EXECUTIVE ENVIRONMENTAL
HEALTH & SAFETY SIMPLIFIED

Industrial Hygiene • Air Quality • Lead & Asbestos • Training • Health & Safety

LIMITED LEAD-BASED PAINT/CERAMIC TILE INSPECTION REPORT

Conducted at:

MUSCATEL MIDDLE SCHOOL
NEW SHADE STRUCTURE AND BUILDING E URINAL & DRINKING FOUNTAIN
4201 IVAR AVENUE
ROSEMEAD, CALIFORNIA 91770

Prepared for:

DR. MARIA RIOS
ASSISTANT SUPERINTENDENT OF ADMINISTRATIVE SERVICES
ROSEMEAD SCHOOL DISTRICT
3907 ROSEMEAD BOULEVARD, SUITE 220
ROSEMEAD, CALIFORNIA 91770

Prepared by:

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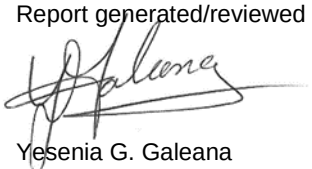
Project Number EE 23-Z0046-0030
March 13, 2023

Report generated/reviewed by:



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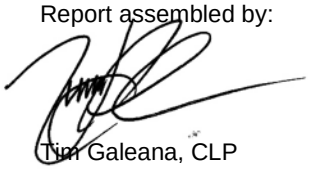

Tim Galeana, CLP
Manager Asbestos/Lead Group
Executive Environmental

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LIMITED LEAD-BASED PAINT/CERAMIC TILE INSPECTION

Project Number:	EE 23-Z0046-0030
Client:	Rosemead School District 3907 Rosemead Boulevard, Suite 220 Rosemead, California 91770
Site Location:	Muscatel Middle School New Shade Structure & Building E Urinal & Drinking Fountain 4201 Ivar Avenue Rosemead, California 91770
Site Use:	School Property
Contact Person:	Dr. Maria Rios Assistant Superintendent of Administrative Services Phone: (626) 312-2900 Ext 219
Inspection Date:	February 17, 2023
Inspected By:	Mr. Rhys Kuzmic Certified Lead Professional, CDPH #4395
Report Assembled By:	Ms. Yesenia G. Galeana Technical Report Writer
Report Generated/Reviewed By:	Mr. Tim Galeana Certified Lead Professional, CDPH # 0394/0395/0396

I. EXECUTIVE SUMMARY

Executive Environmental (EE) provided the services of Certified Lead Professional (CLP) to conduct a limited lead-based paint and ceramic tile inspection of the Campus and Building E at Muscatel Middle School located at 4201 Ivar Avenue, Rosemead, California. The inspection was conducted as a precursor to the upcoming New Shade Structure & Building E Urinal & Drinking Fountain Project. EE provided a California Department of Public Health Certified Lead Inspector to conduct the inspection. No Regulated lead-based paint/ceramic glaze was detected during this inspection. EE's Certified Lead Professional conducted these services on February 17, 2023. *This is considered to be a limited inspection. Inspection was limited to surfaces and components anticipated to be impacted by the New Shade Structure & Building E Urinal & Drinking Fountain Project, as directed by client.*

II. SAMPLING PROTOCOL

According to the United States Department of Housing and Urban Development's (HUD) guideline document, Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, and Section 1017 of Title X, Residential Lead-Based Paint Hazard Reduction Act of 1992, Public Law 102-550, paint found to have a lead concentration of at least 1.0 mg/cm^2 (milligrams per centimeter squared) by X-Ray Fluorescence (XRF), or 0.5 percent (5000 parts per million) by weight, is regulated as lead-based paint.

Los Angeles County Childhood Lead Poisoning Prevention Program, established in 1991, further regulates that paint found to have a lead concentration greater than 0.7 mg/cm^2 via XRF readings, or 0.06 weight-to-weight percent by Atomic Absorption Spectrometry (AAS) analysis, is considered to be lead-based paint. The Los Angeles County 0.7 mg/cm^2 action level was used for determining the lead content in this inspection because it is more stringent than the HUD Guidelines.

Any material containing any detectable level of lead is subject to the Occupational Safety and Health Administration's (OSHA) Lead Exposure in Construction Rule 29 Code of Federal Regulation (CFR) 1926.62 and California Code of Regulations Title 8, Section 1532.1 Lead (8CCR1532.1) and Title 8, Section 5198, Lead (8CCR5198). All work that disturbs this type of material must be performed in accordance with this and any other applicable standards.

All facilities built prior to 1979 for residential buildings and prior to 1993 for schools are suspect for lead-containing materials. Federal and state regulations recognize only the following methods of identification: analysis by an XRF instrument, paint bulk sample collection and analysis, or a combination of both. This inspection was conducted via XRF instrumentation. The parameters used to interpret the XRF results are outlined in the HUD guidelines and the XRF Performance Characteristics Sheets (PCS).

III. SAMPLING METHODOLOGY

A visual inspection of the Campus and Building E at Muscatel Middle School was conducted by EE's CLP to identify major site features and surfaces and/or components suspected of being coated with lead-based paint anticipated to be impacted by the New Shade Structure & Building E Urinal & Drinking Fountain Project. After identifying the materials suspected of being coated with lead-based paint/ceramic glaze, EE grouped the components, substrates, and room equivalents into testing combinations. A testing combination is defined as the room equivalent, component, and substrate. A room equivalent is an identifiable part of a building (e.g. classrooms, restrooms, mechanical rooms, exterior). Color does not accurately indicate painting history and is not included when assigning testing combinations. If there was any reason to suspect that materials may have been installed or painted at different times, even though they appear uniform, they were assigned to separate testing combinations.

Following the visual inspection, screening for the presence of lead-based paint or ceramic glaze was performed on-site using a portable XRF instrument. The XRF has the ability to measure lead content in paint and ceramic glaze within the range of 0 to 50 milligrams per centimeter squared (mg/cm^2). The on-site inspection capability of the XRF instrument typically reduces the number of paint-chip samples that may need to be

collected and sent for laboratory analysis. The portable XRF instrument used in this inspection was manufactured by Viken Detection XRF (formerly Heuresis).

The following specifications apply to the Viken Detection XRF:

- Ability to report Positive and Negative determination at 1.0mg lead/cm^2 with 2-sigma confidence with measurement time of 1-3 nominal seconds on mast lead paint samples.
- Detects lead at 0.1 mg/cm^2 with 2-sigma confidence with a measurement time of 1 second on most samples.
- Equipped with a ^{57}Co sealed source, 5mCi (185 MBq), radioactive source. Substrate effects are automatically corrected through a complex algorithm and calibration.

IV. SAMPLE ANALYSIS

According to local, state and federal standards, the surfaces and/or components that were analyzed with the Viken Detection XRF instrument during this inspection are NOT considered to be coated with a regulated lead-based paint or ceramic glaze.

XRF SAMPLE ANALYSIS DATA
Muscatel Middle School
4201 Ivar Avenue
Rosemead, California 91770

Location	Component	Substrate	Estimate Quantity	XRF Result Mg/cm^2
Campus				
No regulated lead-based paint was identified on exterior surfaces and/or components anticipated to be impacted by the New Shade Project – Areas A thru D identified on map.				
Building E				
No regulated lead-based paint was identified on surfaces and/or components at interior of Boys' restroom and exterior south wall around drinking fountains.				

Note: This table must be used in conjunction with the entire report.

V. CONCLUSIONS/RECOMMENDATIONS

EE conducted a limited lead-based paint inspection of the Campus and Building E at Muscatel Middle School located at 4201 Ivar Avenue, Rosemead, California. The inspection was conducted as a precursor for the upcoming New Shade Structure & Building E Urinal & Drinking Fountain Project. The following conclusions and/or recommendations apply:

Limited Lead-Based Paint Inspection

- Various coated surfaces and components throughout the campus that are anticipated to be impacted by the New Shade Project at Muscatel Middle School were tested via the Viken Detection XRF for the presence of lead.

- Interior and exterior coated surfaces and components anticipated to be impacted by the Building E Urinal & Drinking Fountain Project at Muscatel Middle School were tested via the Viken Detection XRF for the presence of lead
- No regulated lead-based paint lead-based paint or lead-based ceramic glaze was identified during this inspection.
- The surfaces/components tested were observed to be in intact condition during this inspection.
- A fully representative number of XRF readings were taken at the project site. The results of these assays are presented in the XRF Summary Results spreadsheets.

No regulated lead-based paint/ceramic glaze was identified during this inspection. Normal construction activities involving the components/surfaces tested may proceed at this site.

VI. DISCLAIMER/REPORT LIMITATIONS

All reports and recommendations are based on conditions and practices observed and information made available to Executive Environmental (EE) by the client and the designated sites/facilities on the days sampling was conducted. This report does not purport to set forth all hazards, nor to indicate that other hazards do not exist. No responsibility is assumed by EE for the control or correction of conditions or practices existing at the facilities, or at any other premises surveyed by EE, for and on the behalf of the client. Services provided by EE shall be governed by the standard of practice for professional services measured at the time those services are rendered.

All information contained in this report is proprietary and limited to the scope of services, parameters of the analytical methods used, and the conditions present at the time of this inspection. Any references to quantities are considered estimates and are not to be construed as actual.

APPENDIX A – XRF SUMMARY RESULTS

Reading #	Date	Building	Room	Component	Substrate	Side	Condition	Color	Action Level	Concentration	Result
1	2/17/2023			Calibrate					0.7	1	Positive
2	2/17/2023			Calibrate					0.7	1	Positive
3	2/17/2023			Calibrate					0.7	1	Positive
4	2/17/2023	Area A	Exterior	Planter wall	Stucco		Intact	Beige	0.7	0.3	Negative
5	2/17/2023	Area A	Exterior	Planter wall	Stucco		Intact	Beige	0.7	0.3	Negative
6	2/17/2023	Area A	Exterior	Planter wall	Stucco		Intact	Beige	0.7	0.2	Negative
7	2/17/2023	Area A	Exterior	Planter cap	Brick		Intact	Red	0.7	0.3	Negative
8	2/17/2023	Area A	Exterior	Planter cap	Brick		Intact	Red	0.7	0.3	Negative
9	2/17/2023	Area A	Exterior	Handrail	Metal		Intact	Green	0.7	0	Negative
10	2/17/2023	Area A	Exterior	Handrail	Metal		Intact	Green	0.7	0.1	Negative
11	2/17/2023	Area A	Exterior	Storm drain Inlet	Metal		Intact	Black	0.7	0.2	Negative
12	2/17/2023	Administration Building	Exterior	Wall	Stucco	B	Intact	Green	0.7	0	Negative
13	2/17/2023	Administration Building	Exterior	Wall	Stucco	B	Intact	Beige	0.7	0	Negative
14	2/17/2023	Administration Building	Exterior	Door frame	Metal	B	Intact	Green	0.7	0.1	Negative
15	2/17/2023	Administration Building	Exterior	Door	Metal	B	Intact	Green	0.7	0.1	Negative
16	2/17/2023	Area B	Exterior	Fence	Metal		Intact	Green	0.7	0.1	Negative
17	2/17/2023	Area B	Exterior	Fence post	Metal		Intact	Green	0.7	0.1	Negative
18	2/17/2023	Area B	Exterior	Fence bracket	Metal		Intact	Green	0.7	0.1	Negative
19	2/17/2023	Area B	Exterior	Handrail	Metal		Intact	Green	0.7	0.1	Negative
20	2/17/2023	Area C	Exterior	Handrail	Metal		Intact	Green	0.7	0	Negative
21	2/17/2023	Area C	Exterior	Handrail	Metal		Intact	Green	0.7	0.1	Negative
22	2/17/2023	Area D	Exterior	Fence	Metal		Intact	Green	0.7	0.1	Negative
23	2/17/2023	Area D	Exterior	Fence post	Metal		Intact	Green	0.7	0	Negative
24	2/17/2023	Area D	Exterior	Fence bracket	Metal		Intact	Green	0.7	0	Negative

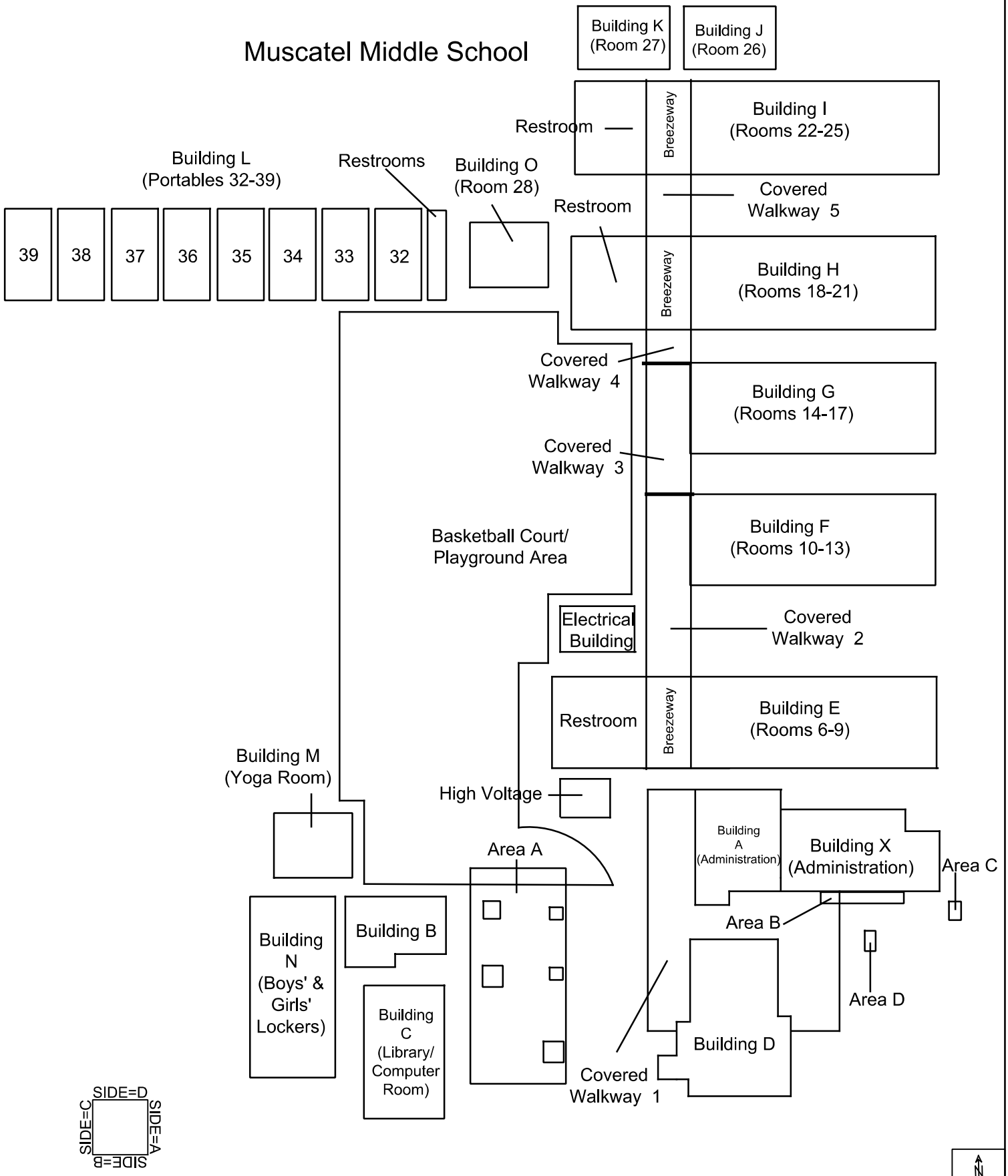
Reading #	Date	Building	Room	Component	Substrate	Side	Condition	Color	Action Level	Concentration	Result
25	2/17/2023	Area D	Exterior	Wall	Stucco		Intact	Beige	0.7	0.1	Negative
26	2/17/2023	Area D	Exterior	Wall cap	Brick		Intact	Red	0.7	0.1	Negative
27	2/17/2023	Area D	Exterior	Sign base	Metal		Intact	Blue	0.7	0.1	Negative
28	2/17/2023	Area D	Exterior	Parking stop	Concrete		Fair	Blue	0.7	0.3	Negative
29	2/17/2023	Area D	Exterior	Floor stripe	Asphalt		Fair	Blue	0.7	0.2	Negative
30	2/17/2023	Area D	Exterior	Floor stripe	Asphalt		Cracked	Blue	0.7	0.1	Negative
31	2/17/2023	Area D	Exterior	Floor stripe	Asphalt		Cracked	White	0.7	0.4	Negative
32	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall	Stucco	B	Intact	Beige	0.7	0.1	Negative
33	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall	Concrete	B	Intact	Beige	0.7	0.3	Negative
34	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall	Concrete	B	Intact	Green	0.7	0.3	Negative
35	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall tile	Ceramic	B	Intact	Beige	0.7	0.2	Negative
36	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall tile	Ceramic	B	Intact	Green	0.7	0.2	Negative
37	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Wall tile	Ceramic	B	Intact	Light Green	0.7	0.3	Negative
38	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Door frame	Metal	B	Intact	Green	0.7	0.1	Negative

Reading #	Date	Building	Room	Component	Substrate	Side	Condition	Color	Action Level	Concentration	Result
39	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Door	Metal	B	Intact	Green	0.7	0.1	Negative
40	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Window Frame in Door	Metal	B	Intact	Green	0.7	0.1	Negative
41	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Hand rail	Metal	B	Intact	Green	0.7	0.1	Negative
42	2/17/2023	Building E (Boys' and Girls' Restrooms)	Exterior	Floor stripe	Concrete	B	Intact	White	0.7	0.3	Negative
43	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall	Plaster	A	Intact	White	0.7	0	Negative
44	2/17/2023			Calibrate					0.7	1	Positive
45	2/17/2023			Calibrate					0.7	1	Positive
46	2/17/2023			Calibrate					0.7	1	Positive
47	2/17/2023			Calibrate					0.7	1	Positive
48	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall	Plaster	A	Intact	White	0.7	0	Negative
49	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall	Plaster	B	Intact	White	0.7	0.1	Negative
50	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall	Plaster	C	Intact	White	0.7	0.1	Negative

Reading #	Date	Building	Room	Component	Substrate	Side	Condition	Color	Action Level	Concentration	Result
51	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall	Plaster	D	Intact	White	0.7	0	Negative
52	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall tile	Ceramic	C	Intact	Beige	0.7	0.2	Negative
53	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall tile	Ceramic	C	Intact	Green	0.7	0.3	Negative
54	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Wall tile	Ceramic	C	Intact	Light Green	0.7	0.3	Negative
55	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Urinal	Porcelain	C	Intact	White	0.7	0.3	Negative
56	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Baseboard tile	Ceramic	C	Intact	Beige	0.7	0.1	Negative
57	2/17/2023	Building E (Boys' and Girls' Restrooms)	Boys' Restroom	Floor tile	Ceramic		Intact	Green	0.7	0.2	Negative
58	2/17/2023			Calibrate					0.7	1	Positive
59	2/17/2023			Calibrate					0.7	1	Positive
60	2/17/2023			Calibrate					0.7	1	Positive

APPENDIX B – SITE DRAWING

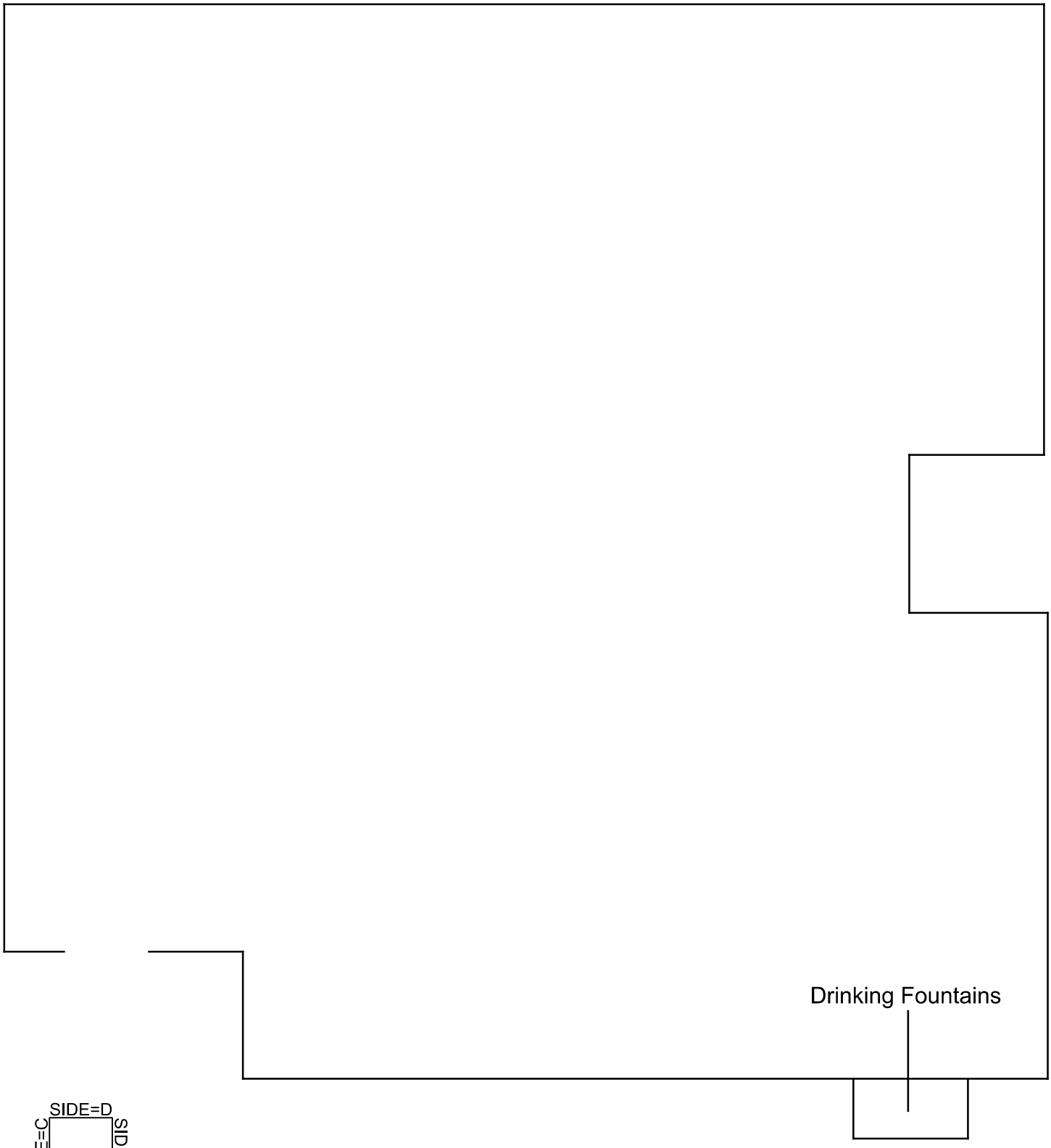
Muscatel Middle School

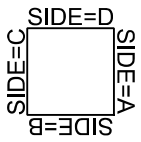


Client: Rosemead School District	**Project#:** 23-Z0046-0030	**Info:** No Lead-Based Paint Identified
EXECUTIVE ENVIRONMENTAL HEALTH & SAFETY SIMPLIFIED		**Site:** Muscatel Middle School **Address:** 4201 Ivar Avenue Rosemead, California 91770

Drawing Not to Scale - © 2012

Building E Restrooms
Exterior

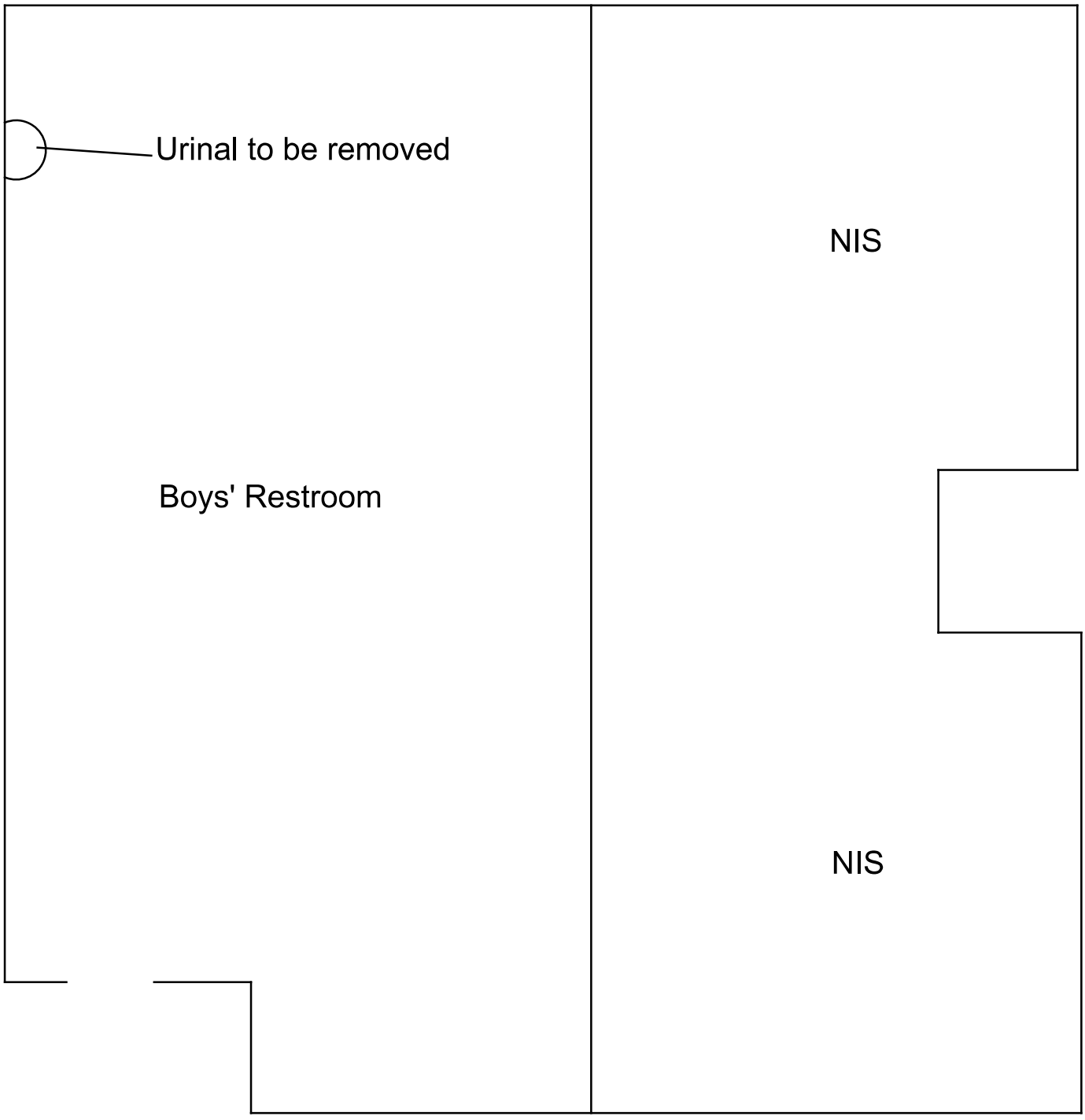




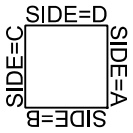
Client: Rosemead School District	**Project#:** 23-Z0046-0030	**Info:** No Lead-Based Paint/Glaze Identified
EXECUTIVE ENVIRONMENTAL HEALTH & SAFETY SIMPLIFIED		**Site:** Muscatel Middle School **Address:** 4201 Ivar Avenue Rosemead, California 91770

Drawing Not to Scale -

Building E Restrooms
Interior



NIS - Not in Scope



Client: Rosemead School District	**Project#:** 23-Z0046-0030	**Info:** No Lead-Based Paint/Glaze Identified
EXECUTIVE ENVIRONMENTAL HEALTH & SAFETY SIMPLIFIED		**Site:** Muscatel Middle School **Address:** 4201 Ivar Avenue Rosemead, California 91770

APPENDIX C – LEAD HAZARD EVALUATION REPORT

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 02/17/2023

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
4201 IVAR AVENUE	4201 IVAR AVENUE	LA	91770

Construction date (year) of structure	Type of structure	Children living in structure?
unknown	☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
ROSEMEAD SCHOOL DISTRICT	626-312-2900

Address [number, street, apartment (if applicable)]	City	State	Zip Code
3907 ROSEMEAD BLVD. SUITE 220	ROSEMEAD	CA	91770

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other_____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Matthew Barna	1(562) 537-6420

Address [number, street, apartment (if applicable)]	City	State	Zip Code
310 East Foothill Blvd., Ste. 200	Arcadia	CA	91006

CDPH certification number	Signature	Date
LRC-00010052		02/17/2023

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

APPENDIX D – XRF PERFORMANCE CHARACTERISTICS SHEET

Performance Characteristic Sheet

EFFECTIVE DATE: **December 1, 2015**

MANUFACTURER AND MODEL:

Make: ***Heuresis***
Models: ***Model Pb200i***
Source: ***^{57}Co, 5 mCi (nominal – new source)***

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Action Level mode

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

SUBSTRATE CORRECTION:

Not applicable

INCONCLUSIVE RANGE OR THRESHOLD:

ACTION LEVEL MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick Concrete Drywall Metal Plaster Wood	1.0 1.0 1.0 1.0 1.0 1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated using test results on building components in the HUD archive. Testing was conducted on 146 test samples in November 2015, with two separate instruments running software version 2.1-2 in Action Level test mode. The actual source strength of each instrument on the day of testing was approximately 2.0 mCi; source ages were approximately one year.

OPERATING PARAMETERS

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If the average (rounded to 1 decimal place) of three readings is outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instrument into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm^2 for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm^2 at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

> Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm^2. Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.
>
> Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.
>
> <u>For each substrate type</u> (the 1.02 mg/cm^2 NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):
>
> Correction value = (1st + 2nd + 3rd + 4th + 5th + 6th *Reading*)/6 - 1.02 mg/cm^2
>
> Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below. Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and the retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF readings.

Compute the average of all ten re-test XRF readings.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

In the Action Level paint test mode, the instrument takes the longest time to complete readings close to the Federal standard of 1.0 mg/cm^2. The table below shows the mean and standard deviation of actual reading times by reading level for paint samples during the November 2015 archive testing. The tested instruments reported readings to one decimal place. No significant differences in reading times by substrate were observed. These times apply only to instruments with the same source strength as those tested (2.0 mCi). Instruments with stronger sources will have shorter reading times and those with weaker sources, longer reading times, than those in the table.

Mean and Standard Deviation of Reading Times in Action Level Mode by Reading Level		
Reading (mg/cm^2)	**Mean Reading Time (seconds)**	**Standard Deviation (seconds)**
< 0.7	3.48	0.47
0.7	7.29	1.92
0.8	13.95	1.78
0.9 – 1.2	15.25	0.66
1.3 – 1.4	6.08	2.50
$\geq$ 1.5	3.32	0.05

CLASSIFICATION OF RESULTS:

XRF results are classified as **positive** if they are **greater than or equal** to the stated threshold for the instrument (1.0 mg/cm^2), and *negative* if they are *less than* the threshold.

DOCUMENTATION:

A report titled *Methodology for XRF Performance Characteristic Sheets* (EPA 747-R-95-008) provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. The report may be downloaded at http://www2.epa.gov/lead/methodology-xrf-performance-characteristic-sheets-epa-747-r-95-008-september-1997.

This XRF Performance Characteristic Sheet (PCS) was developed by QuanTech, Inc., under a contract with the XRF manufacturer.