extend repairs a minimum of 6" in all directions past cut out areas.					



<b>Defect Code:</b>	<b>24</b>	<b>Quantity:</b>	<b>1</b>	<b>Priority:</b>	<b>First Year</b>
Description: Evidence of past problem and previous repair.					
Repair: Investigate for chronic leak problems and repair any areas that are suspect.					



<b>Defect Code:</b>	<b>45</b>	<b>Quantity:</b>	<b>Widespread</b>	<b>Priority:</b>	<b>First Year</b>
Description: Open flashing lap					
Repair: Open loose lap area and clean thoroughly. Prime and reseam or reweld lap per the manufacturer's requirements. Strip-in defective lap with mimum 6" wide membrane on single ply systems or 6" wide fabric and mastic three-course application on asphalt systems. Regranulate or coat flashing repairs.					



Typical defects on the B roof areas:  
 (7) The drain flashings are wrinkled and buckled.  
 (49) Numerous open laps in the drain flashings.

Typical defects on the A roof area:  
 (6) Random areas with split or damage shingles.  
 (24) Random roof mastic repair attempts made to the shingles.  
 (24) Random repair attempts made to the valley and rake edge flashings.  
 (58) The roof curbs have a narrow metal flange with no additional metal flashing.  
 (59) There are missing starter rows of shingles on the dormer roofs.



**DRAWING LEGEND**

- DRAIN
- OVERFLOW
- SCUPPER
- HVAC UNIT
- CURB
- SATELLITE
- PITCH PAN
- FLUE
- PIPE
- SLEEPER
- EXHAUST FAN
- CONDENSER ON SLEEPERS
- SKYLIGHT
- DEFECT NOTE
- CONSTRUCTION NOTE
- N.I.C. NOT IN CONTRACT
- U.N.O. UNLESS NOTED OTHERWISE



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**Project Name:**  
**Bellevue Elementary School**

**Project Address:**  
**12001 Timberridge Drive**  
**Papillion, NE 68133**

**Sheet Number:**  
**01 of 01**

**Date:**  
**03/28/2017**

**Drawn By:**  
 GH

**Project Number:**  
**17-7631**

**Sheet Title:**  
**A&B-Roof Plan**

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 Deficiency Legend
 

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Defect #	<b>FIELD MEMBRANE AND ROOF SURFACE</b>
1	Description: Deteriorated or missing sealant at counterflashing, termination bar, sealant lip, metal flashing, expansion joint, etc.
2	Description: Fishmouth in field or flashing seam.
3	Description: Open lap in field membrane.
4	Description: Dry lap edge.
5	Description: Buckling or ridging of membrane.
6	Description: Split in membrane.
7	Description: Wrinkle in membrane.
8	Description: Surface erosion.
9	Description: Membrane deterioration.
10	Description: Tented membrane at fastener.
11	Description: Blister in field membrane or flashing.
12	Description: Alligatoring of asphalt surfacing.
13	Description: Tar boils/blueberries.
14	Description: Displaced ballast.
15	Description: Ponding of water.
16	Description: Blocked drain, scupper, or downspout.
17	Description: Missing or damaged drain/scupper strainer
18	Description: Unadhered membrane or inadequate membrane attachment.
19	Description: Unadhered insulation or inadequate insulation attachment.
20	Description: Displaced insulation
21	Description: Loose walkway pad or deteriorated paver.
22	Description: Debris, trash, construction materials, HVAC equipment, filters, motors, etc. on roof surface.
23	Description: Physical damage to membrane including cuts, holes, tears, scrapes, scuffs, or abrasions.
24	Description: Evidence of past problem and previous repair.
25	Description: Membrane slippage
26	Description: Membrane shrinkage
27	Description: Missing or damaged membrane protection layer at sleeper, antenna, satellite sled, blocking, pipe stand, paver, etc.
28	Description: Reported leak location
29	Description: Missing, loose, or broken shingles
30	Description: Open or missing tile eave stop.
31	Description: Missing or open mortar joints at the ridge or hip.
32	Description: Broken or missing tile.
33	Description: Loose, displace, or unsecured tiles.

## Deficiency Legend

Defect #	FLASHINGS AND PENETRATIONS
40	Description: Low flashing height.
41	Description: Missing or inadequate flashing attachment.
42	Description: Loose or unadhered flashings.
43	Description: Weathered and deteriorated flashing
44	Description: Bridged flashing
45	Description: Open flashing lap
46	Description: Split in flashing
47	Description: Racked flashings
48	Description: Missing termination
49	Description: Missing counterflashing
50	Description: Missing pipe flashing.
51	Description: Leaking or damaged gutters/downspouts.
52	Description: Missing rain cap, rain collar, or hood.
53	Description: Open lead flashing.
54	Description: Fallen or loose backer rod.
55	Description: Deteriorated or shrunken pitch pan filler.
56	Description: Abandoned and obsolete equipment.
57	Description: Expansion joint deficiencies.
58	Description: Inadequate or nonconforming membrane flashing detail.
	<b>METALWORK AND MISCELLANEOUS</b>
70	Description: Open joint in metal flashing.
71	Description: Open or missing joint cover.
72	Description: Signage penetration not sealed properly.
73	Description: Improper sheet metal detail.
74	Description: Inadequate coverage of metal flange.
75	Description: Inadequate attachment of metal flashings.
76	Description: Inadequate transition flashings.
77	Description: Grease or other contaminants exhausted or vented onto roof surface.
78	Description: Leaking or damaged gutters/downspouts.
79	Description: Cracks in walls.
80	Description: Broken, plugged, or disconnected condensate line.
81	Description: Displaced antenna, sign, bracing, support, strap, etc.
82	Description: Open or deteriorated wall joint.
83	Description: Efflorescence.
84	Description: Deck deflection
85	Description: Vegetation growth.
86	Description: Corrosion or rust
87	Description: Mechanical defect
88	Description: Skylight defect/cracked/deteriorated
89	Description: Missing wall covering or cladding materials.



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