

# 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

Fort Crook Elementary  
12501 S. 25<sup>th</sup> Street  
Bellevue, NE 68123

**Facility:** Fort Crook Elementary  
12501 S. 25th Street  
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 A A 2004	23,546 sq. ft. 28 ft.	Built-Up Asphalt Roofing	Good 70 7(Yrs)	\$282,552.00
	Roof B B 2004	11,922 sq. ft. 28 ft.	(EPDM) Ethylene-Propyl ene-Diene-Mon omer Roofing	Good 70 7(Yrs)	\$143,064.00
<b>35,468</b>					<b>\$425,616.00</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	\$750
Roof B	2017	Repair	Yes	Expense	High	\$3,500
<b>\$4,250</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	\$750	\$0	\$0	\$0	\$0
Roof B	\$3,500	\$0	\$0	\$0	\$0
	<b>\$4,250</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	\$750	\$0	\$0	\$0	\$0
Roof B	\$3,500	\$0	\$0	\$0	\$0
	<b>\$4,250</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

**Roof Name:** A**Roof Size:** 23,546 sq. ft.**Est. replacement Cost:** \$ 282,552.00**Existing System Type:** Built-Up Asphalt Roofing**Year Installed:** 2004**Assessed Service Life Remaining (Years) :** 7**Height:** 28 Ft.**Slope:** 1/4" per ft.**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** No**History of Leaking?** No**Drainage and Leak Details:** The A roof areas slope to the interior and drain to primary roof drains.

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





## Existing Roof System Construction

Layer Type	Description	Method Of Attachment
Deck	Gypsum	Poured - In - Place
Insulation	Polyisocyanurate	Hot Asphalt
Insulation	Polyisocyanurate	Hot Asphalt
Cover board	Dens-Deck - .25" (1/4")	Hot Asphalt
Membrane	BUR - Multiply	Hot Asphalt
Surfacing	Gravel	Hot Asphalt

## Overall Core Condition

One (1) core sample was taken on the A-1 roof area. The deck is poured in place gypsum decking. The insulation consists of two (2) layers of 1.5" polyisocyanurate insulation board and one (1) layer of .25" Dens-Deck cover board. The membrane is a multiply BUR with a gravel surfacing. An under view of the A-2 roof area revealed an acoustical ceiling panel which is generally used with a steel decking. The A-2 membrane is also a BUR system with a gravel surfacing.

## Core Photos

Photos	Date	Description
	Mar 09, 2017	Deck Underside
	Mar 09, 2017	Roof System Core

## 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 low slope roof system over the main portion of the Fort Crook Elementary School facility. The roof section includes the A-1 roof area, which is over the classrooms, and the A-2 roof area which is a small connector roof between the main school and the gymnasium. The roof is an approximately thirteen (13) year old BUR system with a gravel surfacing. The exterior edges of the roof areas consist of a raised roof edge where the roof membrane terminates with a metal roof edging. The internal walls which divides the A-1 & A-2 roof areas, and the common wall with the B roof areas, are flashed with a BUR type of membrane which extends under a metal counter flashing.

Defects and conditions found during the inspection include the following:

- Deteriorated caulking observed on top of the perimeter wall counter flashing on the B-2 roof area
- Accumulation of debris around the drain strainers
- Minimal flashing height observed on the wall details

Overall, the roof system is in good working condition. 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	\$750

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

**\$750**

**Roof Name:** B**Roof Size:** 11,922 sq. ft.**Est. replacement Cost:** \$ 143,064.00**Existing System Type:** (EPDM) Ethylene-Propylene-Diene-Monomer Roofing**Year Installed:** 2004**Assessed Service Life Remaining (Years) :** 7**Height:** 28 Ft.**Slope:** Steep**Interior Sensitivity:** Normal**Drainage:** Adequate**Currently Leaking?** No**History of Leaking?** No

**Drainage and Leak Details:** The B roof areas are steep sloped, saw tooth designs. The saw tooth design slopes to valley areas where they then slope toward the ends of the valleys to primary roof drains. The drains are set at the overhang edges where the plumbing extends through the perimeter walls.

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



## Existing Roof System Construction


Layer Type	Description	Method Of Attachment
Deck	Metal	Spot Attached
Insulation	Unknown	Mechanically Fastened
Membrane	EPDM	Cold Adhesive
Surfacing	Paint	Brush/Spray Applied



## Overall Core Condition

No core sample was taken on this roof section. An under view of the roof areas revealed an acoustical ceiling panel which is generally used with a steel decking. There are unknown layer(s) of insulation. The membrane is a fully-adhered, Firestone EPDM with a paint surfacing.

## Core Photos

Photos	Date	Description
	Mar 09, 2017	Deck Underside

## 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 steep sloped, saw tooth design roof areas at the Fort Crook Elementary School facility. The roof section includes the B-1 roof area, which is over the front entryway and commons area, and the A-2 roof area, which is over the gymnasium and kitchen area. The roof is an approximately thirteen (13) year old, fully-adhered Firestone EPDM with a painted surface. The saw tooth design slopes to valley areas which slope toward the ends of the valleys and drain to primary roof drains. The drains are set at the overhang edges where the plumbing extends through the perimeter walls. The exterior edges of the roof areas consist of a flat roof edge where the roof membrane terminates with a metal roof edging.

Defects and conditions found during the inspection include the following:

- Surface erosion or inadequate coverage of the painted roof surface observed
- One (1) missing drain strainer observed
- Accumulation of debris observed around the drain strainers
- Rust and corrosion on the exterior sides of the B-1 roof area

Overall, the roof system is in good working condition. 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**

<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	\$3,500
RSI recommends repairs be completed in accordance with the attached deficiency list.					
					<b>\$3,500</b>

Photos and Deficiencies



<b>Defect Code:</b>	<b>1</b>	<b>Quantity:</b>	<b>10 LF</b>	<b>Priority:</b>	<b>First Year</b>
Description: Deteriorated or missing sealant at counterflashing, termination bar, sealant lip, metal flashing, expansion joint, etc.					
Repair: Clean loose sealant and dirt from all surfaces. Apply new polyurethane sealant and tool to shed water.					



<b>Defect Code:</b>	<b>22</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>First Year</b>
Description: Debris, trash, construction materials, HVAC equipment, filters, motors, etc. on roof surface.					
Repair: Remove all trash and debris from roof. Clean and inspect surfaces and repair any damages to the membrane or flashings.					



<b>Defect Code:</b>	<b>40</b>	<b>Quantity:</b>	<b>Widespread</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Low flashing height.					
Repair: Raise flashing height to a minimum of 8" above finished roof surface. Provide appropriate termination of flashings with metal copings or counterflashings. Provide a compression bar termination of flashings to concrete or block surface if flashings cannot be maintained at 8" minimum height.					

Photos and Deficiencies



<b>Defect Code:</b>	<b>8</b>	<b>Quantity:</b>	<b>Widespread</b>	<b>Priority:</b>	<b>Monitor</b>
Description: Surface erosion.					
Repair: Prepare membrane surface by thoroughly cleaning and priming. Apply new surfacing of like materials to eroded areas. On gravel surfaced systems apply gravel in hot asphalt or recommended cold adhesive. Apply granulated fiberglass cap sheet or modified bitumen membrane on like systems. Apply coating system on smooth asphalt surfaces. Transition surfacing to provide for a smooth and neat finished appearance to match the existing surfacing.					



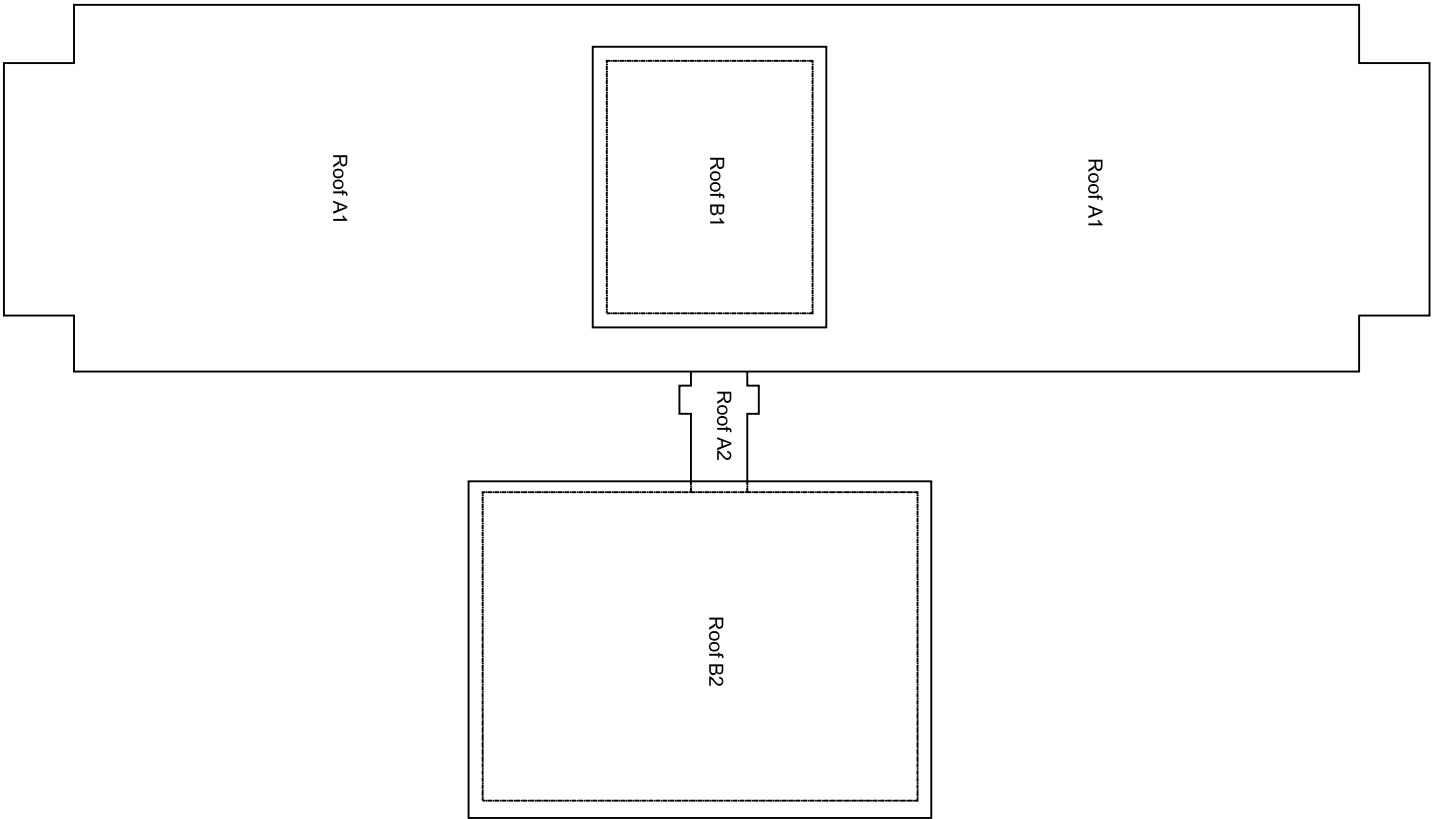
<b>Defect Code:</b>	<b>17</b>	<b>Quantity:</b>	<b>1</b>	<b>Priority:</b>	<b>First Year</b>
Description: Missing or damaged drain/scupper strainer					
Repair: Replace damaged or missing strainer with a new cast iron strainer sized to fit the drain assembly or scupper opening. Lock in place to prevent loss.					



<b>Defect Code:</b>	<b>22</b>	<b>Quantity:</b>	<b>Random</b>	<b>Priority:</b>	<b>First Year</b>
Description: Debris, trash, construction materials, HVAC equipment, filters, motors, etc. on roof surface.					
Repair: Remove all trash and debris from roof. Clean and inspect surfaces and repair any damages to the membrane or flashings.					



<b>Defect Code:</b>	<b>86</b>	<b>Quantity:</b>	<b>300 SF</b>	<b>Priority:</b>	<b>First Year</b>
Description: Corrosion or rust					
Repair: Remove rusted components and replace with similar metal fabricated and installed per SMACNA requirements.					



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Project Name:

**Fort Cook Elementary**

Project Address:

**12501 S. 25th. Street  
 Bellevue, NE 68123**

Sheet Number:  
**01 of 01**

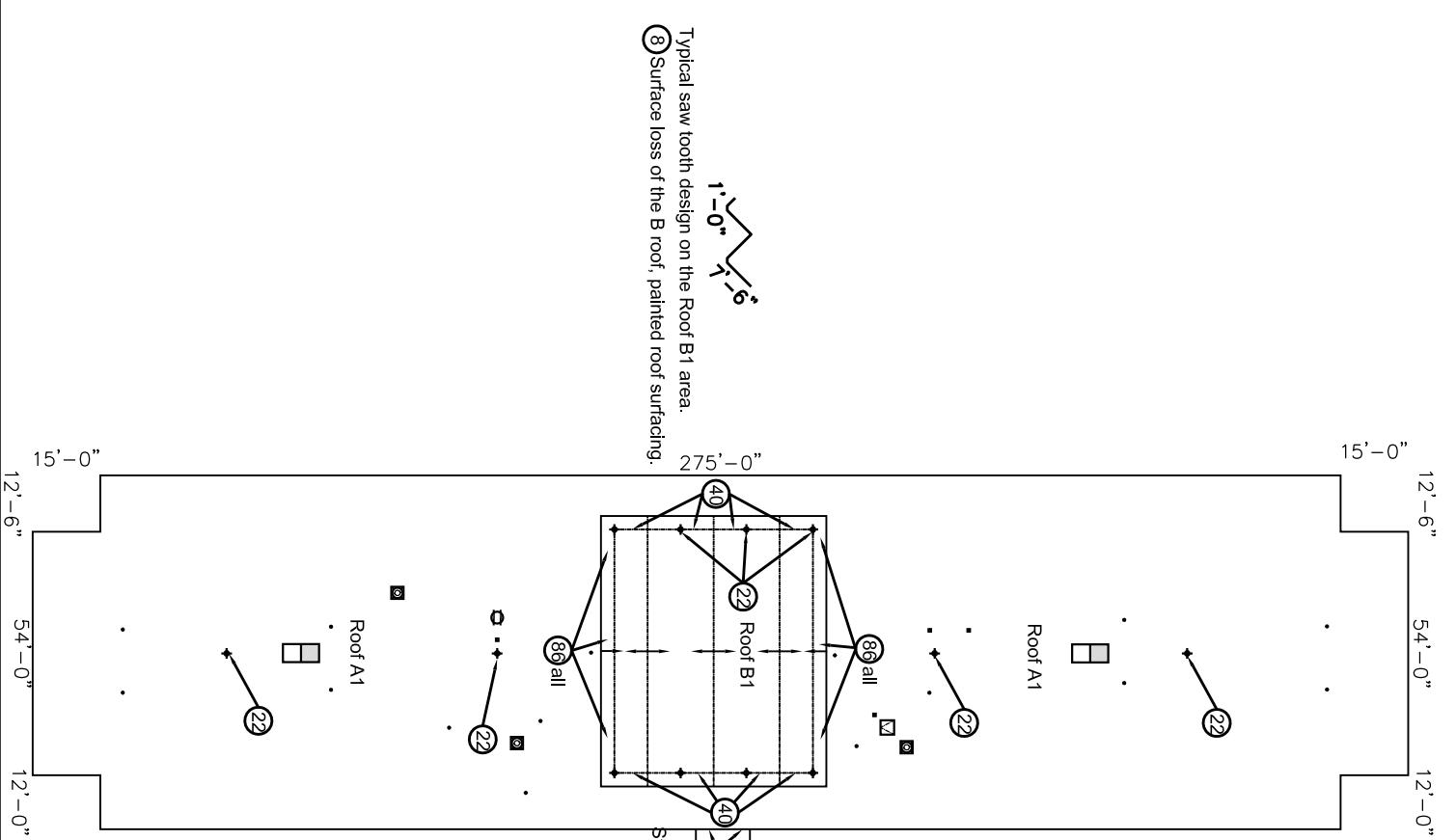
Date:  
**03/09/2017**

Drawn By:  
 GH

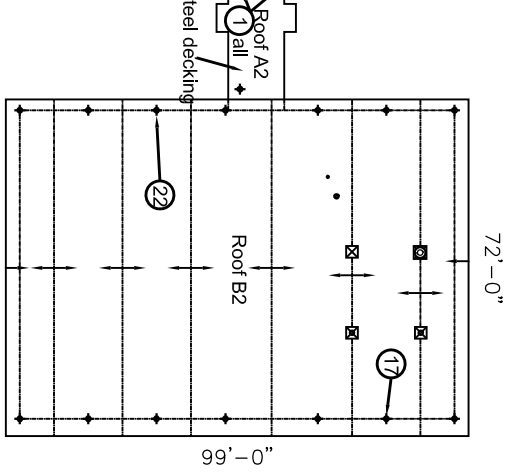
Project Number:  
**00-000000**

Sheet Title:  
**Site Plan**

- DRAWING LEGEND**
- DRAIN
  - ⊕ OVERFLOW
  - ⊖ SCUPPER
  - HVAC UNIT
  - ⊗ CURB
  - ⊙ SATELLITE
  - ⊙ FLUE
  - PIPE
  - SLEEPER
  - SKYLIGHT
  - ⊖ EXHAUST FAN
  - ⊖ CONDENSER ON SLEEPERS
  - ⊖ DEFECT NOTE
  - ⑨ CONSTRUCTION NOTE
- N.L.C. NOT IN CONTRACT  
 U.N.O. UNLESS NOTED OTHERWISE



Typical saw tooth design on the Roof B1 area.  
 (8) Surface loss of the B roof, painted roof surfacing.



Typical saw tooth design on the Roof B2 area.  
 (8) Surface loss of the B roof, painted roof surfacing.

- DRAWING LEGEND**
- ⊕ DRAIN
  - ⊖ OVERFLOW
  - ⊙ SCUPPER
  - ⊞ HVAC UNIT
  - ⊞ CURB
  - ⊞ SATELLITE
  - ⊞ PITCH PAN
  - FLUE
  - PIPE
  - SLEEPER
  - SKYLIGHT
  - ⊞ EXHAUST FAN
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**Fort Crook Elementary**

**Project Address:**  
**12501 S. 25th. Street  
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**Project Number:** 00-000000    **Sheet Title:** A&B-Roof Plan



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**Sheet Number:** 01 of 01    **Date:** 03/09/2017    **Drawn By:** GH

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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.



Fort Crook Elementary\_Bellevue, NE  
Ph 1 Roof Inspection\_Roof A-1\_2017-03-09



Fort Crook Elementary\_Bellevue, NE  
Ph 1 Roof Inspection\_Roof A-1\_2017-03-09



Fort Crook Elementary\_Bellevue, NE  
Ph 1 Roof Inspection\_Roof A-1\_2017-03-09



Fort Crook Elementary\_Bellevue, NE  
Ph 1 Roof Inspection\_Roof A-1\_2017-03-09





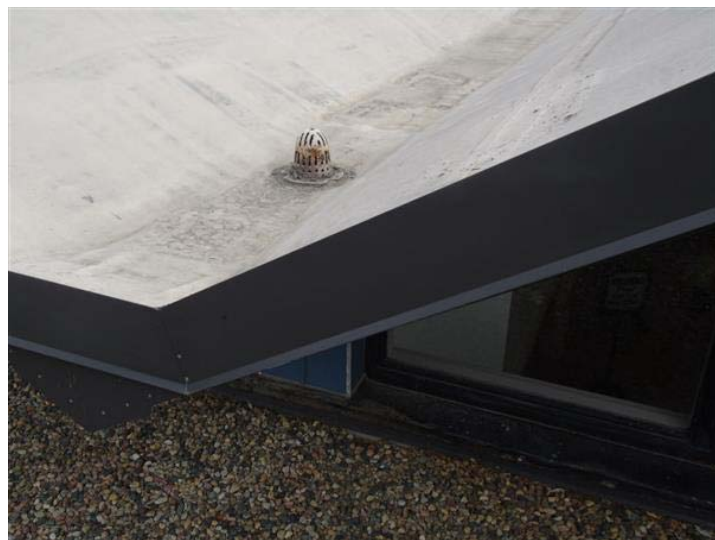
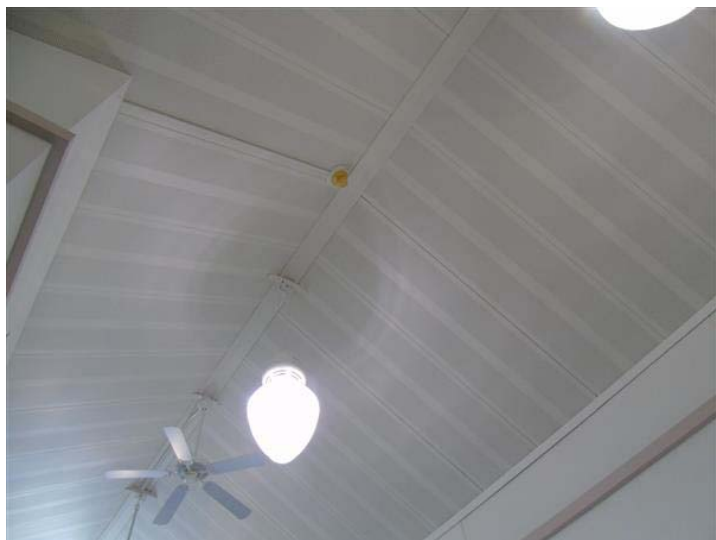
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Fort Crook Elementary\_Bellevue, NE  
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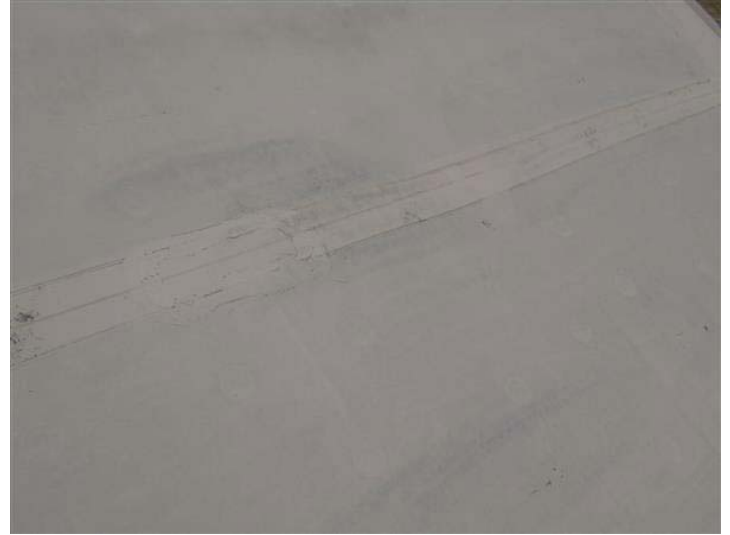


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Ph 1 Roof Inspection\_Roof B-1\_2017-03-09





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Fort Crook Elementary\_Bellevue, NE  
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