



Environmental, Health and Safety Solutions.™



August 18, 2021

The City of Lowell  
101 W. First Street  
Lowell, North Carolina 28098

Re: Lead-Based Paint Inspection  
City of Lowell Community Center  
Lowell, North Carolina  
EI Project No: IHCH210085.00

**Project Site Address:** 501 W. 1<sup>st</sup> Street, Lowell, North Carolina 28098

**Inspection Date:** 8/13/2021

**Scope of Work:** Lead-Based Paint Inspection

**Lead-Based Paint Inspection:** Lead-Based Paint Found

**Deteriorated Lead-Based Paint Found:** Yes

**Lead Containing Materials:** Yes

**Recommendations:** See Table 4

**Inspector:** Lee Clark, North Carolina Risk Assessor #120166

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Lee Clark  
Senior Project Manager, Industrial Hygiene

## 1. Findings

Table 1: Lead-Based Paint <sup>1</sup>					
Room	Side	Component <sup>2</sup>	Substrate	Condition	Color
Exterior	B	Ceiling	Wood	Deteriorated	Beige
Exterior	B	Trim	Wood	Deteriorated	Beige
Exterior	B	Header	Wood	Deteriorated	Beige
Exterior	B	Window Casing	Wood	Intact	White
Exterior	B	Window Sash	Wood	Intact	White
Exterior	B	Window	Wood	Intact	Black
Exterior	B	Door Jamb	Wood	Intact	Black
Exterior	C	Window Sill	Concrete	Intact	Beige
Exterior	A	Window Sill	Concrete	Intact	Beige
Exterior	A	Window Sill	Wood	Intact	White
Exterior	A	Window Casing	Wood	Intact	White
Exterior	A	Trim	Brick	Intact	Beige
Exterior	A	Header	Wood	Intact	Beige
Room 1	A	Fire Place Wall	Brick	Intact	White
Room 11	D	Floor	Wood	Intact	Green
Room 15	D	Window Well	Wood	Deteriorated	Grey
Room 3	A	Door	Wood	Intact	White

**Note(s):**

1. Positive results indicate lead in quantities equal to or greater than 1.0 mg/cm<sup>2</sup> and are considered lead-based paint.
2. Samples are taken to represent component types; therefore, it should be assumed that similar component types in the rest of that room or room equivalent also contain lead-based paint.

Table 2: Deteriorated Lead-Based Paint <sup>1</sup>					
Room	Side	Component	Substrate	Condition	Color
Exterior	B	Ceiling	Wood	Deteriorated	Beige
Exterior	B	Trim	Wood	Deteriorated	Beige
Exterior	B	Header	Wood	Deteriorated	Beige
Room 15	D	Window Well	Wood	Deteriorated	Grey

**Note(s):**

1. Surfaces in deteriorated condition are considered to be lead-based paint hazards as defined by Title X and should be addressed through abatement or interim controls which are described in Table 6.

Table 3: Lead Containing Materials <sup>2</sup>					
Room	Side	Component	Substrate	Condition	Color
Bathroom 2	A	Wall	Ceramic	Intact	Blue
Bathroom 3	A	Wall	Ceramic	Intact	Beige

Note(s):

2. Although not considered to be lead-based paint, these materials when disturbed through destructive measures such as sanding, chipping, grinding, and other sources of friction, can create dust hazards and should be treated through controls described in Table 6.

Table 4: Lead Hazard Control Options <sup>1</sup>			
Hazard Type	Location	Description	Control <sup>2-5</sup>
Deteriorated Lead Based Paint	Exterior	Ceiling, Trim, Header	Abatement, Enclosure, Encapsulation or Paint Film Stabilization
Deteriorated Lead Based Paint	Room 15	Window Well	Abatement, Enclosure, Encapsulation or Paint Film Stabilization
Potential Hazard	Bathroom 2 & Bathroom 3	Ceramic Wall Tile	Any destructive activities such as sanding, chipping, grinding, etc. should be performed following lead-safe practices and a confirmatory clearance should be performed following any renovation activities to confirm control measures were adequate

Note(s):

1. Lead hazard control options include abatement and interim controls.
2. Paint film stabilization: Wet scrape and prime building components where chipping or peeling is present following acceptable methods.
3. Replace: Remove and dispose of components in accordance with applicable federal, state and local regulations. Prime coat any new unpainted wood components.
4. Enclosure: Enclose lead-based paint coated building components with a material that is structurally affixed and deemed to last 20 years.

## 2. Limitations

- No limitations were encountered during the course of this survey.

### **3. Lead Hazard Control Activities**

All lead abatement activities must be performed in strict compliance with the Department of Housing and Urban Development (HUD) 24 CFR Part 35, and the Environmental Protection Agency (EPA) 40 CFR Part 745 Subpart L, as well as any NC DHHS HHCU regulations.

All contractor's personnel who will disturb lead-based paint during the course of their work on this residence should be informed of the potential danger posed by lead-based paint and should be directed to comply with all applicable federal, state, and local lead abatement regulations.

Table 4 lists each lead based-paint hazard identified, along with control options. Highest priority should be given to correcting lead hazards with greater probability of being contacted by children six years of age and under, women who are or may become pregnant, and residents of the home. These include, but are not limited to, deteriorated lead-based paint inside the residence on friction and impact surfaces (windows and doors), and other surfaces (i.e. walls or trims) at a height of six feet and below.

If paint condition is intact, no treatment is required at this time. However, ongoing monitoring and maintenance of painted surfaces containing lead-based paint must be performed on a routine basis as paint conditions may deteriorate potentially creating a lead dust hazard. Painted surfaces should be inspected annually and repainted as needed before deterioration occurs. Prior to any scraping or sanding, appropriate measures should be taken to prevent the generation or spreading of paint chips or dust.

Although painted surfaces may contain lead in quantities less than 1.0 mg/cm<sup>2</sup>, ongoing monitoring and maintenance of painted surfaces must still be performed on a routine basis. These activities are necessary as lead quantities in paint less than 1.0 mg/cm<sup>2</sup> may lead to the development of lead dust hazards, even though the paint is not considered a lead-based paint according to HUD/ EPA.

### **4. HUD Notification**

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts, to ensure that parents have the information necessary to protect their children from lead-based paint hazards.

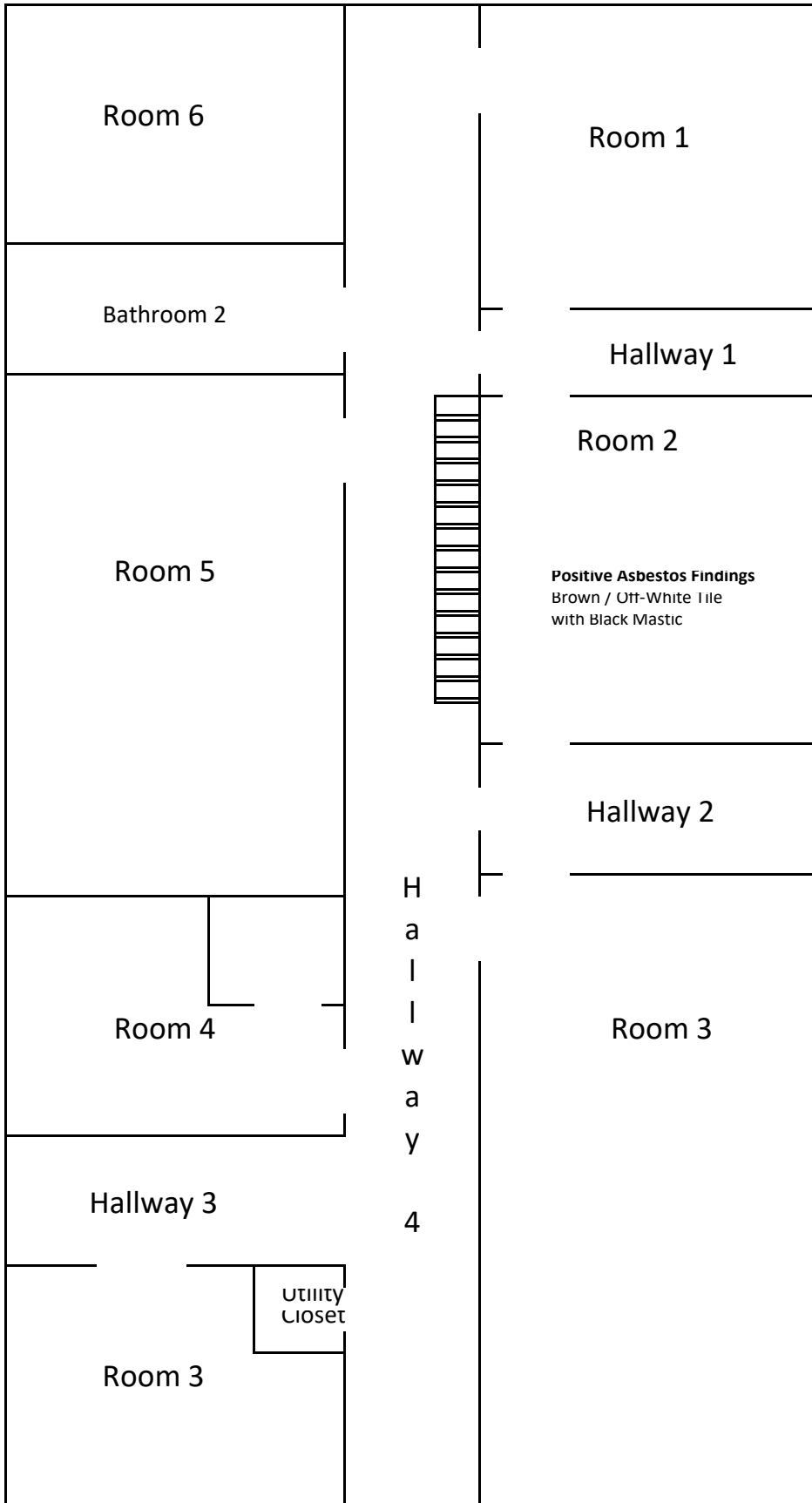
### **5. Attachments:**

- **Floor Plan/Diagram**
- **XRF Data Sheets**
- **Photo Log**
- **Methodology**
- **Lead Hazard Control Options**
- **Definitions**
- **XRF Analyzer Performance Characteristics Sheet**
- **Certifications and Licensure**

# ATTACHMENTS

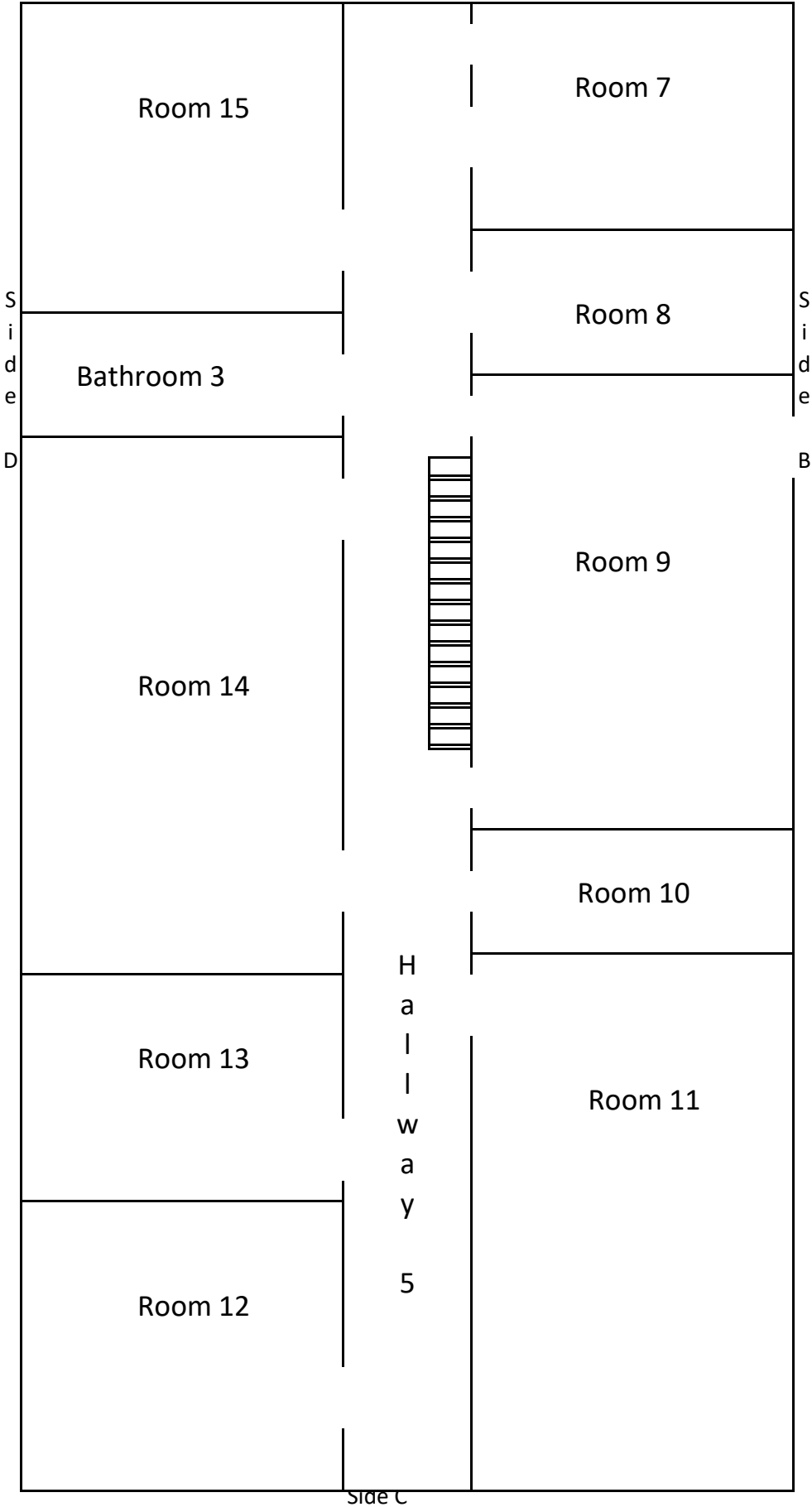
# **FLOOR PLAN/DIAGRAM**

Side A First Floor



Side C

Side A Second Floor



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Side C



# **XRF DATA SHEETS**

Reading #	Job	Room	Side	Component	Substrate	Condition	Color	Result	PbC	Units
1	Lowell	Calibration						Positive	1	mg/cm2
2	Lowell	Calibration						Positive	1	mg/cm2
3	Lowell	Calibration						Positive	1.1	mg/cm2
4	Lowell	Room 1	A	Wall	Plaster	Intact	Yellow	Negative	0.3	mg/cm2
5	Lowell	Room 1	B	Wall	Plaster	Intact	Yellow	Negative	0.5	mg/cm2
6	Lowell	Room 1	C	Wall	Drywall	Intact	Yellow	Negative	0.5	mg/cm2
7	Lowell	Room 1	D	Wall	Plaster	Intact	Yellow	Negative	0.7	mg/cm2
8	Lowell	Room 1	A	Window Casing	Wood	Intact	White	Negative	0.1	mg/cm2
9	Lowell	Room 1	A	Window Sash	Wood	Intact	White	Negative	0	mg/cm2
10	Lowell	Room 1	A	Window Sill	Wood	Intact	White	Negative	0.2	mg/cm2
11	Lowell	Room 1	A	Window Apron	Wood	Intact	White	Negative	0.2	mg/cm2
12	Lowell	Room 1	C	Door	Wood	Intact	White	Negative	0.2	mg/cm2
13	Lowell	Room 1	C	Door Casing	Wood	Intact	White	Negative	0.3	mg/cm2
14	Lowell	Room 1	C	Door Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
<b>15</b>	<b>Lowell</b>	<b>Room 1</b>	<b>A</b>	<b>Fire Place Wall</b>	<b>Brick</b>	<b>Intact</b>	<b>White</b>	<b>Positive</b>	<b>1.3</b>	<b>mg/cm2</b>
16	Lowell	Room 1	A	Fire Place Mantle	Wood	Intact	White	Negative	0.3	mg/cm2
17	Lowell	Room 1	A	Fire Place Frame	Metal	Intact	White	Negative	0.5	mg/cm2
18	Lowell	Room 1	D	Trim	Wood	Intact	White	Negative	0.1	mg/cm2
19	Lowell	Hallway 1	A	Wall	Plaster	Intact	Yellow	Negative	0.5	mg/cm2
20	Lowell	Hallway 1	C	Wall	Plaster	Intact	Yellow	Negative	0.6	mg/cm2
21	Lowell	Hallway 1	B	Door Casing	Wood	Intact	White	Negative	0.2	mg/cm2
22	Lowell	Hallway 1	B	Door Jamb	Wood	Intact	White	Negative	0.1	mg/cm2
23	Lowell	Hallway 1	B	Door	Wood	Intact	White	Negative	0	mg/cm2
24	Lowell	Hallway 1	C	Trim	Wood	Intact	White	Negative	0.1	mg/cm2
25	Lowell	Room 2	A	Wall	Plaster	Intact	Yellow	Negative	0.5	mg/cm2
26	Lowell	Room 2	B	Wall	Plaster	Intact	Yellow	Negative	0.8	mg/cm2
27	Lowell	Room 2	C	Wall	Plaster	Intact	Yellow	Negative	0.4	mg/cm2
28	Lowell	Room 2	D	Wall	Plaster	Intact	Yellow	Negative	0.4	mg/cm2
29	Lowell	Room 2	B	Window Casing	Wood	Intact	White	Negative	0.1	mg/cm2
30	Lowell	Room 2	B	Window Sash	Wood	Intact	White	Negative	0	mg/cm2
31	Lowell	Room 2	B	Window Jamb	Wood	Intact	White	Negative	0.1	mg/cm2
32	Lowell	Room 2	B	Window Sill	Wood	Intact	White	Negative	0	mg/cm2
33	Lowell	Room 2	B	Window Apron	Wood	Intact	White	Negative	0.2	mg/cm2
34	Lowell	Room 2	C	Baseboard	Wood	Intact	White	Negative	0.3	mg/cm2
35	Lowell	Room 2	C	Fire Place Wall	Brick	Intact	Red	Negative	0	mg/cm2
36	Lowell	Room 2	C	Fire Place Mantle	Wood	Intact	Brown	Negative	0.1	mg/cm2
37	Lowell	Room 2	C	Fire Place Frame	Metal	Intact	Brown	Negative	0.2	mg/cm2
38	Lowell	Hallway 2	A	Wall	Plaster	Intact	Yellow	Negative	0.3	mg/cm2
39	Lowell	Hallway 2	B	Wall	Plaster	Intact	Yellow	Negative	0.2	mg/cm2
40	Lowell	Hallway 2	C	Wall	Plaster	Intact	Yellow	Negative	0	mg/cm2
41	Lowell	Hallway 2	D	Wall	Plaster	Intact	Yellow	Negative	0.3	mg/cm2
42	Lowell	Hallway 2	A	Door Casing	Wood	Intact	White	Negative	0.2	mg/cm2
43	Lowell	Hallway 2	A	Door Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
44	Lowell	Hallway 2	A	Door	Wood	Intact	White	Negative	0.2	mg/cm2
45	Lowell	Hallway 2	A	Shelf	Wood	Intact	White	Negative	0.1	mg/cm2
46	Lowell	Hallway 2	A	Shelf Support	Wood	Intact	White	Negative	0.2	mg/cm2
47	Lowell	Hallway 2	A	Pipe	Metal	Intact	White	Negative	0.1	mg/cm2
48	Lowell	Hallway 2	B	Window Jamb	Wood	Intact	White	Negative	0.1	mg/cm2
49	Lowell	Hallway 2	B	Window Casing	Wood	Intact	White	Negative	0.1	mg/cm2
50	Lowell	Hallway 2	B	Window Sill	Wood	Intact	White	Negative	0	mg/cm2
51	Lowell	Hallway 2	B	Window Apron	Wood	Intact	White	Negative	0.2	mg/cm2
52	Lowell	Hallway 2	B	Baseboard	Wood	Intact	White	Negative	0.3	mg/cm2
53	Lowell	Room 3	A	Wall	Plaster	Intact	Yellow	Negative	0.2	mg/cm2
54	Lowell	Room 3	B	Wall	Plaster	Intact	Yellow	Negative	0.1	mg/cm2
55	Lowell	Room 3	C	Wall	Plaster	Intact	Yellow	Negative	0.4	mg/cm2
56	Lowell	Room 3	D	Wall	Plaster	Intact	Yellow	Negative	0.2	mg/cm2
57	Lowell	Room 3	A	Cabinets	Wood	Intact	White	Negative	0.1	mg/cm2
<b>58</b>	<b>Lowell</b>	<b>Room 3</b>	<b>A</b>	<b>Door</b>	<b>Wood</b>	<b>Intact</b>	<b>White</b>	<b>Positive</b>	<b>2.8</b>	<b>mg/cm2</b>
59	Lowell	Room 3	A	Door Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
60	Lowell	Room 3	A	Door Casing	Wood	Intact	White	Negative	0.3	mg/cm2

61	Lowell	Room 3	A	Window Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
62	Lowell	Room 3	A	Window Casing	Wood	Intact	White	Negative	0.3	mg/cm2
63	Lowell	Room 3	A	Window Sill	Wood	Intact	White	Negative	0.1	mg/cm2
64	Lowell	Room 3	A	Window Apron	Wood	Intact	White	Negative	0.1	mg/cm2
65	Lowell	Room 3	D	Baseboard	Wood	Intact	White	Negative	0.1	mg/cm2
66	Lowell	Utility Closet	B	Shelf	Wood	Intact	White	Negative	0	mg/cm2
67	Lowell	Utility Closet	D	Shelf	Wood	Intact	White	Negative	0	mg/cm2
68	Lowell	Utility Closet	D	Wall	Drywall	Intact	Tan	Negative	0.2	mg/cm2
69	Lowell	Utility Closet	A	Wall	Drywall	Intact	Tan	Negative	0.2	mg/cm2
70	Lowell	Utility Closet	B	Wall	Drywall	Intact	Tan	Negative	0.1	mg/cm2
71	Lowell	Utility Closet	C	Wall	Drywall	Intact	Tan	Negative	0.3	mg/cm2
72	Lowell	Utility Closet	C	Baseboard	Wood	Intact	White	Negative	0.1	mg/cm2
73	Lowell	Hallway 3	A	Wall	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
74	Lowell	Hallway 3	B	Wall	Drywall	Intact	Yellow	Negative	0.2	mg/cm2
75	Lowell	Hallway 3	C	Wall	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
76	Lowell	Hallway 3	D	Wall	Drywall	Intact	Yellow	Negative	0	mg/cm2
77	Lowell	Hallway 3	C	Door Jamb	Wood	Intact	White	Negative	0.1	mg/cm2
78	Lowell	Hallway 3	C	Door Casing	Wood	Intact	White	Negative	0.2	mg/cm2
79	Lowell	Hallway 3	C	Door	Wood	Intact	White	Negative	0	mg/cm2
80	Lowell	Room 4	A	Wall	Drywall	Intact	Yellow	Negative	0.2	mg/cm2
81	Lowell	Room 4	B	Wall	Drywall	Intact	Yellow	Negative	0.2	mg/cm2
82	Lowell	Room 4	C	Wall	Drywall	Intact	Yellow	Negative	0.4	mg/cm2
83	Lowell	Room 4	D	Wall	Drywall	Intact	Yellow	Negative	0.5	mg/cm2
84	Lowell	Room 4	B	Wall	Wood	Intact	Yellow	Negative	0.1	mg/cm2
85	Lowell	Room 4		Ceiling	Wood	Intact	White	Negative	0.1	mg/cm2
86	Lowell	Room 4	A	Baseboard	Wood	Intact	White	Negative	0.2	mg/cm2
87	Lowell	Bathroom 1	A	Wall	Drywall	Intact	Yellow	Negative	0.2	mg/cm2
88	Lowell	Bathroom 1	B	Wall	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
89	Lowell	Bathroom 1	C	Wall	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
90	Lowell	Bathroom 1	D	Wall	Drywall	Intact	Yellow	Negative	0	mg/cm2
91	Lowell	Bathroom 1	D	Baseboard	Drywall	Intact	White	Negative	0	mg/cm2
92	Lowell	Hallway 4	A	Wall	Plaster	Intact	Yellow	Negative	0.2	mg/cm2
93	Lowell	Hallway 4	B	Wall	Plaster	Intact	Yellow	Negative	0.2	mg/cm2
94	Lowell	Hallway 4	D	Wall	Plaster	Intact	Yellow	Negative	0.4	mg/cm2
95	Lowell	Hallway 4	D	Door Jamb	Plaster	Intact	White	Negative	0	mg/cm2
96	Lowell	Hallway 4	D	Door Casing	Plaster	Intact	White	Negative	0.1	mg/cm2
97	Lowell	Hallway 4	D	Door	Plaster	Intact	White	Negative	0.1	mg/cm2
98	Lowell	Hallway 4	D	Baseboard	Plaster	Intact	White	Negative	0	mg/cm2
99	Lowell	Room 5	A	Wall	Drywall	Intact	Green	Negative	0.1	mg/cm2
100	Lowell	Room 5	B	Wall	Drywall	Intact	Green	Negative	0.1	mg/cm2
101	Lowell	Room 5	C	Wall	Drywall	Intact	Green	Negative	0.1	mg/cm2
102	Lowell	Room 5	C	Wall	Plaster	Intact	Green	Negative	0.1	mg/cm2
103	Lowell	Room 5	D	Wall	Plaster	Intact	Green	Negative	0.5	mg/cm2
104	Lowell	Room 5	C	Window Casing	Wood	Intact	White	Negative	0.1	mg/cm2
105	Lowell	Room 5	C	Window Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
106	Lowell	Room 5	C	Window Sill	Wood	Intact	White	Negative	0.2	mg/cm2
107	Lowell	Room 5	C	Window Apron	Wood	Intact	White	Negative	0	mg/cm2
108	Lowell	Room 5	B	Baseboard	Wood	Intact	White	Negative	0.2	mg/cm2
109	Lowell	Room 5	B	Door Jamb	Wood	Intact	Yellow	Negative	0.1	mg/cm2
110	Lowell	Room 5	B	Door Casing	Wood	Intact	Yellow	Negative	0	mg/cm2
111	Lowell	Room 5	B	Door	Wood	Intact	Yellow	Negative	0.1	mg/cm2
112	Lowell	Utility Closet	B	Wall	Drywall	Intact	White	Negative	0.2	mg/cm2
113	Lowell	Utility Closet	C	Door Jamb	Drywall	Intact	White	Negative	0	mg/cm2
114	Lowell	Utility Closet	C	Door Casing	Drywall	Intact	White	Negative	0.2	mg/cm2
115	Lowell	Utility Closet	C	Door	Drywall	Intact	Brown	Negative	0.2	mg/cm2
116	Lowell	Room 6	B	Wall	Drywall	Intact	Yellow	Negative	0.9	mg/cm2
117	Lowell	Room 6	C	Wall	Drywall	Intact	Yellow	Negative	0	mg/cm2
118	Lowell	Room 6	D	Wall	Drywall	Intact	Yellow	Negative	0	mg/cm2
119	Lowell	Room 6	D	Window Jamb	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
120	Lowell	Room 6	D	Window Casing	Drywall	Intact	Yellow	Negative	0.1	mg/cm2
121	Lowell	Room 6	D	Window Sill	Drywall	Intact	Yellow	Negative	0.1	mg/cm2

122	Lowell	Room 6	D	Window Apron	Drywall	Intact	Yellow	Negative	0.2	mg/cm2
123	Lowell	Room 6	C	Baseboard	Wood	Intact	White	Negative	0.1	mg/cm2
124	Lowell	Bathroom 2	A	Wall	Drywall	Intact	Blue	Negative	0	mg/cm2
<b>125</b>	<b>Lowell</b>	<b>Bathroom 2</b>	<b>A</b>	<b>Wall</b>	<b>Ceramic</b>	<b>Intact</b>	<b>Blue</b>	<b>Positive</b>	<b>5.6</b>	<b>mg/cm2</b>
126	Lowell	Bathroom 2	A	Floor	Ceramic	Intact	Blue	Negative	0.2	mg/cm2
127	Lowell	Bathroom 2	A	Window Sash	Wood	Deteriorated	Blue	Negative	0.1	mg/cm2
128	Lowell	Bathroom 2	A	Window Jamb	Wood	Deteriorated	Blue	Negative	0.3	mg/cm2
129	Lowell	Bathroom 2	A	Window Casing	Wood	Deteriorated	Blue	Negative	0.4	mg/cm2
130	Lowell	Bathroom 2	A	Window Sill	Wood	Deteriorated	Blue	Negative	0.4	mg/cm2
131	Lowell	Bathroom 2	B	Door	Wood	Deteriorated	Blue	Negative	0.2	mg/cm2
132	Lowell	Bathroom 2	B	Door Jamb	Wood	Deteriorated	Off White	Negative	0	mg/cm2
133	Lowell	Bathroom 2	B	Door Casing	Wood	Deteriorated	Blue	Negative	0	mg/cm2
134	Lowell	Room 7	A	Wall	Plaster	Deteriorated	Yellow	Negative	0.2	mg/cm2
135	Lowell	Room 7	B	Wall	Plaster	Deteriorated	Yellow	Negative	0.4	mg/cm2
136	Lowell	Room 7	C	Wall	Plaster	Deteriorated	Yellow	Negative	0.3	mg/cm2
137	Lowell	Room 7	D	Wall	Plaster	Deteriorated	Yellow	Negative	0	mg/cm2
138	Lowell	Room 7	D	Wall	Wood	Deteriorated	Yellow	Negative	0.2	mg/cm2
139	Lowell	Room 7	A	Window Jamb	Wood	Deteriorated	Yellow	Negative	0.2	mg/cm2
140	Lowell	Room 7	A	Window Sash	Wood	Deteriorated	Yellow	Negative	0.1	mg/cm2
141	Lowell	Room 7	A	Window Casing	Wood	Deteriorated	Yellow	Negative	0.2	mg/cm2
142	Lowell	Room 7	A	Window Sill	Wood	Deteriorated	Yellow	Negative	0.1	mg/cm2
143	Lowell	Room 7	C	Door Jamb	Wood	Deteriorated	Yellow	Negative	0	mg/cm2
144	Lowell	Room 7	C	Door Casing	Wood	Deteriorated	Yellow	Negative	0.2	mg/cm2
145	Lowell	Room 7	C	Door	Wood	Deteriorated	Yellow	Negative	0.1	mg/cm2
146	Lowell	Room 7	C	Baseboard	Wood	Deteriorated	White	Negative	0.3	mg/cm2
147	Lowell	Room 7	C	Baseboard	Wood	Deteriorated	White	Negative	0.1	mg/cm2
148	Lowell							Positive	1.1	mg/cm2
149	Lowell							Positive	1	mg/cm2
150	Lowell							Positive	1.1	mg/cm2
151	Lowell	Stairwell		Stair Balusters	Wood	Intact	White	Negative	0.2	mg/cm2
152	Lowell	Stairwell		Stair Skirt Board	Wood	Intact	White	Negative	0.2	mg/cm2
153	Lowell	Stairwell		Stair Risers	Wood	Intact	White	Negative	0.1	mg/cm2
154	Lowell	Stairwell		Stair Newel Post	Wood	Intact	White	Negative	0	mg/cm2
155	Lowell	Hallway 4		Ceiling	Plaster	Intact	White	Negative	0.3	mg/cm2
156	Lowell	2nd Floor Hallway	B	Wall	Plaster	Intact	White	Negative	0.4	mg/cm2
157	Lowell	2nd Floor Hallway	C	Wall	Plaster	Intact	White	Negative	0	mg/cm2
158	Lowell	2nd Floor Hallway	D	Wall	Plaster	Intact	White	Negative	0.2	mg/cm2
159	Lowell	2nd Floor Hallway	B	Door Jamb	Plaster	Intact	White	Negative	0	mg/cm2
160	Lowell	2nd Floor Hallway	B	Door Casing	Plaster	Intact	White	Negative	0.1	mg/cm2
161	Lowell	2nd Floor Hallway	B	Door	Plaster	Intact	Brown	Negative	0.2	mg/cm2
162	Lowell	Room 8	D	Wall	Wood	Intact	Brown	Negative	0.1	mg/cm2
163	Lowell	Room 8	B	Window Well	Wood	Intact	Brown	Negative	0.2	mg/cm2
164	Lowell	Room 8	B	Window Sash	Wood	Deteriorated	Brown	Negative	0.2	mg/cm2
165	Lowell	Room 8	B	Window Sash	Wood	Deteriorated	Brown	Negative	0	mg/cm2
166	Lowell	Room 8	B	Window Casing	Wood	Deteriorated	Brown	Negative	0.2	mg/cm2
167	Lowell	Room 8	B	Window Jamb	Wood	Deteriorated	Brown	Negative	0.4	mg/cm2
168	Lowell	Room 9	A	Wall	Plaster	Intact	Beige	Negative	0.1	mg/cm2
169	Lowell	Room 9	B	Wall	Plaster	Intact	Beige	Negative	0	mg/cm2
170	Lowell	Room 9	C	Wall	Plaster	Intact	Beige	Negative	0.1	mg/cm2
171	Lowell	Room 9	D	Wall	Plaster	Intact	Beige	Negative	0.5	mg/cm2
172	Lowell	Room 9	D	Wall	Plaster	Intact	Beige	Negative	0	mg/cm2
173	Lowell	Room 9	B	Window Sash	Wood	Intact	White	Negative	0.1	mg/cm2
174	Lowell	Room 9	B	Window Jamb	Wood	Intact	White	Negative	0.2	mg/cm2
175	Lowell	Room 9	B	Window Casing	Wood	Intact	White	Negative	0	mg/cm2
176	Lowell	Room 9	B	Window Sill	Wood	Intact	White	Negative	0	mg/cm2
177	Lowell	Room 9	B	Window Apron	Wood	Intact	White	Negative	0	mg/cm2
178	Lowell	Room 9	B	Baseboard	Wood	Intact	White	Negative	0.2	mg/cm2
179	Lowell	Room 9	B	Floor	Wood	Intact	Green	Negative	0.1	mg/cm2
180	Lowell	Room 10	A	Wall	Drywall	Intact	Blue	Negative	0	mg/cm2
181	Lowell	Room 10	B	Wall	Drywall	Intact	Blue	Negative	0.1	mg/cm2
182	Lowell	Room 10	C	Wall	Drywall	Intact	Blue	Negative	0	mg/cm2

183	Lowell	Room 10	D	Wall	Drywall	Intact	Blue	Negative	0.3	mg/cm2
184	Lowell	Room 10	B	Baseboard	Wood	Intact	Blue	Negative	0	mg/cm2
185	Lowell	Room 10	B	Window Casing	Wood	Intact	Blue	Negative	0.1	mg/cm2
186	Lowell	Room 10	B	Window Sash	Wood	Intact	Blue	Negative	0	mg/cm2
187	Lowell	Room 10	B	Window Sill	Wood	Intact	Blue	Negative	0	mg/cm2
188	Lowell	Room 10	B	Window Apron	Wood	Intact	Blue	Negative	0.1	mg/cm2
189	Lowell	Room 10	B	Door Jamb	Wood	Intact	Blue	Negative	0	mg/cm2
190	Lowell	Room 10	B	Door Casing	Wood	Intact	Blue	Negative	0.1	mg/cm2
191	Lowell	Room 10	B	Door	Wood	Intact	Blue	Negative	0	mg/cm2
192	Lowell	Room 11	A	Wall	Plaster	Intact	Off White	Negative	0.5	mg/cm2
193	Lowell	Room 11	B	Wall	Plaster	Intact	Off White	Negative	0.2	mg/cm2
194	Lowell	Room 11	C	Wall	Plaster	Intact	Off White	Negative	0.3	mg/cm2
195	Lowell	Room 11	D	Wall	Plaster	Intact	Off White	Negative	0.3	mg/cm2
196	Lowell	Room 11	D	Baseboard	Wood	Intact	Off White	Negative	0.1	mg/cm2
<b>197</b>	<b>Lowell</b>	<b>Room 11</b>	<b>D</b>	<b>Floor</b>	<b>Wood</b>	<b>Intact</b>	<b>Green</b>	<b>Positive</b>	<b>1.3</b>	<b>mg/cm2</b>
198	Lowell	Room 11	D	Door Casing	Wood	Intact	White	Negative	0	mg/cm2
199	Lowell	Room 11	D	Door Jamb	Wood	Intact	White	Negative	0.1	mg/cm2
200	Lowell	Room 11	A	Window Sash	Wood	Intact	White	Negative	0.3	mg/cm2
201	Lowell	Room 11	A	Window Casing	Wood	Intact	White	Negative	0.1	mg/cm2
202	Lowell	Room 11	A	Window Sill	Wood	Intact	White	Negative	0.3	mg/cm2
203	Lowell	Room 12	A	Wall	Plaster	Intact	White	Negative	0.1	mg/cm2
204	Lowell	Room 12	B	Wall	Plaster	Intact	White	Negative	0.1	mg/cm2
205	Lowell	Room 12	C	Wall	Plaster	Intact	White	Negative	0	mg/cm2
206	Lowell	Room 12	D	Wall	Plaster	Intact	White	Negative	0.1	mg/cm2
207	Lowell	Room 12	C	Window Sill	Wood	Deteriorated	White	Negative	0.2	mg/cm2
208	Lowell	Room 12	C	Window Casing	Wood	Deteriorated	White	Negative	0.2	mg/cm2
209	Lowell	Room 12	A	Door Casing	Wood	Intact	White	Negative	0.4	mg/cm2
210	Lowell	Room 12	A	Door Jamb	Wood	Intact	White	Negative	0	mg/cm2
211	Lowell	Room 12	A	Door	Wood	Intact	White	Negative	0.1	mg/cm2
212	Lowell	Room 12	A	Baseboard	Wood	Intact	White	Negative	0.3	mg/cm2
213	Lowell	Room 13	D	Wall	Wood	Deteriorated	Grey	Negative	0.4	mg/cm2
214	Lowell	Room 13	A	Wall	Wood	Deteriorated	Grey	Negative	0.2	mg/cm2
215	Lowell	Room 13	B	Wall	Wood	Deteriorated	Grey	Negative	0.3	mg/cm2
216	Lowell	Room 13	B	Door Casing	Wood	Deteriorated	White	Negative	0.1	mg/cm2
217	Lowell	Room 13	B	Door Jamb	Wood	Deteriorated	White	Negative	0	mg/cm2
218	Lowell	Room 14	B	Wall	Drywall	Intact	Red	Negative	0	mg/cm2
219	Lowell	Room 14	A	Wall	Drywall	Intact	Red	Negative	0	mg/cm2
220	Lowell	Room 14	B	Door Casing	Wood	Intact	Red	Negative	0.1	mg/cm2
221	Lowell	Room 14	B	Door Jamb	Wood	Intact	White	Negative	0	mg/cm2
222	Lowell	Room 14	B	Floor	Wood	Intact	Red	Negative	0.5	mg/cm2
223	Lowell	Room 15	A	Wall	Drywall	Intact	Red	Negative	0.1	mg/cm2
224	Lowell	Room 15	A	Wall	Drywall	Intact	White	Negative	0.2	mg/cm2
225	Lowell	Room 15	B	Wall	Drywall	Intact	White	Negative	0	mg/cm2
226	Lowell	Room 15	C	Wall	Drywall	Intact	White	Negative	0.2	mg/cm2
227	Lowell	Room 15	D	Wall	Drywall	Intact	White	Negative	0.1	mg/cm2
228	Lowell	Room 15	D	Floor	Drywall	Intact	White	Negative	0.7	mg/cm2
229	Lowell	Bathroom 3	A	Wall	Drywall	Intact	Beige	Negative	0.1	mg/cm2
<b>230</b>	<b>Lowell</b>	<b>Bathroom 3</b>	<b>A</b>	<b>Wall</b>	<b>Ceramic</b>	<b>Intact</b>	<b>Beige</b>	<b>Positive</b>	<b>2.7</b>	<b>mg/cm2</b>
231	Lowell	Bathroom 3	A	Floor	Ceramic	Intact	Beige	Negative	0.2	mg/cm2
232	Lowell	Room 15	A	Ceiling	Plaster	Intact	Grey	Negative	0	mg/cm2
233	Lowell	Room 15	B	Ceiling	Plaster	Deteriorated	Grey	Negative	0.2	mg/cm2
234	Lowell	Room 15	C	Ceiling	Plaster	Deteriorated	Grey	Negative	0.1	mg/cm2
235	Lowell	Room 15	D	Ceiling	Plaster	Deteriorated	Grey	Negative	0	mg/cm2
236	Lowell	Room 15	D	Window Casing	Wood	Deteriorated	Grey	Negative	0	mg/cm2
237	Lowell	Room 15	D	Window Sill	Wood	Deteriorated	Grey	Negative	0.1	mg/cm2
<b>238</b>	<b>Lowell</b>	<b>Room 15</b>	<b>D</b>	<b>Window Well</b>	<b>Wood</b>	<b>Deteriorated</b>	<b>Grey</b>	<b>Positive</b>	<b>8.8</b>	<b>mg/cm2</b>
239	Lowell	Room 15	B	Door	Wood	Intact	Grey	Negative	0	mg/cm2
240	Lowell	Room 15	B	Door Jamb	Wood	Intact	Grey	Negative	0	mg/cm2
241	Lowell	Exterior	B	Wall	Brick	Intact	Tan	Negative	0.1	mg/cm2
<b>242</b>	<b>Lowell</b>	<b>Exterior</b>	<b>B</b>	<b>Window Casing</b>	<b>Wood</b>	<b>Intact</b>	<b>White</b>	<b>Positive</b>	<b>11</b>	<b>mg/cm2</b>
<b>243</b>	<b>Lowell</b>	<b>Exterior</b>	<b>B</b>	<b>Window Sash</b>	<b>Wood</b>	<b>Intact</b>	<b>White</b>	<b>Positive</b>	<b>2.5</b>	<b>mg/cm2</b>

244	Lowell	Exterior	B	Door	Wood	Intact	Black	Negative	0	mg/cm2
245	Lowell	Exterior	B	Window	Wood	Intact	Black	Positive	9.3	mg/cm2
246	Lowell	Exterior	B	Door Jamb	Wood	Intact	Black	Positive	10.3	mg/cm2
247	Lowell	Exterior	C	Wall	Wood	Intact	Black	Negative	0	mg/cm2
248	Lowell	Exterior	C	Wall	Brick	Intact	Black	Negative	0.1	mg/cm2
249	Lowell	Exterior	C	Door Jamb	Wood	Intact	Beige	Negative	0.1	mg/cm2
250	Lowell	Exterior	C	Door Casing	Wood	Intact	Beige	Negative	0.1	mg/cm2
251	Lowell	Exterior	C	Door	Wood	Intact	Beige	Negative	0	mg/cm2
252	Lowell	Exterior	C	Window Sill	Concrete	Intact	Beige	Positive	2.6	mg/cm2
253	Lowell	Exterior	D	Wall	Brick	Intact	Beige	Negative	0.1	mg/cm2
254	Lowell	Exterior	D	Window Sill	Concrete	Intact	Beige	Negative	0	mg/cm2
255	Lowell	Exterior	A	Window Sill	Concrete	Intact	Beige	Positive	9	mg/cm2
256	Lowell	Exterior	A	Window Sash	Wood	Intact	White	Negative	0.4	mg/cm2
257	Lowell	Exterior	A	Window Sill	Wood	Intact	White	Positive	1.1	mg/cm2
258	Lowell	Exterior	A	Window Casing	Wood	Intact	White	Positive	5.1	mg/cm2
259	Lowell	Exterior	A	Door	Wood	Intact	Black	Negative	0.1	mg/cm2
260	Lowell	Exterior	A	Door Casing	Wood	Intact	Black	Negative	0	mg/cm2
261	Lowell	Exterior	A	Column	Brick	Intact	Beige	Negative	0	mg/cm2
262	Lowell	Exterior	A	Trim	Brick	Intact	Beige	Positive	7.6	mg/cm2
263	Lowell	Exterior	A	Header	Wood	Intact	Beige	Positive	7.9	mg/cm2
264	Lowell	Exterior	A	Wall Cap	Concrete	Intact	Beige	Negative	0.4	mg/cm2
265	Lowell	Exterior	B	Ceiling	Wood	Deteriorated	Beige	Positive	4.6	mg/cm2
266	Lowell	Exterior	B	Trim	Wood	Deteriorated	Beige	Positive	6.8	mg/cm2
267	Lowell	Exterior	B	Header	Wood	Deteriorated	Beige	Positive	8.5	mg/cm2
268	Lowell	Exterior	B	Floor	Concrete	Intact	Grey	Negative	0.1	mg/cm2
269	Lowell							Positive	1	mg/cm2
270	Lowell							Negative	0.9	mg/cm2
271	Lowell							Negative	0.8	mg/cm2

# PHOTO LOG

IHCH210085.00 City of Lowell Community Center Positive Photo Log

	
Reading 15 – Room 1 Fireplace	Reading 58 – Room 3 Door
	
Reading 125 – Bathroom 2 Wall Tile	Reading 197 – Room 11 Floor Linoleum
	
Room 7 Baseboard	Exterior Side B Window Casing



IHCH210085.00 City of Lowell Community Center Positive Photo Log



Exterior Side B Window Sash



Exterior Side B Window



Exterior Side B Door Jamb



Exterior Side C Window Sill (concrete)



Exterior Side B Wood Trim



Exterior Side B Wood Trim

IHCH210085.00 City of Lowell Community Center Positive Photo Log

		
Exterior Side C Window Trim		Exterior Side C Soffit
		
Exterior Side A Porch Ceiling Trim		Exterior Side B Porch Ceiling
		
Exterior Side B Trim		Exterior Side B Header

# METHODOLOGY

## XRF SURFACE-BY-SURFACE INSPECTION METHODOLOGY

According to HUD/EPA/NCHHCU Guidelines, lead in quantities equal to and greater than 1.0 mg/cm<sup>2</sup> must be present to be considered a lead-based paint. However, detectable lead in quantities less than 1.0 mg/cm<sup>2</sup> may contribute to the development of lead dust hazards even though it is not a lead-based paint hazard according to the HUD/EPA/NCHHCU definition of a lead-based paint.

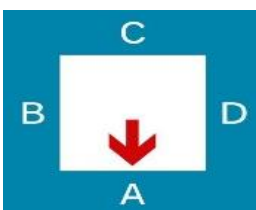
The lead-based paint inspection determined whether lead-based paint is present in the residence and, if present, which components contain lead-based paint. This was accomplished through the measurement of the concentration of lead in paint on a surface-by-surface basis both inside the residence and on the exterior surfaces of the residence using an XRF. Only accessible painted and/or varnished surfaces were tested using the direct read spectrum analyzer. Determination of paint condition is described below. The inspection was conducted following EPA's work practice standards for conducting lead-based paint activities (40 CFR 745.227), the U.S. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (Guidelines) with the June 2012 revisions, and all State and local regulations except that a different visible color shall, by itself, result in a separate testing combination for a room equivalent. When evaluating this report, it is assumed that, according to Chapter 7 HUD Guidelines, samples are taken to represent component types; therefore, it should be assumed that similar component types in the rest of that room or room equivalent also contain lead-based paint. The same is true for negative readings. In addition, all requirements on XRF usage contained in the Performance Characteristics Sheet for the specific XRF being used were followed.

## VIKEN DETECTION PB200I LEAD ANALYZER

The sampling strategy adheres to the EPA Performance Characteristic Sheet for the XRF instrument used, as well as the manufacturer's modifications and recommendations. The XRFs used for detection of lead-based paint is the Viken Detection Analyzer (Serial Numbers: 2753 & 2810, Pb200i). It was manufactured by Viken Detection, headquartered at 21 North Avenue in Burlington, MA, 01803.

Samples may be classified as POS (Positive), NEG (Negative), or NULL (Incomplete). Positive results indicate lead in quantities equal to or greater than 1.0 mg/cm<sup>2</sup> and are considered lead-based paint. Negative results indicate lead in quantities less than 1.0 mg/cm<sup>2</sup> and are not considered lead-based paint. However, detectable lead quantities less than 1.0 mg/cm<sup>2</sup> may lead to the development of lead dust hazards even though it is not a lead-based paint according to the HUD/EPA standard. Incomplete/Null results should be ignored as insufficient data was collected by the XRF during the sample time to determine if the sample is positive or negative (i.e. the instrument slipped or was removed prematurely, terminating the test).

When standing in any four-sided room facing side A, which coincides with the front of the dwelling, side B will be to the right, side C will be to the rear, and side D will be to the left (clockwise from side A).





## DESCRIPTION OF PAINT CONDITION HAZARD RANKINGS

The paint condition is placed into one of two categories using the risk assessor's professional judgement. These categories are: intact and deteriorated. Based on the approximate surface area of deteriorated paint, the risk assessor then assesses the paint condition as intact or deteriorated.

Hazard ranking protocol was assessed following the HUD Guidelines for Evaluation and Control of Lead-Based Paint Hazards in Housing, dated June 2012. This information is summarized below.

Type of Building Component <sup>1</sup>	Total Area of Deteriorated Paint on Each Component	
	Intact <sup>1</sup>	Deteriorated <sup>2</sup>
Interior/ Exterior building components	Entire surface area is intact	Entire surface area is <b>NOT</b> intact
Interior components with large surface area	Entire surface area is intact	Entire surface area is <b>NOT</b> intact
Interior and exterior components w/ small surface areas	Entire surface area is intact	Entire surface area is <b>NOT</b> intact

Notes:

1. Indicates each individual building component or side of the building, not the combined surface area of similar components in a room.
2. Indicates surfaces in deteriorated condition are considered to be lead-based paint hazards as defined by Title X and should be addressed through abatement or interim controls which are described in the recommendations in this report.

# LEAD HAZARD CONTROL OPTIONS

Under HUD Guidelines, there are a range of lead hazard control methods that maybe implemented at the property. It is only the responsibility of the Lead-Based Paint Risk Assessor, and The EI Group, Inc. to provide these recommended lead hazard control options. These control measures range from various interim controls (e.g., minor wet scraping, and repainting) to abatement measures (e.g., building component replacement, enclosure, and paint removal) that may not, for such reasons as funding limitations, be conducted for some time. EI has endeavored to provide information that will assist the rehabilitating organization and the homeowner in making an informed decision on this complex issue. Ultimately, the homeowner must make the final decision.

## HUD AND EPA DEFINED LEAD HAZARD CONTROL METHODS

**Abatement:** A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; post-abatement clearance testing; recordkeeping; and, if applicable, monitoring. (For full EPA definition, see 40 CFR 745.223).

**Cleaning:** The process of using a vacuum and wet cleaning agent(s) to remove leaded dust; the process includes the removal of bulk debris from the work area.

**Encapsulation:** Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See, also, Enclosure.

**Enclosure:** The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

**Friction surface:** Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

**Impact surface:** An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

**Interim controls:** A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include, but are not limited to, specialized cleaning, repairs, maintenance, painting, temporary containment, and the establishment and operation of management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; and treatment of friction and impact surfaces; Interim controls that disturb painted surfaces are renovation activities under EPA's Renovation, Repair and Painting Rule.

**Lead-based paint hazard control:** Activities intended to control and eliminate lead-based paint hazards, including but not limited to interim controls and abatement.

**Maintenance:** In the context of lead hazard control, work intended to maintain adequate living or occupancy conditions in target housing or a pre-1978 child-occupied facility; it may have the potential to disturb known or presumed lead-based paint.

**Paint stabilization:** The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint. Paint stabilization also includes eliminating the cause(s) of paint deterioration, cleanup and clearance.

**Paint removal:** The removal of lead-based paint from surfaces; this may be an abatement strategy, or it may occur as a part of a renovation project.

**Replacement:** A strategy of abatement that involves the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

**Treatment:** A method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal.

# DEFINITIONS

**Lead-Based Paint:** Paint that contains 1.0 milligram per centimeter square ( $\text{mg}/\text{cm}^2$ ) of lead or greater. Also measured as greater than 0.5 percent lead or has 5,000 parts per million (ppm) lead by dry weight.

**Lead-Based Paint Hazards:** Housing conditions that cause human exposure to unsafe levels of lead from paint. These conditions include deteriorated lead-based paint; friction, impact or chewable painted surfaces; lead-contaminated dust; or lead-contaminated soil.

## LEAD HAZARD EVALUATION

**Paint Testing:** Testing of specific surfaces, by XRF (x-ray fluorescence) or lab analysis, to determine the lead content of these surfaces, performed by a certified lead-based paint inspector or certified lead-based paint risk assessor.

**Risk Assessment:** A comprehensive evaluation for lead-based paint hazards that includes paint testing, dust and soil sampling, and a visual evaluation. The risk assessment report identifies lead hazards and appropriate lead hazard reduction methods. A certified lead-based paint risk assessor must conduct the assessment.

**Lead Hazard Screen:** A limited risk assessment activity that can be performed instead of a risk assessment in units that meet certain criteria (e.g. good condition). The screen must be performed by a certified lead-based paint risk assessor. If the unit fails the lead hazard screen, a full risk assessment must be performed.

**Clearance Examination:** Clearance is performed after hazard reduction, rehabilitation or maintenance activities to determine if a unit is safe for occupancy. It involves a visual assessment, analysis of dust and soil samples, and preparation of report. A certified lead-based paint risk assessor, lead-based paint inspector, or clearance technician (independent from entity/individual conducting paint stabilization or hazard reduction) conducts clearance.

## LEAD HAZARD REDUCTION

**Paint Film Stabilization:** An interim control method that stabilizes painted surfaces and addressed the underlying cause of deterioration. Steps include repairing defective surfaces, removing loose paint and applying new paint.

**Interim Controls:** Set of measures to temporarily control lead-based paint hazards. Interim control methods must be completed by qualified workers using safe work practices. Follow-up monitoring is needed.

**Standard Treatments:** A complete set of interim control methods that when used together temporarily control all potential lead hazards in a unit. Because they address all conditions, a risk assessment or other evaluation is not needed. Standard treatments must be completed by qualified workers using safe work practices. As with interim controls, follow-up monitoring is needed.

**Abatement:** Measures to permanently control (i.e. 20 years or more) lead-based paint or lead-based paint hazards.

## **LBP – KEY UNITS OF MEASUREMENT**

**µg (microgram):** A Microgram is  $1/1000^{\text{th}}$  of a milligram (or one millionth of a gram). To put this unit into perspective, penny weighs 2 grams. To get a microgram, you would need to divide the penny into 2 million pieces. A microgram is one of those two million pieces.

**ft<sup>2</sup> (Square Foot):** One square foot is equal to an area that has a length of one foot (12 inches) and a width of one foot (12 inches).

**µg/dL:** Micrograms per deciliter is used to measure the level of lead in children's blood to establish whether intervention is needed. A deciliter ( $1/10^{\text{th}}$  of liter) is a little less than half a cup. As noted above, a microgram is the same weight as one penny divided into two million parts.

**mg/cm<sup>2</sup>:** Milligrams per square centimeter, used for measuring lead in finished surfaces by XRF machines.

**Percent (%):** Percent by dry weight, a unit of measuring lead in finished surfaces via paint chip sample analysis.

**ppm:** Parts per million, by weight, equivalent to µg/gram (10,000 ppm = 1 percent). Used to measure lead content in paint and soil.

## **LEAD-BASED PAINT STANDARDS**

Definition of Lead-Based Paint – Paint or surface coating that contains at least:

- 1 milligram per centimeters square ( $\text{mg}/\text{cm}^2$ ) of lead;
- 0.5 percent lead; or
- 5,000 parts per million (ppm) lead by dry weight.



# **XRF ANALYZER PERFORMANCE CHARACTERISTICS SHEET**

## Performance Characteristic Sheet

**6. EFFECTIVE DATE:** December 1, 2015

**MANUFACTURER AND MODEL:**

Make: *Heuresis*  
 Models: *Model Pb200i*  
 Source: *<sup>57</sup>Co, 5 mCi (nominal – new source)*

### FIELD OPERATION GUIDANCE

**7. OPERATING PARAMETERS:**

Action Level mode

**8. XRF CALIBRATION CHECK LIMITS:**

0.8 to 1.2 mg/cm<sup>2</sup> (inclusive)

**SUBSTRATE CORRECTION:**

Not applicable

**9. INCONCLUSIVE RANGE OR THRESHOLD:**

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

### BACKGROUND INFORMATION

**10. 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.

**11. 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.

## 12. XRF CALIBRATION CHECK:

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

## 13. 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<sup>2</sup> 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<sup>2</sup> 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<sup>2</sup>. 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.

For each substrate type (the 1.02 mg/cm<sup>2</sup> NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1\text{st} + 2\text{nd} + 3\text{rd} + 4\text{th} + 5\text{th} + 6\text{th Reading})/6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

## 14. 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.

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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.

#### 15. 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<sup>2</sup>. 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.

<b>Mean and Standard Deviation of Reading Times in Action Level Mode by Reading Level</b>		
<b>Reading (mg/cm<sup>2</sup>)</b>	<b>Mean Reading Time (seconds)</b>	<b>Standard Deviation (seconds)</b>
< 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
> 1.5	3.32	0.05

**16. 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<sup>2</sup>), and *negative* if they are *less than* the threshold.

**17. 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.

# **CERTIFICATIONS AND LICENSURE**



North Carolina Department of Health and Human Services  
Division of Public Health

## Health Hazards Control Unit

### *Lead-Based Paint Hazard Management Program*

The EI Group Inc

*Is Issued Lead Firm Certification*

Lead Certification Number - FPB-0018

*Valid between December 07, 2020 and December 31, 2021*

*Ed Johnson*

Program Manager

NC Health Hazards Control Unit  
1912 Mail Service Center, Raleigh, NC 27699-1912

Phone 919-707-5950



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor

MANDY COHEN, MD, MPH • Secretary

MARK T. BENTON • Assistant Secretary for Public Health,

Division of Public Health

February 19, 2020

Lee B Clark
111 O'Hara Ct
Cary, NC 27513

Dear Mr. Clark:

The Health Hazards Control Unit (HHCU) has determined that you have fulfilled the application requirements and are eligible for lead certification as a(n) RISK ASSESSOR. Your assigned Risk Assessor certification number is 120065, which is reflected on your enclosed North Carolina Lead Certification card. The State requires that all persons conducting regulated lead-based paint activities be certified and have their identification card on-site.

A "Lead-Based Paint Activity Summary" shall be submitted to the HHCU by the certified inspector or risk assessor within 45 days of each inspection, risk assessment, or lead hazard screen conducted. The information shall be submitted on a form provided or approved by the Program, per 10A NCAC 41C .0807(b), Lead-Based Paint Hazard Management Program Rules.

Accredited refresher training must be completed at least every 24 months from the date of the last accredited training course AND within twelve months prior to applying for certification. The HHCU strongly recommends that individuals note the date of certification expiration and ensure all refresher training meets the above requirements.

Your North Carolina Risk Assessor certification will expire on FEBRUARY 28, 2021. It is NOT the policy of the HHCU to issue renewal notices. If you wish to continue working as a(n) Risk Assessor after this expiration date, you must successfully complete the required training and submit a completed application to this office prior to February 28, 2021. If you should perform lead-based paint activities as a(n) Risk Assessor without a valid North Carolina certification, you will be in violation of State regulations and may be cited for noncompliance.

If you have any questions, please contact our office at (919) 707-5954.

Sincerely,

Ed Norman (signature)

Ed Norman
Program Manager
Health Hazards Control Unit



NORTH CAROLINA LEAD CERTIFICATION

Lee B Clark
111 O'Hara Ct
Cary, NC 27513

Table with columns: DOB, SEX, HT, WT. Values: 01-31-1967, M, 5'10", 180

Table with columns: DISCIPLINE, #, LAST COURSE, EXPIRATION. Values: RISK ASSESSOR, 120065, INS 12-18-2019, RIS 12-19-2019, 02-28-2021

MAN SERVICES . DIVISION OF PUBLIC HEALTH

LOCATION: 5505 Six Forks Road, Building 1, Raleigh, NC 27609
MAILING ADDRESS: 1912 Mail Service Center, Raleigh, NC 27699-1912
www.ncdhhs.gov . TEL: 919-707-5950 . FAX: 919-870-4808

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