

Roof Inspection Report

Prepared for:

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

Prepared by:

Roofing Solutions, Inc.
6728 W. 153rd Street
Overland Park, KS 66223



Project Location

Lewis & Clark Middle School
13502 S. 38th Street
Bellevue, NE 68123

Facility: Lewis & Clark Middle School
13502 S. 38th Street
Bellevue
Nebraska
68123
U.S.A.



Contact Name: Greg Boettger

Contact Telephone: (402) 293-5066 Ext:



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 2006	41,928 sq. ft. 28 ft.	Built-Up Asphalt Roofing	Good 75 9(Yrs)	\$335,424.00
	Roof B B 2006	84,983 sq. ft. 12 ft.	Asphalt Shingles	Fair 55 7(Yrs)	\$424,915.00
126,911					\$760,339.00
*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	\$2,000
Roof B	2017	Repair	Yes	Expense	Moderate	\$1,500
\$3,500						

Expense Budgets - 5 Years

Section ID	2017	2018	2019	2020	2021
Roof A	\$2,000	\$0	\$0	\$0	\$0
Roof B	\$1,500	\$0	\$0	\$0	\$0
	\$3,500	\$0	\$0	\$0	\$0

Total Budgets - 5 Years

Section ID	2017	2018	2019	2020	2021
Roof A	\$2,000	\$0	\$0	\$0	\$0
Roof B	\$1,500	\$0	\$0	\$0	\$0
	\$3,500	\$0	\$0	\$0	\$0

Roof Name: A**Roof Size:** 41,928 sq. ft.**Est. replacement Cost:** \$ 335,424.00**Existing System Type:** Built-Up Asphalt Roofing**Year Installed:** 2006**Assessed Service Life Remaining (Years) :** 9**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 toward the perimeter sides and drain to primary roof drains. Each of the drains is accompanied by an overflow drain.

No active or past 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	Polyisocyanurate	Laid - In -Place
Insulation	Polyisocyanurate	Mechanically Fastened
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-3 roof area. The deck is a factory primed steel decking. The insulation consist of two (2) layers of 1.5" polyisocyanurate insulation board and one (1) layer of 1/4" Dens-Deck cover board. The membrane is a multiply BUR with a gravel surface. Under views of the A-1 & A-2 roof areas revealed an intricate acoustical ceiling panel with a steel decking. All of the A roof areas appear to be the same age and roof system type.

Core Photos

Photos	Date	Description
	Mar 28, 2017	Deck Underside
	Mar 28, 2017	Roof Construction
	Mar 28, 2017	Roof System Core

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 low slope roof system over the Lewis & Clark Middle School building. The roof is an approximately eleven (11) year old BUR with a gravel surface. Roof Section A includes the A-1 roof area which is over the locker rooms, the A-2 roof area which is over the gymnasium, the A-3 roof area which is over the cafeteria and the A-4 & A-5 which refer to the low slope roof areas around the large skylights set within the steep sloped roof areas. The exterior perimeter sides of the roof area consist of a wall detail. The walls are covered with a BUR type of membrane flashing which has been coated with an aluminum paint and the walls are topped with a prefinished metal coping cap. The interior walls are flashed up 12" with the same type of BUR flashing which extends under a metal counter flashing. The counter flashing is set below the brick wall facing which covers the remainder of the wall height. The common sides with the shingle roof areas have the membrane flashing extending under the metal roof edging for the shingle roof areas or under the shingles at the A-4 & A-5 roof areas. The skylight curbs are flashed in the same manner as the walls where the membrane flashing extends under a metal flashing.

Defects and conditions found during the inspection include the following:

- Split caulking observed on the end of the coping cap where it meets the higher wall
- Metal flashings and general debris have been left on the roof areas
- Random areas with previous roof mastic repair attempts observed to the BUR system
- Open BUR flashing laps observed
- Split flashing seals observed around the pitch pocket details
- Split pitch pocket filler
- The exposed duct covering is deteriorated
- Two (2) loose wall panels observed on the mechanical enclosure walls

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	\$2,000

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

**Please Note: Costs associated with repairs and/or replacement of HVAC units or equipment/ductwork are not included in this budget estimate.*

\$2,000

Roof Name: B**Roof Size:** 84,983 sq. ft.**Est. replacement Cost:** \$ 424,915.00**Existing System Type:** Asphalt Shingles**Year Installed:** 2006**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 B slopes to the eave edges and drains to an external guttering with downspouts which drain into an underground plumbing system.

Past leak issues were reported along the rake edges that are common with the A-1 & A-3 roof areas. Leak repairs have been performed, however, several small leaks were reported to persist at these areas.





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 one (1) layer ice & water shield underlayment and the membrane is a laminated asphalt 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	Ph 1 Roof Inspection	Roofing Solutions, Inc.	Garry Hendrickson

Roof Section B refers to the steep sloped shingle roof system at the Lewis & Clark Middle School building. The roof system is an eleven (11) 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 and the roof system has eave vents in the soffits with a vented ridge detail. There are also raised roof areas with louvers on the ends of the structures.

Defects and conditions found during the inspection include the following:

- Random areas with split shingles observed
- Roof mastic repair attempts observed to the shingles with
- Random coating repairs observed to shingles and valley areas
- Random broken or torn shingles observed
- Random areas where the shingles do not appear to have been properly offset
- Missing starter rows of shingles on the dormer roof areas
- Missing metal shingle flashings along the rake edges of the dormer roof areas
- The fan curbs have narrow metal flanges with no additional metal flashings
- Random poor pipe penetration flashing details
- Open gutter laps observed and a section of damaged guttering observed on a canopy roof area

Overall, the roof system is in fair working condition due to the above referenced defects. With leak repairs made as needed, along with 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	Moderate	\$1,500

RSI recommends repairs be performed only as needed for leak repairs.

\$1,500

Photos and Deficiencies



Defect Code:	1	Quantity:	Under 10 LF	Priority:	First Year
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.					



Defect Code:	22	Quantity:	Random	Priority:	First Year
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.					



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:	45	Quantity:	Under 10 LF	Priority:	First Year
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 minimum 6" wide membrane on single ply systems or 6" wide fabric and mastic three-course application on asphalt systems. Regranulate or coat flashing repairs.					

Photos and Deficiencies



Defect Code:	46	Quantity:	Under 10 LF	Priority:	First Year
Description: Split in flashing					
Repair: Cut away loose flashing and clean and prime repair area. Apply strip in of like material centered over split extending a minimum of 4" in all directions past prepared area.					



Defect Code:	55	Quantity:	2	Priority:	First Year
Description: Deteriorated or shrunken pitch pan filler.					
Repair: Clean pocket and penetrations of all dirt, insulation, and other materials and debris. Install manufacturer's recommended sealant in prepared pitch pan.					



Defect Code:	87	Quantity:	Widespread	Priority:	Monitor
Description: Mechanical defect					
Repair: Repair mechanical defect. Replace or reinstall missing access doors and panels. Reseal rooftop unit, pans, ducts, curbs, etc.					



Defect Code:	88	Quantity:	2	Priority:	First Year
Description: Skylight defect/cracked/deteriorated					
Repair: Remove and replace affected components.					

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:	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.					



Defect Code:	58	Quantity:	Random	Priority:	Monitor
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.					

Photos and Deficiencies



Defect Code:	58	Quantity:	Widespread	Priority:	Monitor
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.					



Defect Code:	58	Quantity:	Widespread	Priority:	Monitor
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.					



Defect Code:	58	Quantity:	7	Priority:	Monitor
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.					

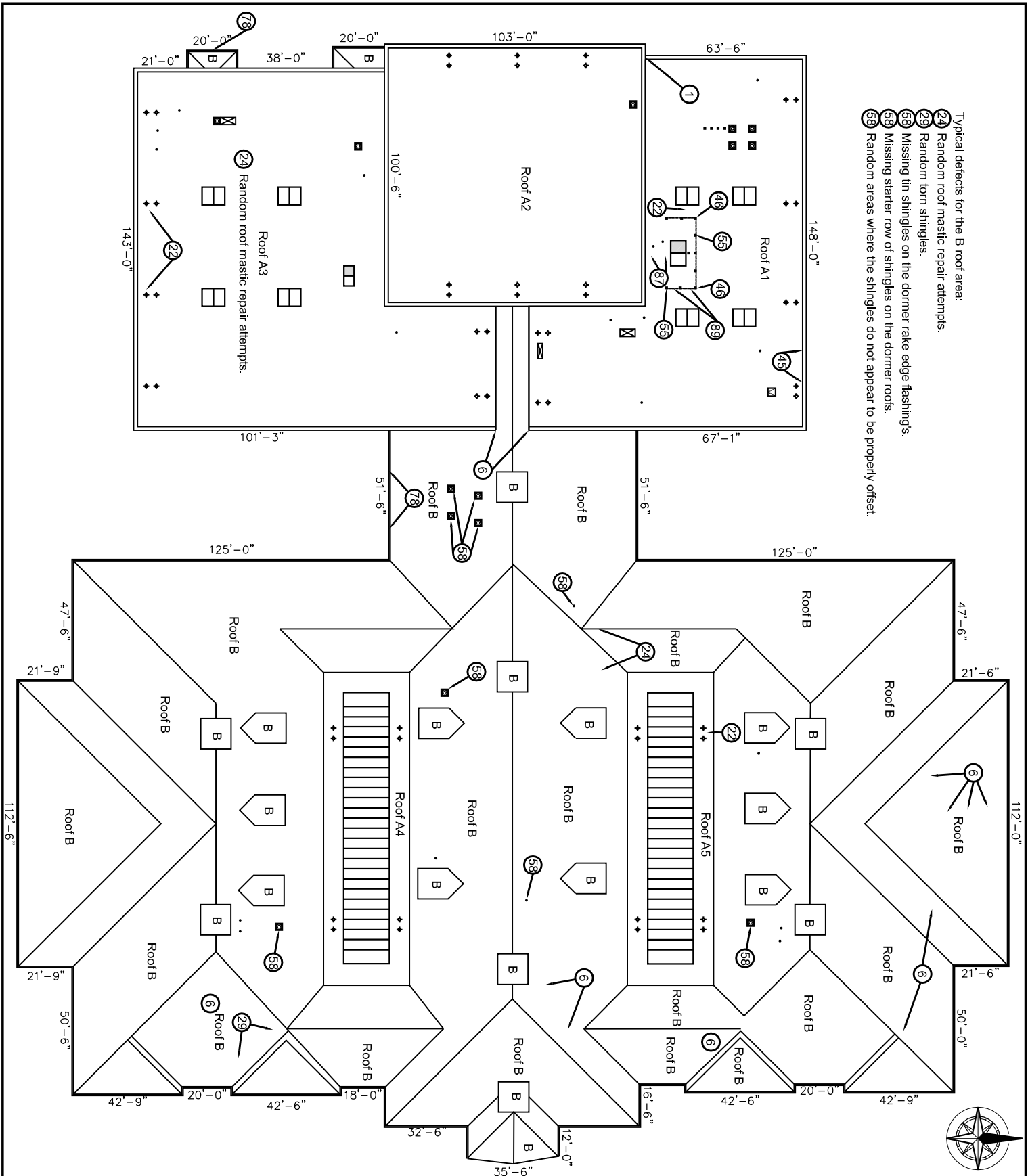


Defect Code:	58	Quantity:	2	Priority:	Monitor
Description: Inadequate, incomplete, nonconforming membrane flashings or flashing details.					
Repair: Complete membrane flashing repairs in accordance with NRCA recommendations and good roofing practices. Follow manufacturer requirements on warranted systems.					

Photos and Deficiencies



Defect Code:	78	Quantity:	Random	Priority:	Monitor
Description: Leaking or damaged gutters/downspouts.					
Repair: Replace damaged gutter and downspout sections with same gauge and style to match existing. Repair minor leaks with solder or high grade sealant.					



- Typical defects for the B roof area:
- 24 Random roof mastic repair attempts.
 - 29 Random torn shingles.
 - 58 Missing tin shingles on the dormer rake edge flashings.
 - 59 Missing starter row of shingles on the dormer roofs.
 - 59 Random areas where the shingles do not appear to be properly offset.

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

Project Name:
Lewis & Clark Middle School

Project Address:
**13502 S. 38th Street
 Bellevue, NE 68123**

Sheet Number: 01 of 01
Date: 03/28/2017
Drawn By: GH

Project Number: 17-7642
Sheet Title: A&B-Roof Plan

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

 Deficiency Legend

Defect #	FIELD MEMBRANE AND ROOF SURFACE
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.
	METALWORK AND MISCELLANEOUS
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.

Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-1_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-1_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-1_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-1_2017-03-28





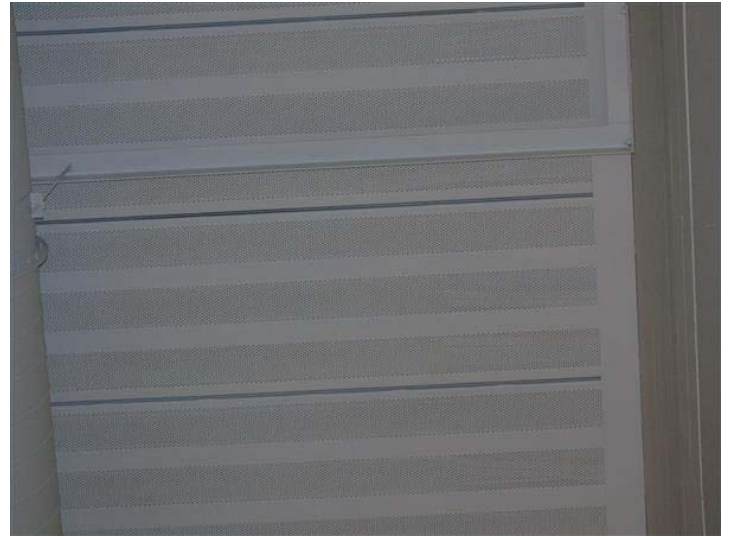
Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-1_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-2_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-2_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-3_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-3_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-3_2017-03-28





Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-4_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-4_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-5_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof A-5_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



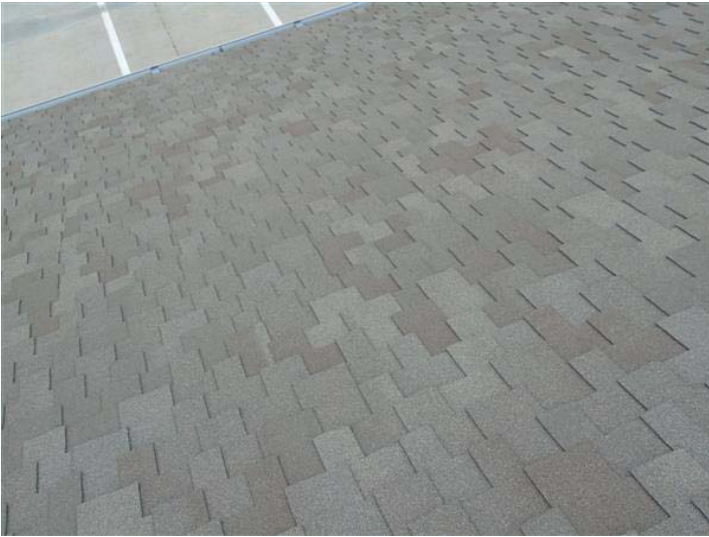
Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



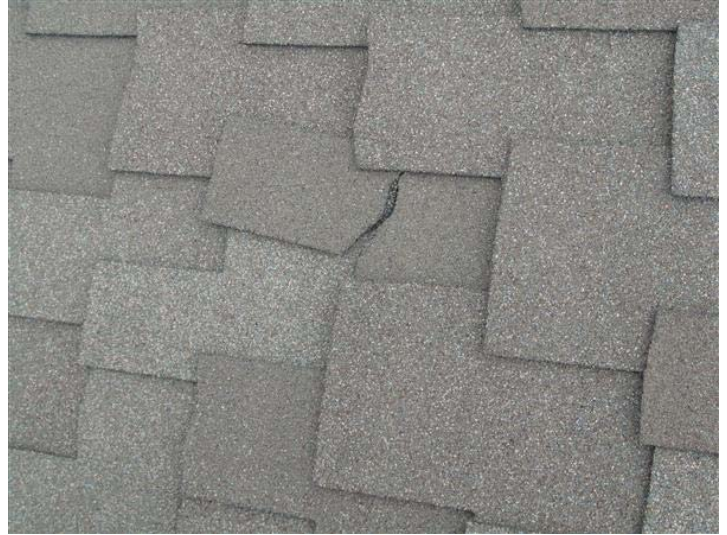
Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



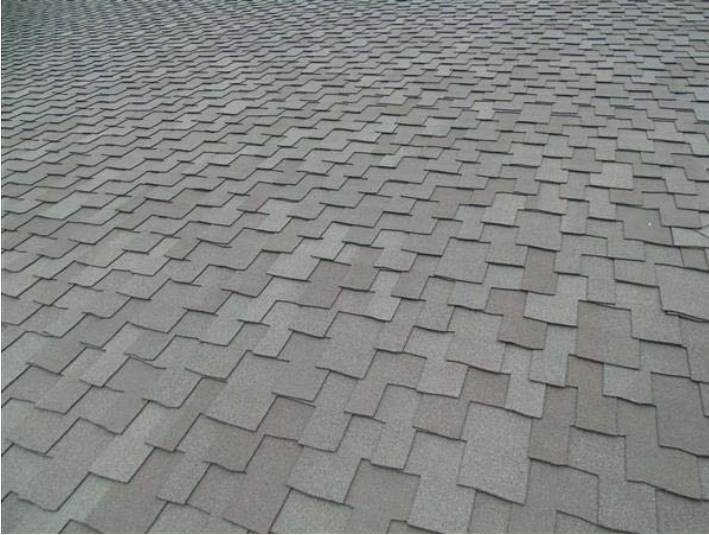
Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



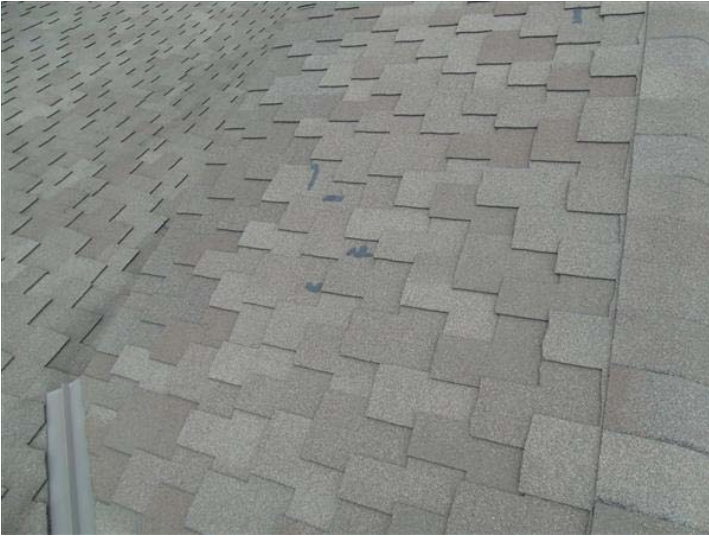
Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28



Lewis & Clark Middle School_Bellevue, NE
Ph 1 Roof Inspection_Roof B_2017-03-28

