LEAD-BASED PAINT LIMITED SURVEY

IMPROVEMENTS ACAA BLDG REGION SJ (LIMITED TO APPROX. AREA 86.7’ X 42’) & IMPROVEMENTS ACAA BLDG LOBBY (APPROX. AREA 30.1’ X 28.10’),

Avenida Arterial Hostos, San Juan Puerto Rico 00918



Inspection Date: August 6, 2024

Prepared for: ACAA/ABACUS Architecture PSC

Prepared by: Nortol Environmental & Occupational Safety, Inc.

Inspector:

Hiram Torres
Lead Inspector
LBP I.D. # LBPI-07124-070

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***NORTOL** has performed this survey in a thorough and professional manner consistent with commonly accepted industry standards.*

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Acronyms

A/C	=	Air Conditioning
CFR	=	Code of Federal Regulations
CPSC	=	Consumer Product Safety Commission
EPA	=	Environmental Protection Agency
Ft2	=	square feet
HA	=	Homogeneous Area
HUD	=	Department of Housing and Urban Development
LBP	=	Lead-based Paint
LF	=	Linear Feet
mg/cm2	=	milligrams per square centimeter
NESHAP'S	=	National Emission Standards for Hazardous Air Pollutants
NIOSH	=	National Institute for Occupational Safety and Health
OSHA	=	Occupational Safety and Health Administration
PRDOH	=	Puerto Rico Department of Housing
PRDNER	=	Puerto Rico Department of Natural and Environmental Resources
SOW	=	Scope of Work
XRF	=	X-Ray Fluorescent

I. INTRODUCTION

As part of the environmental due diligence, this limited survey is intended to assess the general presence, quantity, and location of LBP and lead-glazed ceramic components above allowable levels at Improvements ACAA Bldg Region SJ (limited to approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10') projects located at *Avenida Arterial Hostos, San Juan, P.R. 00918.*

The LBP limited survey, conforming to Housing Urban Development (HUD) Guidelines for the Evaluation and Control of Lead Based Paint in Housing, was conducted on August 6, 2024, by Mr. Hiram Torres (Lead inspector number: LBPI-07124-070) from Nortol. Copy of Nortol's registration with the PRDNER as registered corporation is included in **Attachment 1**. Inspector's credential(s) is included in **Attachment 2.** Nortol's survey areas and report are limited to the details provided in Section II part D.

Based on the results of the survey, 106 XRF readings were performed using an XRF analyzer on the identified and accessible surfaces in the interior and/or exterior of the subject structure. About 1,800 FT2 of lead-glazed ceramic tiles (which are regulated as LBP in Puerto Rico) were identified in the project (on floors, baseboards or walls). See Attachment 3, diagrams in Attachment 5 and pictures in Attachment 6 (pages 8 to10) for additional information.

There is concrete, metal, and wood structural components. The floors have vinyl, terrazzo, or ceramic tiles. Also, ceramic tiles are present on some walls. The survey SOW was limited to the proposed *Improvements ACAA Bldg Region SJ (limited to approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R*.

II. LEAD BASED PAINT SURVEY REPORT

A. Lead Based Paint Findings:

LBP was found in some of the project accessed components. Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in the **Attachment 6.**

B. Survey Protocol and Sampling Procedure:

The survey was conducted following the *HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (as Revised, Chapter 7)*. The technique used for assessing the painted components was the XRF instrument. The following guidelines were used to perform LBP testing:

1. Achieve inventory of painted surfaces
2. Select areas to be assessed.
3. Perform XRF testing.
4. Review and evaluate the data.
5. Report findings

The XRF instrument was set at Standard Paint Mode showing reading "Positive" or "Negative" with a 95% confident reading. The result is reported in mg/cm^2. **Attachment 7** includes the XRF Performance Characteristic Sheet (PCS) of the analyzer.

The **letters A, B, C**, and **D** used in the survey refers to:

A $\Rightarrow$ Main entrance side orientation (to street)
B $\Rightarrow$ Left side orientation
C $\Rightarrow$ Rear side orientation
D $\Rightarrow$ Right side orientation

C. Lead Based Paint Background and Regulatory Review:

Overexposure to lead is one of the most common situations found in industry. It is also a major potential public health risk. Lead poisoning is the leading environmentally induced illness in children. At greatest risk are children under the age of six because they are undergoing rapid neurological and physical development. In general population, lead may be present at hazardous concentrations in food, water, and air. Sources include LBP, urban soil, dust, and drinking water.

Lead is commonly added to industrial paints because of its characteristic to resist corrosion. Industries with particularly high potential exposures include construction work involving welding, cutting, brazing, blasting, etc., on lead paint surfaces; most smelter operations either as a trace contaminant or as a major product; secondary lead smelters where lead is recovered from batteries; radiator repair shops; and firing ranges. Oral ingestion may represent a major route of exposure in contaminated workplaces. Once in the blood, lead is distributed primarily among three routes - blood, soft tissue (kidney, bone marrow, liver, and brain) and mineralizing tissue (bones and teeth).

Hazard of lead in paint has been defined by the Department of Housing and Urban Development as greater than or equal to 1.0 mg/cm^2 as measured by an XRF instrument, or Atomic Absorption Spectroscopy (AAS); or 0.5% by weight (or 5,000 ppm) as measured by AAS, or Inductive Coupled Plasma (ICP). The same level was adopted by EPA regulations published in 1992, under Title X.

Although OSHA regulations for occupational lead exposure have been in effect since 1971 for the construction and general industries, the agency recognized the need to provide better protection and revised the regulations for general industry in 1978. The 1978 lead standard, however, excluded the construction industry from coverage because of insufficient information regarding lead use in construction.

In 1990, NIOSH set a national goal to eliminate worker exposures resulting in blood lead concentrations greater than 25 micrograms per deciliter (25 µg/dl) of whole blood. Consequently, OSHA began developing a proposal for a comprehensive standard regulating occupational exposure to lead in construction. In October 1992, the Congress passed Section 1031 of Title X of the Housing and Community Development Act of 1992 (P. L. 102-550) requiring OSHA to issue an interim final lead standard for the construction industry, effective until OSHA issues a final standard. The interim final rule, published on May 4, 1993, amends the OSHA standards for occupational health and environmental controls in Subpart D of Title 29 CFR 1926 by adding a new section 1926.62, containing employee protection requirements for construction workers exposed to lead.

On July 1998, the PRDNER - former PR Environmental Quality Board regulations regarding to LBP was created to issue activity permits, accredit institutions, and certificate persons involved in LBP activities in Puerto Rico. Local regulations require all lead to be managed as a special waste. On August 2019 this regulation was replaced by the new *Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo*. To obtain a demolition permit in Puerto Rico is necessary to include a certification (OGP-PGC-010 or equivalent) stating that there is no LBP in the project.

D. Survey Areas – Extent of Survey Coverage:

The survey included a detailed structure inspection providing a general sense of the overall location, type, quantity, and condition of LBP and lead-glazed ceramic components. The LBP survey was performed to ready accessible components and surfaces. If any suspect coated surface or ceramic components that could contain lead are encountered underneath current installed tiles or other construction material during demolition and/or renovation activities which differ from materials tested during the LBP survey, these should be assumed to be Lead

containing until testing/analysis confirmed otherwise. The survey was unobtrusive as samples were not taken where doing so would have resulted in objectionable damage to surfaces. Therefore, the survey did not include destructive, intrusive and/or exploratory testing.

Areas Not Included in Survey and Service Constraints: All professional opinions presented in this report are based on information made available either by review of data provided by others or data gathered by Nortol's personnel. Nortol affirms that data gathered and presented by Nortol in this report was collected in an appropriate manner in accordance with accepted methods and practices. Any energized utilities/services, including electricity, water and heat were assumed to be active. Materials associated with these items were determined to not be safely accessible and were not sampled. The survey did not include access or inspection of confined spaces or subsurface/underground areas including piping, conduits, building footings and soils (surficial or otherwise).

III. CONCLUSION

LBP limited survey was conducted for the project identified with the header ID. LBP or lead-glaze was identified above the regulatory level of greater than or equal to 1.0 mg/cm^2 at selective areas of the subject structure.

Data from XRF analyzer testing is included in **Attachment 3 and 4** with positive readings marked in red or bold. **Attachment 5** includes the approximated location of identified LBP or lead-glazes at the subject structure. Representative Pictures\Photograph Log of identified LBP surfaces and/or lead-glazed ceramic components within the structure are provided in **Attachment 6.**

Any conditions or materials that could not be visually identified or were out-of-the SOW, were not inspected and may differ from those conditions or materials noted. It was not within the scope of the activity to remove surface materials to investigate portions of the structure or materials that may lay beneath the surface. Nortol's selection of sample locations and frequency of sampling was based on Nortol's observations and the assumption that similar materials in the same area are homogeneous in content.

The report is designed to aid the building owner, architect, construction manager, general contractors, and potential asbestos or lead abatement contractors in locating LBP or lead-glaze. Under no circumstances is the report to be utilized solely as a bidding document or as a project specification document.

Attachment 1

Company Credentials

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GOBIERNO DE PUERTO RICO

Departamento de Recursos Naturales y Ambientales

Este certificado es otorgado a:

Nortol Environmental & Occupational Safety

Por haber cumplido con los requisitos establecidos en el Capítulo VI, Regla 127 del Reglamento para el Manejo Adecuado de Actividades de Pintura con Base de Plomo. Se le otorga esta certificación como **Firma** para llevar a cabo actividades relacionadas a Mitigación de Pintura con base de plomo en la jurisdicción de Puerto Rico.

Número de Certificado

LBPF-05224-006

Fecha de emisión: Marzo 5, 2024

Fecha de Expiración: Marzo 4, 2025

DRNA

José Roque Juliá
Jefe
División Desperdicios Tóxicos

LEAD-SAFE
EPA
CERTIFIED FIRM

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Attachment 2
Inspector's Credentials

HIRAM TORRES

Puerto Rico

Lead-based Paint Inspector



Attachment 3

Positive LBP XRF Tabulated Readings

Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’) & Improvements ACAA Bldg Lobby (approx. area 30.1’ x 28.10’), San Juan, P.R. XRF POSITIVE SHEET

Company	Heuresis Corp.
Model	PB00i
Type	XRF Lead Paint Analyzer
Serial Num.	1142
App Version	Pb200i-5.3.1

Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Wall	Color	Condition	Approx. Qty.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	26	1.1	mg/cm2	Positive	1	8/6/2024	14:23:56	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	390 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	27	1	mg/cm2	Positive	1	8/6/2024	14:24:29	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	28	1.1	mg/cm2	Positive	1	8/6/2024	14:25:02	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	160 Lf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	29	1	mg/cm2	Positive	1	8/6/2024	14:26:31	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	40	1	mg/cm2	Positive	1	8/6/2024	14:35:47	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	620 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	41	1	mg/cm2	Positive	1	8/6/2024	14:36:22	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	42	1	mg/cm2	Positive	1	8/6/2024	14:37:04	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	140 Lf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	43	1.1	mg/cm2	Positive	1	8/6/2024	14:39:52	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	44	1	mg/cm2	Positive	1	8/6/2024	14:40:27	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	280 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	45	1	mg/cm2	Positive	1	8/6/2024	14:41:04	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7’ x 42’)	54	1	mg/cm2	Positive	1	8/6/2024	14:46:34	H. Torres	984	Interior	Restroom	Floor Tile	Ceramic	-	White	Intact	66 Sf. Approx
Improvements ACAA Bldg Lobby (approx. area 30.1’ x 28.10’)	69	17.9	mg/cm2	Positive	1	8/6/2024	15:18:12	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact	170 Sf. Approx.
Improvements ACAA Bldg Lobby (approx. area 30.1’ x 28.10’)	70	17.1	mg/cm2	Positive	1	8/6/2024	15:19:12	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact	
Improvements ACAA Bldg Lobby (approx. area 30.1’ x 28.10’)	71	20.9	mg/cm2	Positive	1	8/6/2024	15:19:36	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact	

Attachment 4
LBP XRF Tabulated Readings

Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R. XRF SHEET

Company	Heuresis Corp.
Model	PB00i
Type	XRF Lead Paint Analyzer
Serial Num.	1142
App Version	Pb200i-5.3.1

Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Wall	Color	Condition	Approx. Qty.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	1	1.1	mg/cm2	Positive	-	8/6/2024	14:12:12	H. Torres	984	Calibration	-	-	-	-	-	-	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	2	1	mg/cm2	Positive	-	8/6/2024	14:12:38	H. Torres	984	Calibration	-	-	-	-	-	-	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	3	1	mg/cm2	Positive	-	8/6/2024	14:13:05	H. Torres	984	Calibration	-	-	-	-	-	-	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	4	0.1	mg/cm2	Negative	1	8/6/2024	14:14:43	H. Torres	984	Interior	Building	Door	Metal	A	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	5	0.1	mg/cm2	Negative	1	8/6/2024	14:15:00	H. Torres	984	Interior	Building	Door Frame	Metal	A	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	6	0	mg/cm2	Negative	1	8/6/2024	14:15:38	H. Torres	984	Interior	Building	Column	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	7	0	mg/cm2	Negative	1	8/6/2024	14:16:22	H. Torres	984	Interior	Building	Wall	Drywall	B	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	8	0	mg/cm2	Negative	1	8/6/2024	14:16:43	H. Torres	984	Interior	Building	Wall	Drywall	B	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	9	0.1	mg/cm2	Negative	1	8/6/2024	14:17:19	H. Torres	984	Interior	Building	Column	Concrete	B	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	10	0.2	mg/cm2	Negative	1	8/6/2024	14:17:40	H. Torres	984	Interior	Building	Column	Concrete	B	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	11	0.1	mg/cm2	Negative	1	8/6/2024	14:18:12	H. Torres	984	Interior	Building	Wall	Concrete	-	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	12	0	mg/cm2	Negative	1	8/6/2024	14:18:45	H. Torres	984	Interior	Building	Wall	Drywall	-	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	13	0	mg/cm2	Negative	1	8/6/2024	14:19:02	H. Torres	984	Interior	Building	Wall	Drywall	-	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	14	0	mg/cm2	Negative	1	8/6/2024	14:19:21	H. Torres	984	Interior	Building	Wall	Drywall	-	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	15	0	mg/cm2	Negative	1	8/6/2024	14:19:49	H. Torres	984	Interior	Building	Door	Wood	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	16	0	mg/cm2	Negative	1	8/6/2024	14:20:03	H. Torres	984	Interior	Building	Door	Wood	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	17	0.2	mg/cm2	Negative	1	8/6/2024	14:20:37	H. Torres	984	Interior	Building	Door Frame	Metal	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	18	0.1	mg/cm2	Negative	1	8/6/2024	14:20:53	H. Torres	984	Interior	Building	Door Frame	Metal	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	19	0.1	mg/cm2	Negative	1	8/6/2024	14:21:10	H. Torres	984	Interior	Building	Window Frame	Metal	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	20	0	mg/cm2	Negative	1	8/6/2024	14:21:38	H. Torres	984	Interior	Building	Door	Wood	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	21	0	mg/cm2	Negative	1	8/6/2024	14:21:56	H. Torres	984	Interior	Building	Door Frame	Wood	-	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	22	0.1	mg/cm2	Negative	1	8/6/2024	14:22:25	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	23	0.2	mg/cm2	Negative	1	8/6/2024	14:22:43	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	24	0	mg/cm2	Negative	1	8/6/2024	14:23:03	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	25	0.2	mg/cm2	Negative	1	8/6/2024	14:23:29	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	26	1.1	mg/cm2	Positive	1	8/6/2024	14:23:56	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	390 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	27	1	mg/cm2	Positive	1	8/6/2024	14:24:29	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	28	1.1	mg/cm2	Positive	1	8/6/2024	14:25:02	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	160 Lf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	29	1	mg/cm2	Positive	1	8/6/2024	14:26:31	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	30	0	mg/cm2	Negative	1	8/6/2024	14:27:34	H. Torres	984	Interior	Building	Sink	Plastic	-	Black	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	31	0	mg/cm2	Negative	1	8/6/2024	14:29:36	H. Torres	984	Interior	Building	Wall	Drywall	-	Orange	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	32	0	mg/cm2	Negative	1	8/6/2024	14:30:01	H. Torres	984	Interior	Building	Wall	Drywall	-	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	33	0.1	mg/cm2	Negative	1	8/6/2024	14:31:25	H. Torres	984	Interior	Building	Wall	Concrete	-	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	34	0	mg/cm2	Negative	1	8/6/2024	14:31:41	H. Torres	984	Interior	AC Room	Wall	Concrete	A	Beige	Deteriorated	-

Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R. XRF SHEET

Company	Heuresis Corp.
Model	PB00i
Type	XRF Lead Paint Analyzer
Serial Num.	1142
App Version	Pb200i-5.3.1

Job Id	Reading #	Concentration	Units	Result	Level	Date	Time	Inspector	Job	Room	Structure	Component	Substrate	Wall	Color	Condition	Approx. Qty.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	35	0	mg/cm2	Negative	1	8/6/2024	14:32:39	H. Torres	984	Interior	Building	Column	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	36	0	mg/cm2	Negative	1	8/6/2024	14:33:07	H. Torres	984	Interior	Building	Wall	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	37	0.1	mg/cm2	Negative	1	8/6/2024	14:33:37	H. Torres	984	Interior	Building	Rolling Door Frame	Metal	A	Beige	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	38	0.2	mg/cm2	Negative	1	8/6/2024	14:34:05	H. Torres	984	Interior	Building	Door	Metal	A	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	39	0.1	mg/cm2	Negative	1	8/6/2024	14:34:22	H. Torres	984	Interior	Building	Door Frame	Metal	A	Brown	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	40	1	mg/cm2	Positive	1	8/6/2024	14:35:47	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	620 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	41	1	mg/cm2	Positive	1	8/6/2024	14:36:22	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	42	1	mg/cm2	Positive	1	8/6/2024	14:37:04	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	140 Lf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	43	1.1	mg/cm2	Positive	1	8/6/2024	14:39:52	H. Torres	984	Interior	Building	Baseboard Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	44	1	mg/cm2	Positive	1	8/6/2024	14:40:27	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	280 Sf. Approx.
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	45	1	mg/cm2	Positive	1	8/6/2024	14:41:04	H. Torres	984	Interior	Building	Floor Tile	Ceramic	-	White	Intact	
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	46	0.1	mg/cm2	Negative	1	8/6/2024	14:42:39	H. Torres	984	Interior	Building	Wall	Drywall	D	Blue	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	47	0.2	mg/cm2	Negative	1	8/6/2024	14:43:44	H. Torres	984	Interior	Restroom	Wall Tile	Ceramic	A	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	48	0.2	mg/cm2	Negative	1	8/6/2024	14:44:02	H. Torres	984	Interior	Restroom	Wall Tile	Ceramic	B	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	49	0.2	mg/cm2	Negative	1	8/6/2024	14:44:18	H. Torres	984	Interior	Restroom	Wall Tile	Ceramic	C	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	50	0.3	mg/cm2	Negative	1	8/6/2024	14:44:36	H. Torres	984	Interior	Restroom	Wall Tile	Ceramic	D	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	51	0.1	mg/cm2	Negative	1	8/6/2024	14:44:54	H. Torres	984	Interior	Restroom	Wall Tile	Ceramic	-	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	52	0.3	mg/cm2	Negative	1	8/6/2024	14:45:47	H. Torres	984	Interior	Restroom	Strip Tile	Ceramic	A	Multicolor	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	53	0.4	mg/cm2	Negative	1	8/6/2024	14:46:05	H. Torres	984	Interior	Restroom	Strip Tile	Ceramic	C	Multicolor	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	54	1	mg/cm2	Positive	1	8/6/2024	14:46:34	H. Torres	984	Interior	Restroom	Floor Tile	Ceramic	-	White	Intact	66 Sf. Approx
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	55	0	mg/cm2	Negative	1	8/6/2024	14:47:29	H. Torres	984	Interior	Restroom	Toilet	Porcelain	C	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	56	0	mg/cm2	Negative	1	8/6/2024	14:47:47	H. Torres	984	Interior	Restroom	Urinal	Porcelain	C	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	57	0.2	mg/cm2	Negative	1	8/6/2024	14:48:05	H. Torres	984	Interior	Restroom	Sink	Porcelain	C	White	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	58	0	mg/cm2	Negative	1	8/6/2024	15:07:46	H. Torres	984	Exterior	Building	Wall	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	59	0	mg/cm2	Negative	1	8/6/2024	15:08:15	H. Torres	984	Exterior	Building	Wall	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	60	0	mg/cm2	Negative	1	8/6/2024	15:08:36	H. Torres	984	Exterior	Building	Beam	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	61	0	mg/cm2	Negative	1	8/6/2024	15:08:59	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')	62	0	mg/cm2	Negative	1	8/6/2024	15:09:20	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	63	0.1	mg/cm2	Negative	1	8/6/2024	15:15:10	H. Torres	984	Interior	Lobby	Floor Tile	Terrazo	-	Brown	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	64	0	mg/cm2	Negative	1	8/6/2024	15:15:30	H. Torres	984	Interior	Lobby	Floor Tile	Terrazo	-	Brown	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	65	0.1	mg/cm2	Negative	1	8/6/2024	15:15:52	H. Torres	984	Interior	Lobby	Baseboard Tile	Terrazo	-	Brown	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	66	0.2	mg/cm2	Negative	1	8/6/2024	15:16:15	H. Torres	984	Interior	Lobby	Baseboard Tile	Terrazo	-	Brown	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	67	0.1	mg/cm2	Negative	1	8/6/2024	15:17:17	H. Torres	984	Interior	Lobby	Wall	Drywall	-	Brown	Intact	-
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	68	0.1	mg/cm2	Negative	1	8/6/2024	15:17:43	H. Torres	984	Interior	Lobby	Wall	Drywall	-	Brown	Intact	-

Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R. XRF SHEET																		
Company	**Heuresis Corp.**																	
Model	PB00i																	
Type	XRF Lead Paint Analyzer																	
Serial Num.	1142																	
App Version	Pb200i-5.3.1																	
Job Id	**Reading #**	**Concentration**	**Units**	**Result**	**Level**	**Date**	**Time**	**Inspector**	**Job**	**Room**	**Structure**	**Component**	**Substrate**	**Wall**	**Color**	**Condition**	**Approx. Qty.**	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	69	17.9	mg/cm2	Positive	1	8/6/2024	15:18:12	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact	170 Sf. Approx.	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	70	17.1	mg/cm2	Positive	1	8/6/2024	15:19:12	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact		
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	71	20.9	mg/cm2	Positive	1	8/6/2024	15:19:36	H. Torres	984	Interior	Lobby	Wall Tile	Ceramic	C	Brown	Intact		
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	72	0.1	mg/cm2	Negative	1	8/6/2024	15:24:10	H. Torres	984	Interior	Lobby	Door	Wood	C	Brown	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	73	0	mg/cm2	Negative	1	8/6/2024	15:24:27	H. Torres	984	Interior	Lobby	Door Frame	Wood	C	Brown	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	74	0	mg/cm2	Negative	1	8/6/2024	15:25:02	H. Torres	984	Interior	Lobby	Door	Metal	-	Black	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	75	0.4	mg/cm2	Negative	1	8/6/2024	15:25:20	H. Torres	984	Interior	Lobby	Door Frame	Metal	-	Black	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	76	0	mg/cm2	Negative	1	8/6/2024	15:26:14	H. Torres	984	Interior	Lobby	Door	Metal	-	Brown	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	77	0.1	mg/cm2	Negative	1	8/6/2024	15:26:32	H. Torres	984	Interior	Lobby	Door Frame	Metal	-	Brown	Deteriorated	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	78	0.1	mg/cm2	Negative	1	8/6/2024	15:27:16	H. Torres	984	Interior	Lobby	Wall	Concrete	C	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	79	0	mg/cm2	Negative	1	8/6/2024	15:27:34	H. Torres	984	Interior	Lobby	Wall	Concrete	D	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	80	0.1	mg/cm2	Negative	1	8/6/2024	15:30:08	H. Torres	984	Interior	Lobby	Wall	Concrete	-	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	81	0.1	mg/cm2	Negative	1	8/6/2024	15:30:33	H. Torres	984	Interior	Lobby	Wall	Concrete	B	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	82	0.2	mg/cm2	Negative	1	8/6/2024	15:31:05	H. Torres	984	Interior	Lobby	Wall	Drywall	-	Brown	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	83	0	mg/cm2	Negative	1	8/6/2024	15:32:29	H. Torres	984	Interior	Lobby	Wall	Concrete	B	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	84	0	mg/cm2	Negative	1	8/6/2024	15:32:55	H. Torres	984	Interior	Lobby	Column	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	85	0	mg/cm2	Negative	1	8/6/2024	15:33:16	H. Torres	984	Interior	Lobby	Column	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	86	0.1	mg/cm2	Negative	1	8/6/2024	15:33:35	H. Torres	984	Interior	Lobby	Column	Concrete	D	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	87	0.2	mg/cm2	Negative	1	8/6/2024	15:34:05	H. Torres	984	Interior	Lobby	Curb	Concrete	-	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	88	0.1	mg/cm2	Negative	1	8/6/2024	15:35:00	H. Torres	984	Exterior	Building	Curb	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	89	0	mg/cm2	Negative	1	8/6/2024	15:35:26	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	90	0.2	mg/cm2	Negative	1	8/6/2024	15:35:48	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	91	0	mg/cm2	Negative	1	8/6/2024	15:36:06	H. Torres	984	Exterior	Building	Beam	Concrete	A	Gray	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	92	0.1	mg/cm2	Negative	1	8/6/2024	15:36:50	H. Torres	984	Exterior	Building	Handrail	Metal	A	Black	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	93	0.1	mg/cm2	Negative	1	8/6/2024	15:37:17	H. Torres	984	Exterior	Building	Window Frame	Metal	A	Brown	Intact	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	94	0	mg/cm2	Negative	1	8/6/2024	15:37:59	H. Torres	984	Interior	Lobby	Column	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	95	0	mg/cm2	Negative	1	8/6/2024	15:38:14	H. Torres	984	Interior	Lobby	Column	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	96	0.1	mg/cm2	Negative	1	8/6/2024	15:38:28	H. Torres	984	Interior	Lobby	Column	Concrete	D	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	97	0.1	mg/cm2	Negative	1	8/6/2024	15:38:54	H. Torres	984	Interior	Lobby	Curb	Concrete	-	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	98	0	mg/cm2	Negative	1	8/6/2024	15:39:10	H. Torres	984	Exterior	Building	Curb	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	99	0	mg/cm2	Negative	1	8/6/2024	15:39:23	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	100	0.1	mg/cm2	Negative	1	8/6/2024	15:39:36	H. Torres	984	Exterior	Building	Column	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	101	0	mg/cm2	Negative	1	8/6/2024	15:39:50	H. Torres	984	Exterior	Building	Beam	Concrete	A	Gray	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	102	0.1	mg/cm2	Negative	1	8/6/2024	15:40:13	H. Torres	984	Exterior	Building	Handrail	Metal	A	Black	Intact	Duplicated Readings	

Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42') & Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R. XRF SHEET																		
Company	**Heuresis Corp.**																	
Model	PB00i																	
Type	XRF Lead Paint Analyzer																	
Serial Num.	1142																	
App Version	Pb200i-5.3.1																	
Job Id	**Reading #**	**Concentration**	**Units**	**Result**	**Level**	**Date**	**Time**	**Inspector**	**Job**	**Room**	**Structure**	**Component**	**Substrate**	**Wall**	**Color**	**Condition**	**Approx. Qty.**	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	103	0	mg/cm2	Negative	1	8/6/2024	15:40:29	H. Torres	984	Exterior	Building	Window Frame	Metal	A	Brown	Intact	Duplicated Readings	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	104	1	mg/cm2	Positive	-	8/6/2024	15:41:01	H. Torres	984	Calibration	-	-	-	-	-	-	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	105	1	mg/cm2	Positive	-	8/6/2024	15:41:46	H. Torres	984	Calibration	-	-	-	-	-	-	-	
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')	106	0.8	mg/cm2	Negative	-	8/6/2024	15:42:32	H. Torres	984	Calibration	-	-	-	-	-	-	-	

Attachment 5
LBP Diagram

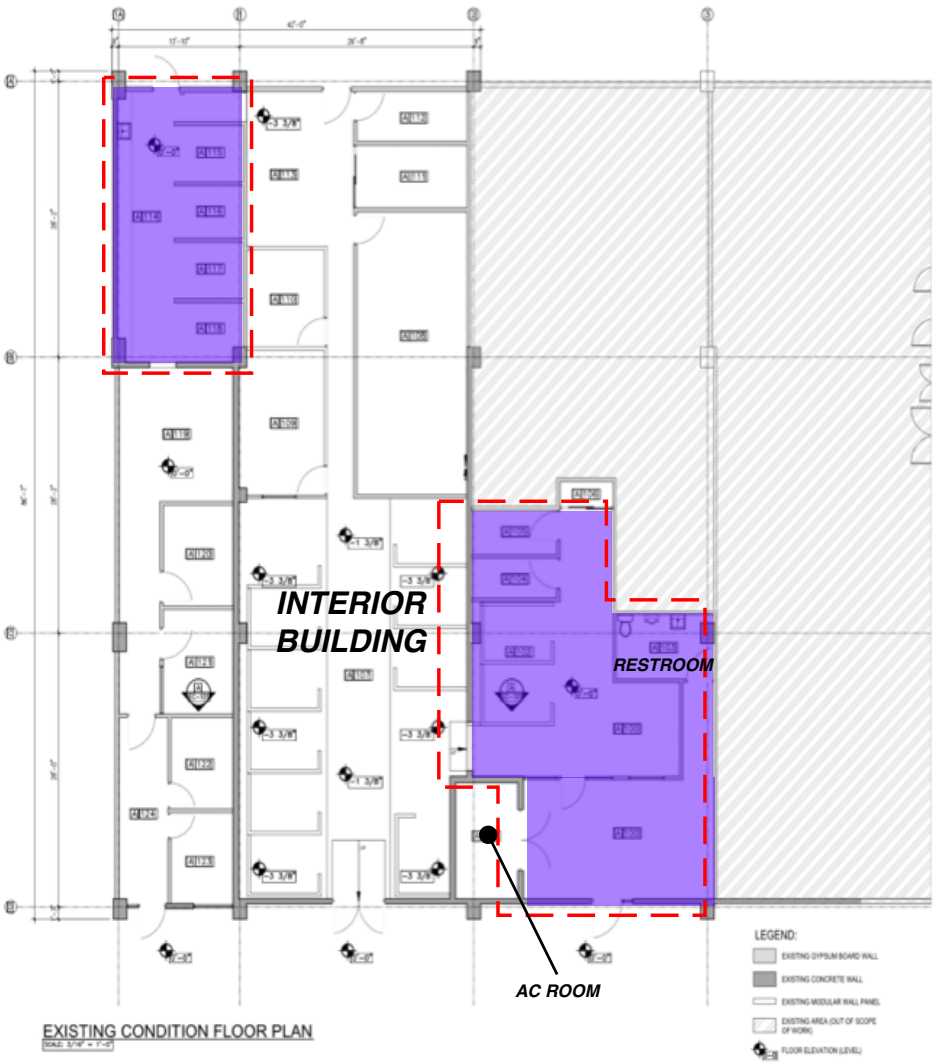


Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')
&
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'),
San Juan, P.R.

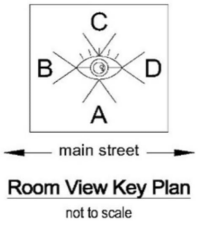
LEAD-GLAZED CERAMIC DIAGRAM 1 of 2

LBP POSITIVE, WHITE LEAD-GLAZED CERAMIC FLOOR TILE

LBP POSITIVE, WHITE LEAD-GLAZED CERAMIC BASEBOARD



EXISTING CONDITION FLOOR PLAN



Room View Key Plan
not to scale



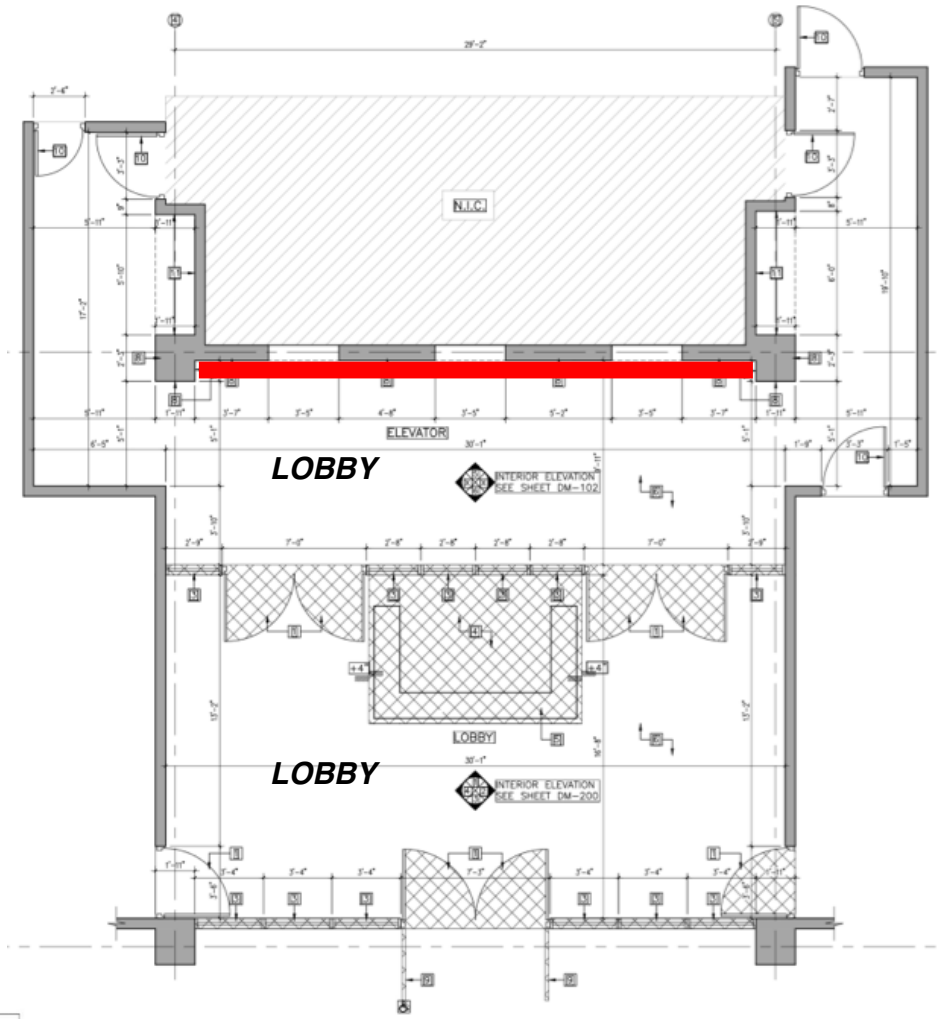
Improvements ACAA Bldg Region SJ
(approx. area 86.7' x 42')

Avenida Arterial Hostos, San Juan, 00918

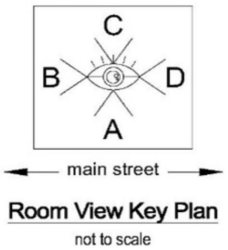
Improvements ACAA Bldg Region SJ (approx. area 86.7' x 42')
&
Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10'), San Juan, P.R.

LEAD-GLAZED CERAMIC DIAGRAM 2 of 2

➡ *LBP POSITIVE, BROWN LEAD-GLAZED CERAMIC WALL TILE*



AS-BUILT & DEMOLITION LOBBY FLOOR PLAN



Room View Key Plan
not to scale



Improvements ACAA Bldg Lobby (approx. area 30.1' x 28.10')

Avenida Arterial Hostos, San Juan, 00918

Attachment 6

Representative Pictures\Photograph Log

Hiram Torres
NORTOL Environmental & Occupational Safety, Inc.

IMPROVEMENTS ACAA BLDG REGION SJ (APPROX. AREA 86.7' X 42') & IMPROVEMENTS ACAA BLDG LOBBY (APPROX. AREA 30.1' X 28.10'), SAN JUAN, P.R. - LBP SURVEY PHOTO LOG

Built circa: Not available at the moment of the inspection

Tuesday, August 6, 2024

Prepared For ABACUS Architecture PSC

Avenida Arterial Hostos, San Juan, 00918



FRONT VIEW:

(18.4254764, -66.0636945)

LOCATION:

(18.4254764, -66.0636945)







1

SCOPE OF WORK:

Full inspection A/L in ACAA Bldg Region SJ &

Improvements ACAA Bldg Lobby.

Job Id: 2024-374-ASB/LBP

GENERAL VIEWS:









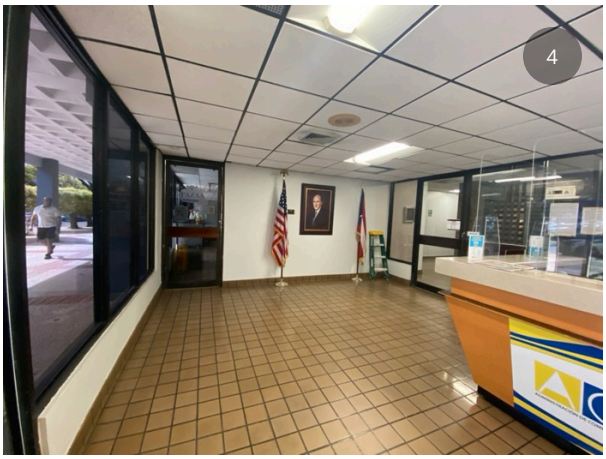


GENERAL VIEWS:













1

IS THERE ANY AREA WITHOUT ACCESS ?

All areas were accessible.



1

IS THERE ANY VISIBLE INDICATION OF MOLD ?

No, mold was not found visible at the moment of the inspection.



1

ARE THERE SIGNS OF POOR HOUSEKEEPING ON SITE? (MOUNDS OF RUBBLE, GARBAGE, STORM DEBRIS, SOLID WASTE, PETROLEUM PRODUCTS, PAINT, PESTICIDES, CLEANING FLUIDS, VEHICLE BATTERIES, ABANDONED VEHICLES, PITS, POOLS, PONDS OF HAZARDOUS SUBSTANCES, ETC.)

Not found at the moment of the inspection.



ARE ANY ADDITIONAL SITE HAZARDS OBSERVED?

Not found at the moment of the inspection.

LBP DETECTED? INTERIOR BUILDING

Interior, Reading #26, 27, white lead-glazed ceramic floor tiles, 1 to 1.1 mg/cm2.

(Qty. 390 Sf. Approx.)

Interior, Reading #40, 41, white lead-glazed ceramic floor tiles, 1 mg/cm2.

(Qty. 620 Sf. Approx.)

Interior, Reading #44, 45, white lead-glazed ceramic floor tiles, 1 mg/cm2.

(Qty. 280 Sf. Approx.)





LBP DETECTED? RESTROOM

Interior, Reading #54, white lead-glazed ceramic floor tiles, 1 mg/cm2.

(Qty. 66 Sf. Approx.)





LBP DETECTED? INTERIOR BUILDING

Interior, Reading #29, 28, white lead-glazed ceramic baseboard tiles, 1 to 1.1 mg/cm2.

(Qty. 160 Lf. Approx.)

Interior, Reading #42, 43, white lead-glazed ceramic baseboard tiles, 1 to 1.1 mg/cm2.

(Qty. 140 Lf. Approx.)





LBP DETECTED? LOBBY

Interior, Reading #69 to 71, brown lead-glazed ceramic wall tiles, Side C, 17.1 to 20.9 mg/cm2.

(Qty. 170 Sf. Approx.)





Attachment 7

XRF Performance Characteristic Sheet

Performance Characteristic Sheet

EFFECTIVE DATE: **September 1, 2022**

MANUFACTURER AND MODEL:

Make: ***Heuresis***
Models: ***Model Pb200i, Pb200e***
Source: ***^{57}Co, 5 mCi (nominal – new source)***

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Action Level 1.0 mg/cm^2

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
≥ 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.

20+ ANNIVERSARY

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