	<b>Whiteriver Unified School District, #20</b> Amendment #1		PO Box 190 959 S Chief Avenue Whiteriver, AZ 86303 (928) 358-5800
	IFB: 16-07-16 PROJECT: Roofing Project- Cradleboard Elementary School	Page 1 of 1	

July 27, 2016

The following information is provided to all interested parties.

1. Vendors are reminded that the non-mandatory pre-submittal conference is at Cradleboard Elementary on Tuesday, August 2, 2016 at 10:00 am. You are encouraged to bring your Mechanical, Electrical, and Plumbing subcontractor to the meeting.

2. The attached pdf file contains the 34 pages of the Cradleboard Roofing Assessment from Wrecorp.



Cradleboard  
Assessment Report 7-

3. The next pdf file contains the one page structural report from Mark Sturgeon, P.E.



Cradleboard  
Elementary School Str

4. The last pdf file in this Amendment contains the 7 page Asbestos Report from EMC-AZ.



Whiteriver  
Cradleboard Asbestos

5. If you have questions, please use the form provided in the original IFB.
6. Remember to acknowledge this and any other amendment issues during the solicitation process on the forms provided in the original IFB and bid submittal form. All Amendments are posted to the Whiteriver website where the original download occurred.
7. All other terms and conditions remain the same.
8. End of Amendment #1.



Cradleboard Elementary School  
7301 Power Line Rd.  
Whiteriver, AZ 85941

Project: Roof Assessment

Inspection Date: 7/12/2016

Inspector: Jerry Brown, RRO & Bryan Hill, RRO

WRECORP was retained to inspect the roof system at above listed address. This report contains WRECORP's preliminary opinions on the existing conditions found at the time of inspection.

All opinions, conclusions and/or recommendations within this report are subject to change in the event that any additional information is discovered or brought to the attention of WRECORP.

Industry standards use: NRCA (National Roofing Contractors Association), SPFA (Spray Polyurethane Foam Alliance)

### **Summary**

Cradleboard Elementary consist of 3 dome and 4 flat roofs. Dome roofs have a Hypalon single ply roofing system and the flat roofs have sprayed polyurethane foam roof system. All roofs have been recoated sometime in the past.

All roofs are leaking primarily at the tie-in are of the dome to flat roofs. It is reported that the persons unknown have been skateboarding on the roofs causing some irreparable damage. These areas of the roofs will have to be torn out and replaced with new foam and coatings. Aggregate will be added to reduce the amount of damage in the future.

The remainder of the roof surfaces is in poor shape but can be restored with the proper coating system.

The following assessments detail each roof section.

### **Limitations on Consultant's Responsibility, Indemnity & Insurance**

*Client acknowledges that Consultant is performing professional service on behalf of Client and in the event claims, losses, damages or expenses are caused by the negligence of Contractor or Client or both, Client agrees to indemnify and hold harmless Consultant, and Consultant's officers, employees, agents and representatives, from and against liability for all Professional Liability claims, losses, damages and expenses whether or not insured, including reasonable attorney's fees.*

<b>Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 1997		<b>Roof Section #:</b> 1	<b>Date of Inspection:</b> 7/12/2016
<b>Roofing System Type:</b> Single Ply		<b>Drainage Adequate:</b> Yes	
<b>Deck Type:</b> Gunitite		<b>Currently Leaking:</b> Yes	
<b>Manufacturer:</b> Unknown		<b>History of Leaks:</b> Yes	
<b>Year Last Roof Installed:</b> 1997		<b># of Drains:</b> None	
<b>Current Design Life (years):</b> 15		<b>Size of Drains:</b> None	
<b>Life Remaining (years):</b> 1 to 2		<b># of Scuppers:</b> None	
<b>Building was Built (year):</b> 1997		<b>Size of Scuppers:</b> None	
<b>Roof Access:</b> Ground level and roof hatch		<b>Wall Height above Ground:</b> N/A	
<b>Roof Slope:</b> Dome roof varies		<b>Roof Height below wall:</b> N/A	
<b>Core Information:</b>			
<b>System Type</b> (Ex: BUR, Foam Single Ply, Mod Bit.)	<b>Layer Description</b> (Ex: Fiberglass, TPO, APP)	<b>Attachment Method</b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)	
Single Ply	Hypalon	Adhered	
<b>Current Weight of Roof System by Square Foot:</b> 0.5 pounds			
<b>Roof Condition Index 0 to 100:</b> 50 - Poor			
<b><u>Recommended Corrective Action:</u></b>			
<b>Year</b> 2016	<b>Activity (Maintenance / Replace/ Recoat)</b> Restoration with recoating		<b>Urgency</b> Moderate
<b>Recommended Roof Replacement -</b> New system type: N/A		<b>Restoration or Repair Description:</b> Clean roof system, removing loose coatings. Repair damages and coat with organic epoxy resin and acrylic coatings.	
<b>Cost: \$</b> N/A	<b>Year:</b> N/A	<b>Cost: \$</b>	<b>Year:</b> 2016

**Access & Staging Issues:** **Good access at the north west section of building**

**Working Hours:** **Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.**

**Working Days:** **7 days a week**

**Other Trades Needed for Project**

**Mechanical:** **No**

**Electrical:** **No**

**Plumbing:** **No**

**Communication:** **No**

**Solar:** **No**

**General Contractor:** **No**

**Current Warranties**

**Manufacturer:** **None**

**Years:**

**Type:**

**Expires:**

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**Contractor:** **None**

**Years:**

<b>2</b> <u>Facility Name/Number &amp; Year Built:</u> Cradleboard Elementary / 1997		<u>Roof Section #:</u> 2	<u>Date of Inspection:</u> 7/12/2016
Roofing System Type: <b>Single Ply</b>		Drainage Adequate: <b>Yes</b>	
Deck Type: <b>Gunite</b>		Currently Leaking: <b>Yes</b>	
Manufacturer: <b>Unknown</b>		History of Leaks: <b>Yes</b>	
Year Last Roof Installed: <b>1997</b>		# of Drains: <b>None</b>	
Current Design Life (years): <b>15</b>		Size of Drains: <b>None</b>	
Life Remaining (years): <b>1 to 2</b>		# of Scuppers: <b>None</b>	
Building was Built (year): <b>1997</b>		Size of Scuppers: <b>None</b>	
Roof Access: <b>Ground level and roof hatch</b>		Wall Height above Ground: <b>N/A</b>	
Roof Slope: <b>Dome roof varies</b>		Roof Height below wall: <b>N/A</b>	
<b><u>Core Information:</u></b>			
<b><u>System Type</u></b> (Ex: BUR, Foam Single Ply, Mod Bit.)		<b><u>Layer Description</u></b> (Ex: Fiberglass, TPO, APP)	
<b>Single Ply</b>		<b>Hypalon</b>	
		<b><u>Attachment Method</u></b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)	
		<b>Adhered</b>	
Current Weight of Roof System by Square Foot: <b>0.5 pounds</b>			
Roof Condition Index 0 to 100: <b>50 - Poor</b>			
<b><u>Recommended Corrective Action:</u></b>			
Year	Activity (Maintenance / Replace/ Recoat)	Urgency	
<b>2016</b>	<b>Restoration with recoating</b>	<b>Moderate</b>	
<b><u>Recommended Roof Replacement -</u></b> New system type: <b>N/A</b>		<b><u>Restoration or Repair Description:</u></b> <b>Clean roof system, removing loose coatings. Repair damages and coat with organic epoxy resin and acrylic coatings.</b>	
Cost: \$ <b>N/A</b>	Year: <b>N/A</b>	Cost: \$	Year: <b>2016</b>

**Access & Staging Issues:** **Good access at the north west section of building**

**Working Hours:** **Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.**

**Working Days:** **7 days a week**

**Other Trades Needed for Project**

**Mechanical:** **No**

**Electrical:** **No**

**Plumbing:** **No**

**Communication:** **No**

**Solar:** **No**

**General Contractor:** **No**

**Current Warranties**

**Manufacturer:** **None**

**Years:**

**Type:**

**Expires:**

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**Contractor:** **None**

**Years:**

<b>2Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 1997		<b>Roof Section #:</b> 3	<b>Date of Inspection:</b> 7/12/2016
Roofing System Type: <b>Single Ply</b>		Drainage Adequate: <b>Yes</b>	
Deck Type: <b>Gunite</b>		Currently Leaking: <b>Yes</b>	
Manufacturer: <b>Unknown</b>		History of Leaks: <b>Yes</b>	
Year Last Roof Installed: <b>1997</b>		# of Drains: <b>None</b>	
Current Design Life (years): <b>15</b>		Size of Drains: <b>None</b>	
Life Remaining (years): <b>1 to 2</b>		# of Scuppers: <b>None</b>	
Building was Built (year): <b>1997</b>		Size of Scuppers: <b>None</b>	
Roof Access: <b>Ground level and roof hatch</b>		Wall Height above Ground: <b>N/A</b>	
Roof Slope: <b>Dome roof varies</b>		Roof Height below wall: <b>N/A</b>	
<b>Core Information:</b>			
<b>System Type</b> (Ex: BUR, Foam Single Ply, Mod Bit.)		<b>Layer Description</b> (Ex: Fiberglass, TPO, APP)	
<b>Single Ply</b>		<b>Hypalon</b>	
		<b>Attachment Method</b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)	
		<b>Adhered</b>	
Current Weight of Roof System by Square Foot: <b>0.5 pounds</b>			
Roof Condition Index 0 to 100: <b>50 - Poor</b>			
<b>Recommended Corrective Action:</b>			
Year <b>2016</b>	Activity (Maintenance / Replace/ Recoat) <b>Restoration with recoating</b>	Urgency <b>Moderate</b>	
<b>Recommended Roof Replacement -</b> New system type: <b>N/A</b>		<b>Restoration or Repair Description:</b> <b>Clean roof system, removing loose coatings. Repair damages and coat with organic epoxy resin and acrylic coatings.</b>	
Cost: \$ <b>N/A</b>	Year: <b>N/A</b>	Cost: \$	Year: <b>2016</b>

**Access & Staging Issues:** **Good access at the north west section of building**

**Working Hours:** **Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.**

**Working Days:** **7 days a week**

**Other Trades Needed for Project**

**Mechanical:** **No**

**Electrical:** **No**

**Plumbing:** **No**

**Communication:** **No**

**Solar:** **No**

**General Contractor:** **No**

**Current Warranties**

**Manufacturer:** **None**

**Years:**

**Type:**

**Expires:**

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**Contractor:** **None**

**Years:**



<b>Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 1997	<b>Roof Section #:</b> 4	<b>Date of Inspection:</b> 7/12/2016
<b>Roofing System Type:</b> Coated foam	<b>Drainage Adequate:</b> No	
<b>Deck Type:</b> Lightweight concrete over steel	<b>Currently Leaking:</b> Yes	
<b>Manufacturer:</b> Unknown	<b>History of Leaks:</b> Yes	
<b>Year Last Roof Installed:</b> 1997	<b># of Drains:</b> 4 primary & 4 overflow	
<b>Current Design Life (years):</b> 10	<b>Size of Drains:</b> 6"	
<b>Life Remaining (years):</b> 0 to 1	<b># of Scuppers:</b> None	
<b>Building was Built (year):</b> 1997	<b>Size of Scuppers:</b> None	
<b>Roof Access:</b> Roof hatch	<b>Wall Height above Ground:</b> 15' to 16'	
<b>Roof Slope:</b> Average 1/4" per foot	<b>Roof Height below wall:</b> 2' to 3'	

**Core Information:**

<b><u>System Type</u></b> (Ex: BUR, Foam Single Ply, Mod Bit.)	<b><u>Layer Description</u></b> (Ex: Fiberglass, TPO, APP)	<b><u>Attachment Method</u></b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)
Coated Foam	Coatings over foam over styrene board over concrete over metal	Adhered

**Current Weight of Roof System by Square Foot:** 0.75 pounds

**Roof Condition Index 0 to 100:** 25 - Urgent

**Recommended Corrective Action:**

Year	Activity (Maintenance / Replace/ Recoat)	Urgency
2016	Repair & Restoration with Coating	High

**Recommended Roof Replacement -**

**New system type:** N/A

**Restoration or Repair Description:**

Tear out 4' wide at dome to flat roof and adjacent parapet walls at drains. Install new 3 lb. foam. Clean roof system, removing loose coatings. Repair damages and coat entire roof with organic epoxy resin and acrylic coatings.

Cost: \$ <b>N/A</b>	Year: <b>N/A</b>	Cost: \$	Year: <b>2016</b>
<u>Access &amp; Staging Issues:</u> <b>Good access at the north west section of building</b>		<b>Working Hours:</b> <b>Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.</b>	
		<b>Working Days:</b> <b>7 days a week</b>	
<u>Other Trades Needed for Project</u> <b>Mechanical: Yes</b> <b>Electrical: Yes</b> <b>Plumbing: Yes</b> <b>Communication: No</b> <b>Solar: No</b> <b>General Contractor: No</b>		<u>Current Warranties</u> <b>Manufacturer: None</b> <b>Years:</b> <b>Type:</b> <b>Expires:</b> <hr/> <b>Contractor: None</b> <b>Years:</b>	

<b>Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 2002	<b>Roof Section #:</b> 5	<b>Date of Inspection:</b> 7/12/2016
<b>Roofing System Type:</b> Coated foam	<b>Drainage Adequate:</b> Yes	
<b>Deck Type:</b> Metal B-decking	<b>Currently Leaking:</b> Yes	
<b>Manufacturer:</b> Unknown	<b>History of Leaks:</b> Yes	
<b>Year Last Roof Installed:</b> 2002	<b># of Drains:</b> 1 primary & 1 overflow scupper 2" X 8"	
<b>Current Design Life (years):</b> 10	<b>Size of Drains:</b> 6"	
<b>Life Remaining (years):</b> 0 to 1	<b># of Scuppers:</b> 3	
<b>Building was Built (year):</b> 2002	<b>Size of Scuppers:</b> 8" X 8" Primary Scuppers	
<b>Roof Access:</b> Roof hatch	<b>Wall Height above Ground:</b> 15' to 16'	
<b>Roof Slope:</b> Average 1/2" per foot	<b>Roof Height below wall:</b> 2' to 3'	

**Core Information:**

<b><u>System Type</u></b> (Ex: BUR, Foam Single Ply, Mod Bit.)	<b><u>Layer Description</u></b> (Ex: Fiberglass, TPO, APP)	<b><u>Attachment Method</u></b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)
Coated Foam	Coatings over foam over taped flutes of metal deck	Adhered

**Current Weight of Roof System by Square Foot:** 0.75 pounds

**Roof Condition Index 0 to 100:** 50 - Poor

**Recommended Corrective Action:**

Year	Activity (Maintenance / Replace/ Recoat)	Urgency
2016	Repair & Restoration with Coating	High

**Recommended Roof Replacement -**

**New system type:** N/A

**Restoration or Repair Description:**

Tear out 4' wide at dome to flat roof and adjacent parapet walls at drains. Install new 3 lb. foam. Clean roof system, removing loose coatings. Repair damages and coat entire roof with organic epoxy resin and acrylic coatings.

Cost: \$ <b>N/A</b>	Year: <b>N/A</b>	Cost: \$	Year: <b>2016</b>
<u>Access &amp; Staging Issues:</u> <b>Good access at the north west section of building</b>		<b>Working Hours: Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.</b>	
		<b>Working Days: 7 days a week</b>	
<u>Other Trades Needed for Project</u> <b>Mechanical: Yes</b> <b>Electrical: Yes</b> <b>Plumbing: Yes</b> <b>Communication: No</b> <b>Solar: No</b> <b>General Contractor: No</b>		<u>Current Warranties</u> <b>Manufacturer: None</b> <b>Years:</b> <b>Type:</b> <b>Expires:</b> <hr/> <b>Contractor: None</b> <b>Years:</b>	

<b>Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 2002		<b>Roof Section #:</b> 6	<b>Date of Inspection:</b> 7/12/2016
<b>Roofing System Type:</b> Coated foam		<b>Drainage Adequate:</b> Yes	
<b>Deck Type:</b> Metal B-decking		<b>Currently Leaking:</b> Yes	
<b>Manufacturer:</b> Unknown		<b>History of Leaks:</b> Yes	
<b>Year Last Roof Installed:</b> 2002		<b># of Drains:</b> None	
<b>Current Design Life (years):</b> 10		<b>Size of Drains:</b> 6"	
<b>Life Remaining (years):</b> 2		<b># of Scuppers:</b> 2	
<b>Building was Built (year):</b> 2002		<b>Size of Scuppers:</b> 8" X 8" Primary Scuppers	
<b>Roof Access:</b> Roof hatch		<b>Wall Height above Ground:</b> 15' to 16'	
<b>Roof Slope:</b> Average 1/2" per foot		<b>Roof Height below wall:</b> 2' to 3'	
<b>Core Information:</b>			
<b>System Type</b> (Ex: BUR, Foam Single Ply, Mod Bit.)	<b>Layer Description</b> (Ex: Fiberglass, TPO, APP)	<b>Attachment Method</b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)	
Coated Foam	Coatings over foam over taped flutes of metal deck	Adhered	
<b>Current Weight of Roof System by Square Foot:</b> 0.75 pounds			
<b>Roof Condition Index 0 to 100:</b> 50 - Poor			
<b>Recommended Corrective Action:</b>			
<b>Year</b> 2016	<b>Activity (Maintenance / Replace/ Recoat)</b> Repair & Restoration with Coating		<b>Urgency</b> High
<b>Recommended Roof Replacement -</b> New system type: N/A		<b>Restoration or Repair Description:</b> Tear out 4' wide at dome to flat roof and adjacent parapet walls at drains. Install new 3 lb. foam. Clean roof system, removing loose coatings. Repair damages and coat entire roof with organic epoxy resin and acrylic coatings.	

Cost: \$ <b>N/A</b>	Year: <b>N/A</b>	Cost: \$	Year: <b>2016</b>
<u>Access &amp; Staging Issues:</u> <b>Good access at the north west section of building</b>		<b>Working Hours:</b> <b>Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.</b>	
		<b>Working Days:</b> <b>7 days a week</b>	
<u>Other Trades Needed for Project</u> <b>Mechanical: Yes</b> <b>Electrical: Yes</b> <b>Plumbing: Yes</b> <b>Communication: No</b> <b>Solar: No</b> <b>General Contractor: No</b>		<u>Current Warranties</u> <b>Manufacturer: None</b> <b>Years:</b> <b>Type:</b> <b>Expires:</b> <hr/> <b>Contractor: None</b> <b>Years:</b>	

<b>Facility Name/Number &amp; Year Built:</b> Cradleboard Elementary / 2002		<b>Roof Section #:</b> 7	<b>Date of Inspection:</b> 7/12/2016
Roofing System Type: Coated foam		Drainage Adequate: Yes	
Deck Type: Metal B-decking		Currently Leaking: Yes	
Manufacturer: Unknown		History of Leaks: Yes	
Year Last Roof Installed: 2002		# of Drains: 1 primary	
Current Design Life (years): 10		Size of Drains: 6"	
Life Remaining (years): 0 to 1		# of Scuppers: 3	
Building was Built (year): 2002		Size of Scuppers: 8" X 8" Primary Scuppers	
Roof Access: Roof hatch		Wall Height above Ground: 15' to 16'	
Roof Slope: Average 1/2" per foot		Roof Height below wall: 2' to 3'	
<b>Core Information:</b>			
<b>System Type</b> (Ex: BUR, Foam Single Ply, Mod Bit.)	<b>Layer Description</b> (Ex: Fiberglass, TPO, APP)	<b>Attachment Method</b> (Ex: Hot Asphalt, Adhered, Mechanically Attached)	
Coated Foam	Coatings over foam over taped flutes of metal deck	Adhered	
Current Weight of Roof System by Square Foot: 0.75 pounds			
Roof Condition Index 0 to 100: 50 - Poor			
<b>Recommended Corrective Action:</b>			
Year	Activity (Maintenance / Replace/ Recoat)	Urgency	
2016	Repair & Restoration with Coating	High	
<b>Recommended Roof Replacement -</b> New system type: N/A		<b>Restoration or Repair Description:</b> Tear out 4' wide at dome to flat roof and adjacent parapet walls at drains. Install new 3 lb. foam. Clean roof system, removing loose coatings. Repair damages and coat entire roof with organic epoxy resin and acrylic coatings.	
Cost: \$	N/A	Year: N/A	
Cost: \$		Year: 2016	

**Access & Staging Issues:** **Good access at the north west section of building**

**Working Hours:** **Daylight to dark weather permitting for cleaning and coating. Tear off and mechanical work on off school hours.**

**Working Days:** **7 days a week**

**Other Trades Needed for Project**

**Mechanical:** **Yes**

**Electrical:** **Yes**

**Plumbing:** **Yes**

**Communication:** **No**

**Solar:** **No**

**General Contractor:** **No**

**Current Warranties**

**Manufacturer:** **None**

**Years:**

**Type:**

**Expires:**

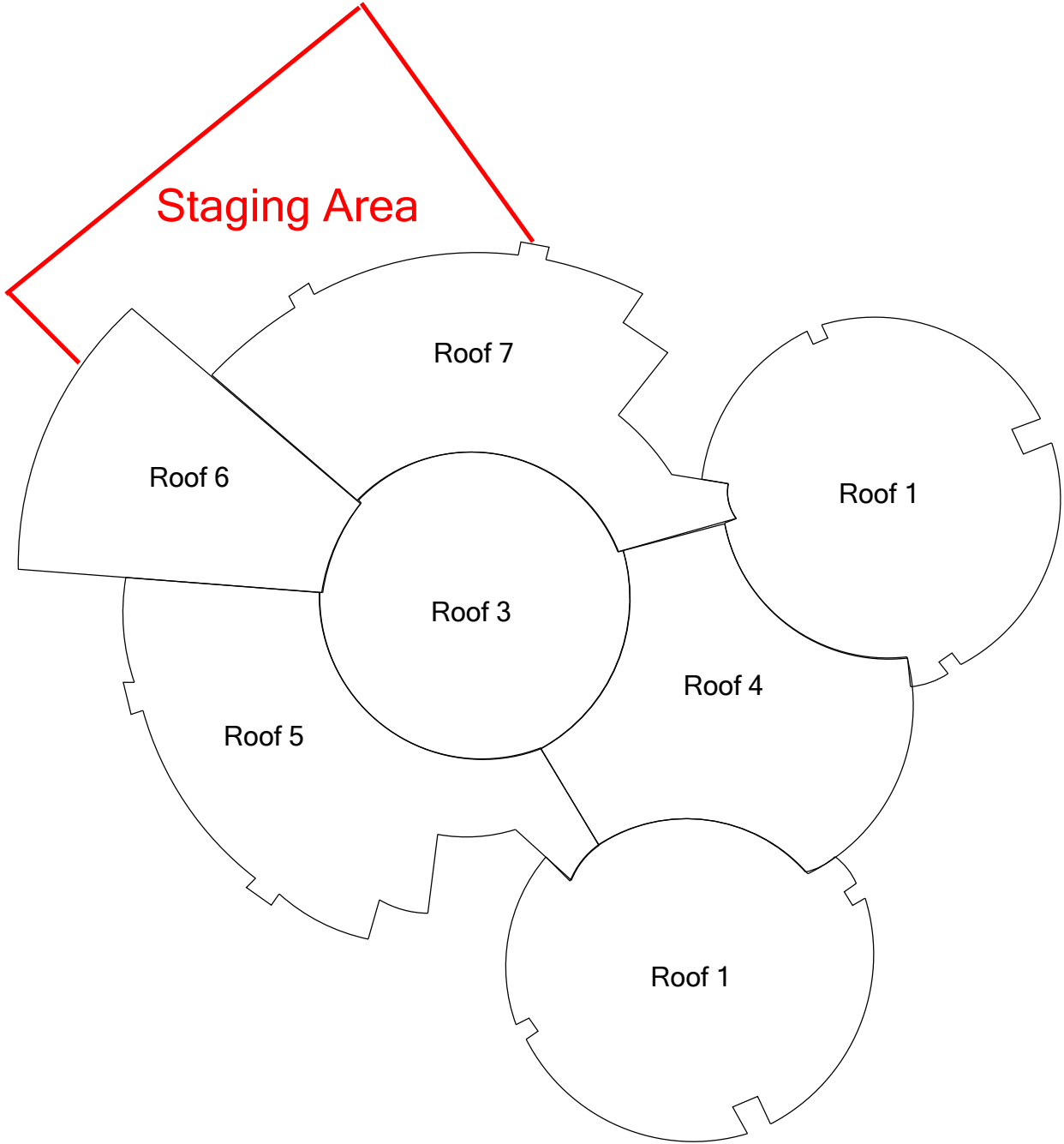
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**Contractor:** **None**

**Years:**



Cradleboard Elementary  
7301 Power Line Rd.  
Whiteriver, AZ 85941





## Photo Album



Photo # 1

Description: Roof #1



Photo # 2

Description: Roof #1



Photo # 3

Description: Roof #2



Photo # 4

Description: Roof #2



Photo # 5

Description: Roof #3. Note the coatings have been peeled off of the roofing system.



Photo # 6

Description: Roof #3



Photo # 7

Description: Roof #4, core sample.



Photo # 8

Description: Roof #4, typical drain set up. Note the distance the overflow drain is and how much higher.



Photo # 9

Description: Roof #4, primary drain is clogged.



Photo # 10

Description: Roof #4, typical coatings peeled off.



Photo # 11

Description: Roof #4, HVAC curb, poor construction detailing.



Photo # 12

Description: Roof #4, typical cluster of pipes, conduit and gas line. None of which are properly supported.



Photo # 13

Description: Roof #4, Typical gas line condition.





Photo # 14

Description: Roof #4, low moisture reading. Anything above 10% is problematic.



Photo # 15

Description: Roof #4, typical high reading.



Photo # 16

Description: Roof #5, core sample.



Photo # 17

Description: Roof #5, typical condition.



Photo # 18

Description: Roof #5, typical condition.



Photo # 19

Description: Roof #5, vegetation growing out of the foam roof.



Photo # 20

Description: Roof #5, vegetation growing out of the foam roof.



Photo # 21

Description: Roof #5, typical result of contractor taping flutes. The foam will not rise as high on tape flutes leaving sunken areas everywhere. This leads to ponding issues and deterioration of the roofing system.



Photo # 22

Description: Roof #5, typical fracturing of the roof system, believed to be caused by skateboarders on the roof.



Photo # 23

Description: Roof #5, recently installed electrical conduit installed incorrectly. Must be a minimum 8" above the roof surface.



Photo # 24

Description: Roof #6, typical view with multiple patches.



Photo # 25

Description: Roof #6, deteriorated damaged area allowing water entry into the building.



Photo # 26

Description: Roof #6, typical damaged foam.



Photo # 27

Description: Roof #6, typical damage.



Photo # 28

Description: Roof #6, typical damage.



Photo # 29

Description: Roof #6, hoods missing off of vents, allowing water into building.





Photo # 30

Description: Roof #6, roof hatch mechanisms broken. New mechanisms needed.



Photo # 31

Description: Roof #7, view of roof.



Photo # 32

Description: Roof #7, typical damage.



Photo # 33

Description: Roof #7, typical fractures that have been repaired multiple time and still failing.



Photo # 34

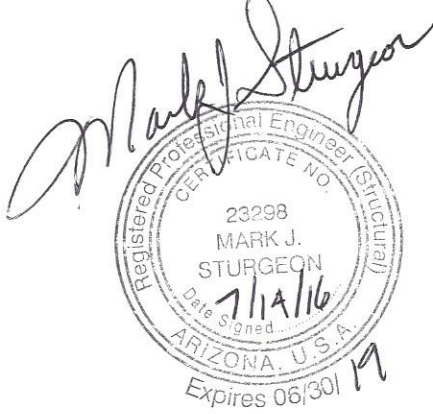
Description: Roof #7, primary drain and overflow scupper.



Photo # 35

Description: Roof #7, typical unsupported gas lines.

Jerry L. Brown, RRO    7/13/16  
Consultant/Inspector    Date



Mark J. Sturgeon P.E.  
Structural Engineering  
4411 W. Magellan Drive  
New River, Arizona 85087

July 13, 2016

Re: Cradleboard Elementary School  
Whiteriver Indian Reservation  
Whiteriver, Arizona

This letter is in regards to the Roof Inspection of the existing buildings located at the above address. The existing buildings include: the domes and the addition along side the dome structures. The roof inspection is performed for the purpose of the existing roof materials to be removed and being replaced with either new identical roof materials or roof materials of equal or less in weight.

Domes : These structures consisted of 6" to 7" c.i.p. concrete dome with #4 or #5 reinforcing. The roofing contractor shall place a roof coating material of negligible weight that will not effect the structures capacity to support the loads.

The addition along side of the domes: This structure consisted of 1 1/2" deep x 22 Ga. B deck over steel joists. The existing roof material shall be removed and replaced with new roofing material of equal or less in weight or patched with a roofing material of equal or less in weight. There may be an additional weight of 1 psf of roofing material to the existing structure.

The existing roof framing for these buildings appeared to be in adequate condition to support the new roofing material.

Structural calculations were performed for the addition to determine the existing roof load capacity. The design dead roof loads is approximately 18 psf and the design live loads is 30 psf according to the design drawings for these structures.

The concrete domes could not be reviewed for its capacity, but the coating material added has a very negligible weight.

#### Disclaimer

Sturgeon Engineering is not the original engineer of record for this existing structure. As with any existing structure, the structural integrity cannot be warranted. No warranty is given, expressed, or implied. The owner assumes the responsibility for correcting the deficient items that are brought to their attention and for performing any ongoing monitoring to assure the buildings structural integrity. If construction conditions vary from what is noted in this letter, then the contractor and/or owner shall notify the engineer of record.

If there are any questions, please feel free to contact me at 602-570-6061.  
Sincerely,

Mark J. Sturgeon P.E.



**EMC<sup>2</sup>**

9830 SOUTH 51<sup>st</sup> STREET, STE. B-109 / PHOENIX, ARIZONA 85044  
T: (480) 940-5294 / F: (480) 893-1726 / E-mail: [Howard@EMC-AZ.com](mailto:Howard@EMC-AZ.com)

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**Date:** July 14, 2016

**Client(s):** Whiteriver Unified School District #20  
P.O. Box 190, 959 South Chief Avenue  
Whiteriver, Arizona 85941

**Attention:** Arcadis U.S. Inc.  
410 North 44<sup>th</sup> Street, Suite 1000  
Phoenix, Arizona 85008

c/o: John Sempert, CCM Senior Project Manager  
Telephone: (602) 438-0883; Facsimile: (602) 438-0102  
Cellular: (928) 637-3031; E-Mail: [john.sempert@arcadis-us.com](mailto:john.sempert@arcadis-us.com)

**Subject:** Limited Asbestos Bulk Sampling, Laboratory Analysis, & Report  
Cradleboard Elementary School - Roofing Project  
7323 N. Powerline Road, Whiteriver, Arizona 85941

Dear John,

EMC<sup>2</sup> is pleased to submit this report for the Asbestos Containing Material (ACM) bulk sampling / laboratory analysis.

At the request of the client, bulk sampling was performed at the above referenced site to determine the presence, if any, of Asbestos Containing Materials (**ACM**) in the materials / areas specified.

**Services provided:**

1. Test suspect materials that will be affected by the upcoming renovation project. Renovation areas / materials were specified by the client. Materials that are not listed on the following page were not tested during this project.

**Included Areas / Materials:**

1. Main Building - Roof / roofing and associated materials

**Excluded Areas / Materials:** All other buildings / areas / materials; Inaccessible spaces;

**Inspection Information:**

Tom Cavness: EPA Building Inspector EPA # 25511-2151572-267130 (Exp. 06/12/17)  
Date of Inspection: 07/07/2016 Training Provider: Asbestos Institute  
Laboratory : EMC Labs, Inc. # of Samples: 6  
Date of Analysis: 07/13/2016 Method: PLM - Polarized Light Microscopy

**Inspection / Sampling Procedures:**

A visual inspection and sampling survey in the designated area(s) of the facility were conducted in accordance with general Environmental Protection Agency / Asbestos Hazard Emergency Response Act (EPA / AHERA) and current OSHA 29 CFR 1926.1101 guidelines to determine the presence of exposed and / or accessible suspect asbestos containing materials (ACM). Suspect materials were determined to be either friable / non-friable by touch as per EPA NESHAP 40 CFR 61, Subpart M.

Representative bulk samples were taken in random / convenience fashion for each suspect material included in this project / inspection. Material samples were taken and submitted to a laboratory for analysis to determine the presence or absence of asbestos.

**Laboratory:**

**Asbestos:** Analysis was performed by EMC Labs, Inc. located at 9830 South 51st Street, Suite B-109, Phoenix, Arizona 85044, under NVLAP accreditation number 101926-0, using Polarized Light Microscopy (PLM) according to the EPA 600/M4-82-020 method.

**Analysis Results:**

**Main Building:**

- |     |  |                   |               |
|-----|--|-------------------|---------------|
| 01. | Membrane Roofing Material<br>Located on domed roof sections - approx. 20,000 sf. | Sample(s) 01 - 03 | None Detected |
| 02. | Foamed Roofing Material<br>Located on flat roof sections - approx. 35,000 sf.    | Sample(s) 04 - 06 | None Detected |

**Inspection Summary - Asbestos Containing Materials**

Based on the laboratory analysis results of samples taken at this facility during this inspection, it was determined that the following asbestos containing materials are present at this facility. The NESHAP / OSHA regulation classification ( ) are given for each material.

Asbestos was not detected in the samples taken or analyzed during this project.

**Definitions:**

1. Asbestos-Containing Materials: Any material containing more than one (1%) asbestos as determined by bulk sampling by an EPA certified inspector with sample analysis being completed by a NVLAP accredited laboratory.
2. EPA NESHAP Classifications:
  - Regulated Asbestos Containing Materials (RACM - Friable)
  - Category I Non-friable materials (Cat. I)
  - Category II Non-friable materials (Cat. II)
3. OSHA Classifications:
  - Class 1: Surfacing Materials, Thermal Systems Insulation
  - Class 2: All other materials not included in Class 1

**Recommendations / Conclusions:**

Asbestos was not detected in the samples taken or analyzed during this project.

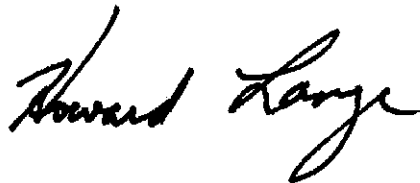
If renovation activities will affect other suspect ACM materials that have not been tested for asbestos, additional sampling is **mandated** by federal regulations.

During this inspection, destructive means were not used to gain access to inaccessible spaces such as mechanical system interiors, duct chases, wall interiors, plenum spaces, etc.

During any renovation / demolition activities, personnel should always be aware and alert for any ACM suspect material that may be hidden in these areas. If other suspect materials not included in this report are discovered, an EPA Certified Building Inspector / Management Planner should be contacted to assess the material, material condition, and recommend a proper response action.

EMC<sup>2</sup> appreciates the opportunity to have provided these services to you. If there are any questions concerning this report or if we may assist you on future projects, please contact me at (480) 940-5294.

Sincerely,



Howard Lange

172833

FIELD SAMPLE SHEET

Site: Cradleboard Elem. White River, AZ Building: Main (3 Domes)

Date: 7/7/16 Inspector: Tom CAVNESS

+/-	#	Material	Room/Area	Location
-	1/4	Membrane/Foam roof cores	Roof Flat/Dome 1	Origin: SW ; E/W; N/S; AFF
-	2/5	↓	↓ Dome 2	Origin: SW ; E/W; N/S; AFF
-	3/6	↓	↓ Dome 3	Origin: SW ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
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				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF
				Origin: ; E/W; N/S; AFF

Origin - Corner of room or start point - NW corner, NE Unit, etc.;

E/W or N/S - Insert footage and circle the direction you travel to the sample location;

AFF - Above finished floor - height of sample;





Google earth



Google earth



# EMC LABS, INC.

9830 S. 51st Street, Suite B109, Phoenix, AZ 85044  
Phone: 800-362-3373 or 480-940-5294 - Fax: (480) 893-1726

Laboratory Report  
**0172833**

## Bulk Asbestos Analysis by Polarized Light Microscopy

NVLAP#101926-0

Client: EMC<sup>2</sup>, LLC Job# / P.O. #:  
Address: 9830 S. 51ST ST. STE B109 Date Received: 07/08/2016  
PHOENIX AZ 85044 Date Analyzed: 07/13/2016  
Collected: 07/07/2016 Date Reported: 07/13/2016  
Project Name: CRADLEBOARD ELEMENTARY-WHITE EPA Method: EPA 600/R-93/116  
RIVER, AZ Submitted By: CLIENT  
Address: Collected By:

Lab ID Client ID	Sample Location	Layer Name / Sample Description	Asbestos Detected	Asbestos Type (%)	Non-Asbestos Constituents	
0172833-001 1	ROOF FLAT/DOME 1	Membrane, Off White/ Gray/White	No	None Detected	Synthetic Fiber Carbonates Binder/Filler	10% 90%
0172833-002 2	ROOF FLAT/DOME 2	Membrane, Off White/ Gray/White	No	None Detected	Synthetic Fiber Carbonates Quartz Binder/Filler	10% 90%
0172833-003 3	ROOF FLAT/DOME 3	Membrane, Off White/ Gray/White	No	None Detected	Synthetic Fiber Carbonates Quartz Binder/Filler	10% 90%
0172833-004 4	ROOF FLAT/DOME 1	Roof Foam, Off White	No	None Detected	Foam	100%
0172833-005 5	ROOF FLAT/DOME 2	Roof Foam, Off White	No	None Detected	Foam	100%
0172833-006 6	ROOF FLAT/DOME 3	Roof Foam, Off White	No	None Detected	Foam	100%



Analyst - James A. Storm



Signatory - Lab Director - Kurt Kettler

Distinctly stratified, easily separable layers of samples are analyzed as subsamples of the whole and are reported separately for each discernible layer. All analyses are derived from calibrated visual estimates and measured in area percent unless otherwise noted. The report applies to the standards or procedures identified and to the sample(s) tested. The test results are not necessarily indicative or representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products, nor do they represent an ongoing quality assurance program unless so noted. These reports are for the exclusive use of the addressed client and that they will not be reproduced wholly or in part for advertising or other purposes over our signature or in connection with our name without special written permission. The report shall not be reproduced except in full, without written approval by our laboratory. The samples not destroyed in testing are retained a maximum of thirty days. The laboratory measurement of uncertainty for the test method is approximately less than 1 by area percent. Accredited by the National Institute of Standards and Technology, Voluntary Laboratory Accreditation Program for selected test method for asbestos. The accreditation or any reports generated by this laboratory in no way constitutes or implies product certification, approval, or endorsement by the National Institute of Standards and Technology. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Polarized Light Microscopy may not be consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials.

### CHAIN OF CUSTODY

EMC Labs, Inc.  
9830 S. 51<sup>ST</sup> St., Ste B-109  
Phoenix, AZ 85044  
(800) 362-3373 Fax (480) 893-1726

LAB#:	172833
TAT:	1 day
Rec'd:	JUL 08 AM
EMC USE ONLY	

COMPANY NAME: EMC<sup>2</sup>, LLC  
9830 S. 51<sup>ST</sup> ST, STE B109  
PHOENIX, AZ 85044

CONTACT: HOWARD LANGE

Phone/Fax: \_\_\_\_\_

Email: \_\_\_\_\_

BILL TO: (If Different Location)  
EMC<sup>2</sup>, LLC  
9830 S. 51<sup>ST</sup> ST, STE B109  
PHOENIX, AZ 85044  
HOWARD LANGE

Now Accepting: **VISA - MASTERCARD** Price Quoted: \$ \_\_\_\_\_ / Sample \$ \_\_\_\_\_ / Layers

**COMPLETE ITEMS 1-4:** (Failure to complete any items may cause a delay in processing or analyzing your samples)

1. **TURNAROUND TIME:** [4hr rush] [8hr rush] [1-Day] [2-Day] [3-Day] [5-Day] [6-10 Day]

\*\*\*\*Prior confirmation of turnaround time is required

\*\*\*\*Additional charges for rush analysis (please call marketing department for pricing details)

\*\*\*\*Laboratory analysis may be subject to delay if credit terms are not met

2. **TYPE OF ANALYSIS:** [Bulk-PLM] [Air-PCM] [Lead] [Point Count] [Fungi: AOC, W-C, Bulk, Swab, Tape]

3. **DISPOSAL INSTRUCTIONS:** [Dispose of samples at EMC] / [Return samples to me at my expense]

(If you do not indicate preference, EMC will dispose of samples 60 days from analysis.)

4. Project Name: Cradleboard Elementary - White River, AZ

P.O. Number: \_\_\_\_\_

Project Number: \_\_\_\_\_

EMC SAMPLE #	CLIENT SAMPLE #	DATE & TIME SAMPLED	LOCATION/MATERIAL TYPE	Samples Accepted Yes / No	AIR SAMPLE INFO / COMMENTS		
					ON	OFF	FLOW RATE
1	1	7/7/16	Multi-layer roof core	Y N			
5	5	↓	↓	Y N			
6	6	↓	↓	Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			
				Y N			

SPECIAL INSTRUCTIONS: Put hard copy in Howard's Box

Sample Collector: (Print) Tom CAVNESS

(Signature)

Relinquished by: Date/Time: 7/8/16 0845

Received by: Diana Federico Date/Time: 7/8/16 845

Relinquished by: Diana Federico Date/Time: 7/8/16 1000

Received by: Date/Time: 7/8/16 1000

\*\* In the event of any dispute between the above parties for these services or otherwise, parties agree that jurisdiction and venue will be in Phoenix, Arizona and prevailing party will be entitled to attorney's fees and court costs.