

# 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  
Overland Park, KS 66223



## Project Location

Two Springs Elementary  
3001 Spring Boulevard  
Bellevue, NE 68123

**Facility:** Two Springs Elementary  
3001 Spring Boulevard  
Bellevue  
Nebraska  
68123  
U.S.A.



**Contact Name:** Greg Boettger

**Contact Telephone:** (402) 293-5066 Ext:



**Contact Fax:** ( ) -

**Date of Last Inspection:** Mar 09, 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 Section A A 1996	67,936 sq. ft. 12 ft.	Asphalt Shingles	Poor 33 2(Yrs)	\$305,712.00
	Roof Section B B 2016	3,936 sq. ft. 12 ft.	(EPDM) Ethylene-Propyl ene-Diene-Mon omer Roofing	Very Good 85 19(Yrs)	\$59,040.00
<b>71,872</b>					<b>\$364,752.00</b>
*RCI Rating 0 -100 where 100 is excellent					

### Recommendation Summary

Section ID	Budget Year	Activity Type	Action Item ?	Allocation	Urgency	Budget Amount
Roof Section A	2017	Repair	Yes	Expense	Moderate	\$1,500
Roof Section A	2019	Replacement	Yes	Capital	Moderate	\$305,712
Roof Section B	2017	No Action	No	N/A	N/A	\$0
Roof Section B	2019	Partial Tear-Off	Yes	Capital	Moderate	\$2,025
						<b>\$309,237</b>

### Capital Budgets - 5 Years

Section ID	2017	2018	2019	2020	2021
Roof Section A	\$0	\$0	\$305,712	\$0	\$0
Roof Section B	\$0	\$0	\$2,025	\$0	\$0
	<b>\$0</b>	<b>\$0</b>	<b>\$307,737</b>	<b>\$0</b>	<b>\$0</b>

### Expense Budgets - 5 Years

Section ID	2017	2018	2019	2020	2021
Roof Section A	\$1,500	\$0	\$0	\$0	\$0
	<b>\$1,500</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

### Total Budgets - 5 Years

Section ID	2017	2018	2019	2020	2021
Roof Section A	\$1,500	\$0	\$305,712	\$0	\$0
Roof Section B	\$0	\$0	\$2,025	\$0	\$0
	<b>\$1,500</b>	<b>\$0</b>	<b>\$307,737</b>	<b>\$0</b>	<b>\$0</b>

**Roof Name:** A**Roof Size:** 67,936 sq. ft.**Est. replacement Cost:** \$ 305,712.00**Existing System Type:** Asphalt Shingles**Year Installed:** 1996**Assessed Service Life Remaining (Years) :** 2**Height:** 12 Ft.**Slope:** 05:12**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** No**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 at ground level.

Past leak issues were reported, all of which appear to be resolved at the time of inspection.





## 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 wood truss framing. There is a layer ice & water shield underlayment and a laminated, asphalt shingle membrane.

**Core Photos**

Photos	Date	Description
	Mar 09, 2017	Deck Underside
	Mar 09, 2017	Membrane

## Overall Roof Inspection Assessments

Date	Inspection Type	Inspecting Company	Inspector
Mar 09, 2017	Phase 1 Roof Inspection	Roofing Solutions, Inc.	Garry Hendrickson

Roof Section A refers to the steep sloped, asphalt shingle roof system at the Two Springs Elementary School. The roof is a seventeen (17) year old laminated, asphalt shingle. 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 the east side 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. The roof system has metal roof areas between the valleys at the NE corner of the building. There are two (2) metal roof areas totaling approximately 580 square feet of total roof area, which was not included into the estimated square footage of Roof Section A. The metal roof system is a prefinished metal roof panel what an interlocking lap. The end laps have a metal cover plate. The dents in the roof panels do not appear to be negatively effecting the performance of the roof system at this time. The roof panels should be replaced in conjunction with Roof Section A.

Defects and conditions found during the inspection include the following:

- Random areas with splits in the shingles observed
- Damaged or missing shingles observed
- Numerous torn shingles observed along the recent EPDM lining replacement areas
- There are what appears to be hail dents on the metal roof areas
- There have been shingles replaced at the northern valley areas
- Roof mastic repair attempts observed around the pipe penetration details
- Broken, missing and/or loose ridge cap shingles observed

Overall, the roof system is in poor condition due to its age and 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, approximately two (2) years. 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	Moderate	\$1,500
RSI recommends leak repairs be performed only as needed until the roofs recommended replacement in 2019.					
2019	Replacement	Yes	Capital	Moderate	\$305,712
RSI recommends the installation of a new twenty (20) year design life roof system. We further recommend the replacement of all perimeter coping cap and projection details per SMACNA Architectural Sheet Metal Manual.					
					<b>\$307,212</b>

**Roof Name:** B**Roof Size:** 3,936 sq. ft.**Est. replacement Cost:** \$ 59,040.00**Existing System Type:** (EPDM) Ethylene-Propylene-Diene-Monomer Roofing**Year Installed:** 2016**Assessed Service Life Remaining (Years) :** 19**Height:** 12 Ft.**Slope:** 1/2" per ft.**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** No**History of Leaking?** Yes**Drainage and Leak Details:** The B roof areas slope toward the valleys on the shingle roof areas with primary roof drains located at the ends of the roofs.

No active leaks were reported on this roof section at the time of inspection.



## Existing Roof System Construction

Layer Type	Description	Method Of Attachment
Deck	OSB Board	Nailed
Insulation	Unknown	Mechanically Fastened
Membrane	EPDM	Cold Adhesive

## Overall Core Condition

Due to the recent application of the roof system, no core samples were taken on this roof section. Under views of the structure revealed an OSB plywood decking. There are unknown insulation layers and the membrane is a fully-adhered, .060 mil EPDM.



## Overall Roof Inspection Assessments

Date	Inspection Type	Inspecting Company	Inspector
Mar 09, 2017	Phase 1 Roof Inspection	Roofing Solutions, Inc.	Garry Hendrickson

Roof Section B refers to the EPDM valley roofs at the Two Springs Elementary School. The roof system is a recently installed, fully-adhered, .060 mil. EPDM. The roof section includes the B-1 thru B-5 roof areas. The B-1 thru B-4 areas were replaced. The B-5 roof area has the original EPDM membrane still in place. The EPDM membrane extends under the shingles on the sides of the areas. The drainage ends of the roofs have the EPDM membrane adhered to the valley metal on the shingle roof areas.

Overall, the roof system is in very good working condition with no defects observed at the time of the inspection. With routine maintenance and regular inspection, the roof system should remain effective for the duration of its assessed service life. RSI recommends the B-5 roof area be partially removed and replaced with a new twenty (20) year design life roof system in 2019, in conjunction with the Roof Section A roof replacement. 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	No Action	No	N/A	N/A	\$0

No action is recommended at this time.

2019	Partial Tear-Off	Yes	Capital	Moderate	\$2,025
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RSI recommends a partial tear-off of the B-5 roof system, leaving the existing insulation in place, and installation of a new twenty (20) year design life roof system. We further recommend installation of new perimeter metal and projection details per SMACNA Architectural Sheet Metal Manual. Roof Area B-5 measures approximately 135 square feet.

**\$2,025**

Photos and Deficiencies



Defect Code:	6	Quantity:	Random	Priority:	Monitor
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.					



Defect Code:	23	Quantity:	Random	Priority:	Monitor
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.					



Defect Code:	23	Quantity:	Widespread	Priority:	Monitor
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.					



Defect Code:	23	Quantity:	Numerous	Priority:	Monitor
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.					

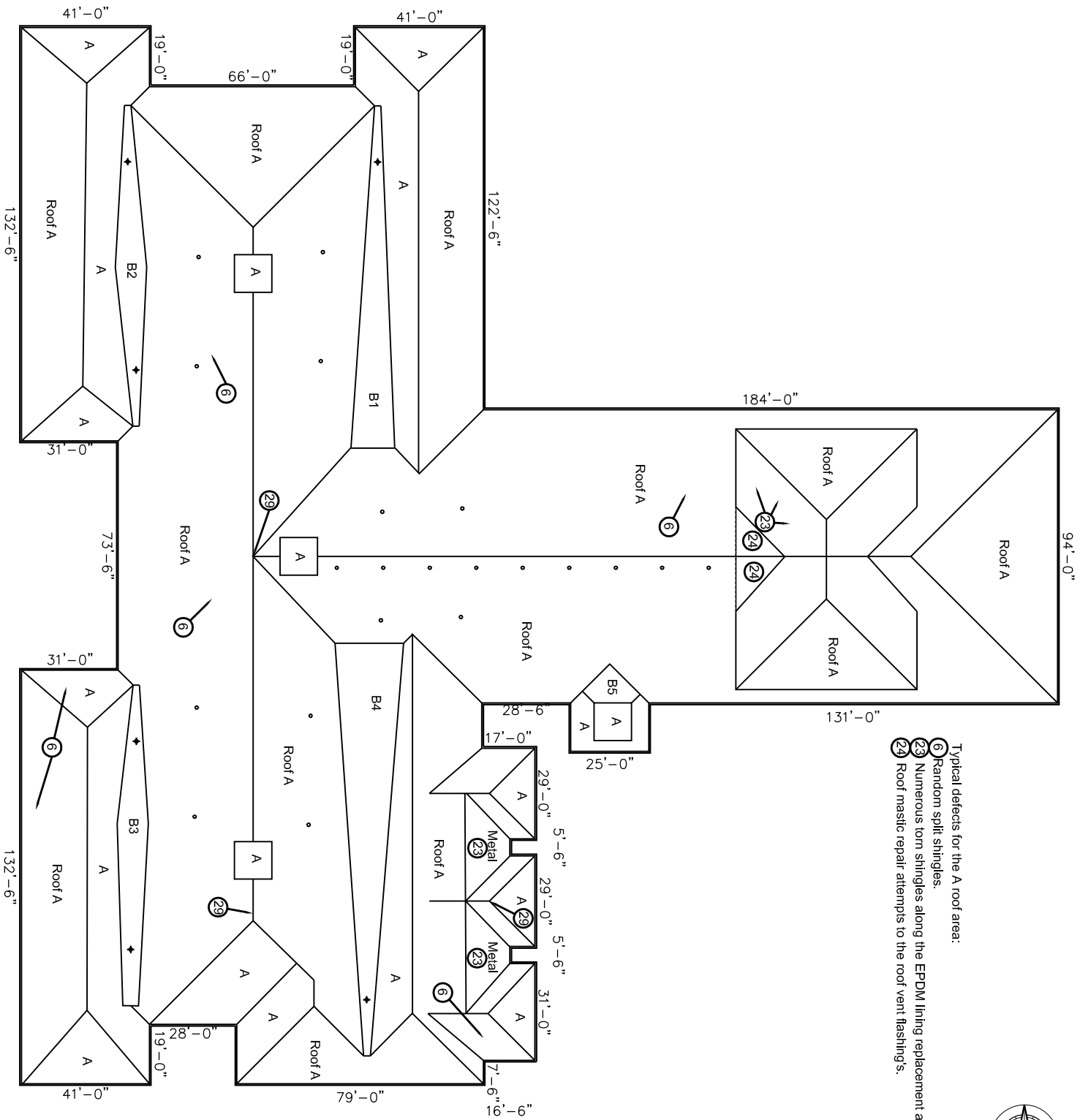
Photos and Deficiencies



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



Defect Code:	29	Quantity:	Random	Priority:	Monitor
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.					



- Typical defects for the A roof area:
- ⑥ Random split shingles.
  - ②③ Numerous torn shingles along the EPDM lining replacement areas.
  - ②④ Roof mastic repair attempts to the roof vent flashings.



**Roofing Solutions, Inc.**  
 6728 W. 153rd Street  
 Overland Park, KS 66223  
 Office: (913)-897-1840  
 Fax: (913)-897-1499  
 RSI@roofingsolutionsinc.com

**Project Name:**  
**Two Springs Elementary**

**Project Address:**  
**3001 Springs Boulevard  
 Bellevue, NE 68123**

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

**Date:**  
**03/09/2017**

**Drawn By:**  
 GH

**Project Number:**  
 00-000000

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

- DRAWING LEGEND**
- ⊕ DRAIN
  - ⊖ OVERFLOW
  - ⊙ SCUPPER
  - ⊞ HVAC UNIT
  - ⊞ CURB
  - ⊞ SATELLITE
  - ⊞ PITCH PAN
  - PIPE
  - FLUE
  - SLEEPER
  - SKYLIGHT
  - ⊞ EXHAUST FAN
  - ⊞ CONDENSER ON SLEEPERS
  - ⊞ DEFECT NOTE
  - ⊞ CONSTRUCTION NOTE
- N.L.C. NOT IN CONTRACT  
 UNL. UNLESS NOTED OTHERWISE

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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.



Two Springs Elementary\_Bellevue, NE  
Ph 1 Roof Inspection\_Roof A\_2017-03-09



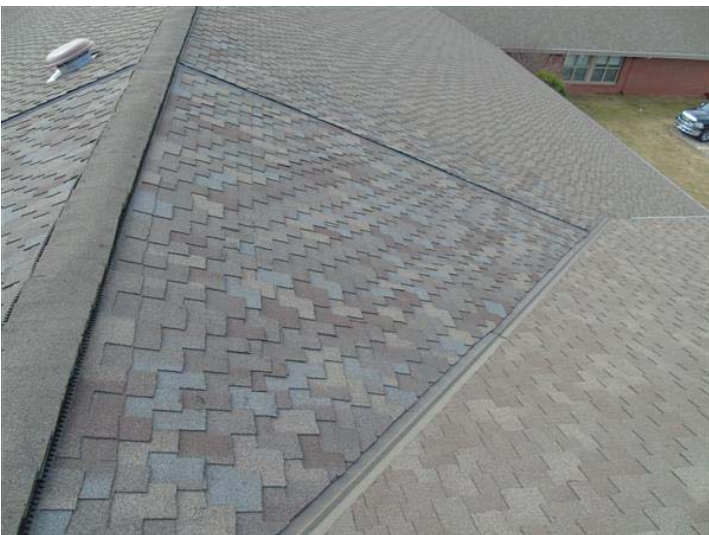


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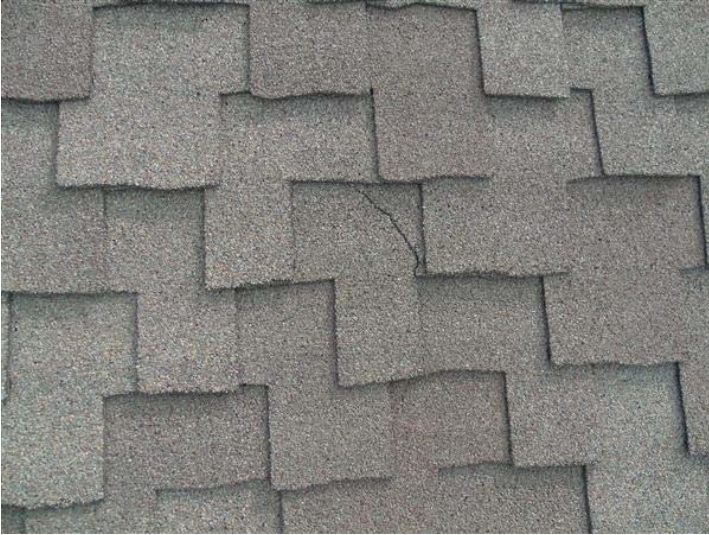


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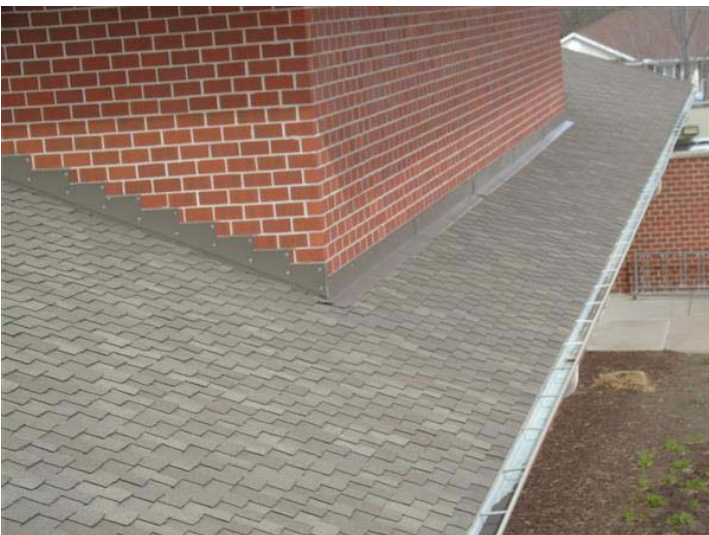


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Ph 1 Roof Inspection\_Roof A\_2017-03-09





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