SPECIFICATIONS FOR DEMOLITION OF BUILDINGS AT

151 Plantation Street and 41 Columbia Street

Worcester, Massachusetts

SPECIFICATION FOR DEMOLITION OF BUILDING(s) LOCATED at 151 Plantation Street

GENERAL

The intent of these specifications is to provide for the demolition and removal, as specified, of building located at **151 Plantation Street**, Worcester, Massachusetts in a manner satisfactory to the Department of Inspectional Services of the City of Worcester, Massachusetts and in accordance with all applicable State, local and Federal laws, rules and regulations. The Demolitions are in accordance with requirements of Chapter 139, Section 1-3 inclusive of the General Laws of Massachusetts.

Please note that the demolition is for the structure and its contents located on the property at 151 Plantation Street as shown on the attached plan. The building is in poor structural condition and some portions may not be accessible.

REOUIREMENTS

The contractor shall include in the bid the price of demolition and removal of this structure, back-filling of foundation hole and rough grading and tamping of backfill to prevent erosion or surface water nuisance on this cleared lot, removing trash, rubbish and debris, leaving lot clean and leveled to uniform grade. Demolition and removal of building(s) shall be as required by the Commonwealth of Massachusetts State Building Code with special attention given to Chapter 1 section 112 and Chapter 33 inclusive. No demolition work shall begin until a permit is issued and required fees are paid.

- A. The demolition of this structure must take place under supervision of a Worcester Police Officer and can be stopped for any period time needed.
- B. The contractor is required to have a licensed professional remove and legally dispose of oil tanks, boilers, water tanks, etc., if any are located on the property. The contractor shall view the property and investigate for such elements prior to submitting a bid.
- C. Demolition should proceed in a systematic manner, from top to bottom. Complete demolition work above each floor or tier before disturbing supporting members on lower levels.
- D. Concrete shall be demolished in small sections.
- E. Locate demolition equipment throughout structure and remove materials so not to impose excessive loads to supporting walls, floors, or framing.
- F. Demolish foundation walls and other below grade construction, including concrete slabs, to a depth of not less than four (4') feet below existing grade.
- G. Concrete walls and floors can be used as backfill when demolished and compacted in a manner that no cavities are present. Please ensure that the area to be filled is free of standing water, frost, frozen materials, trash, and debris.
- H. Properly dispose of debris away from site in approved disposal areas.
- I. Upon completion of the demolition the property must be loomed and seeded.

HAZARDOUS MATERIALS

The demolition contractors who submit bids for the demolition of structures are responsible for viewing the sites and determining the nature and extent of all hazardous materials and special handling materials, which exist prior to bidding. The estimated extent of hazardous materials and the estimated cost to legally remove and dispose of any hazardous materials shall be included in the base bid. Caution should be observed when viewing the interior to assess the contents due to its unstable structural condition. The City has engaged a professional consultant to conduct a hazardous materials survey. A copy of the findings is included with this bid.

The contractor who is awarded the bid will then be responsible to conduct a thorough investigation of the structure(s) by a licensed individual and produce a report of those findings. The cost of such investigation, testing and resultant report shall be included in the bid.

The reasonable cost to remove any additional hazardous materials found in the subsequent full investigation, above and beyond those contained in the base bid, will be compensated for through change orders to the original contract. Requests for such change orders shall be submitted to the Department of Inspectional Services in writing and include copies of the investigation reports, an itemized breakdown of the costs to remove and legally dispose of the additional hazardous materials and documentation to support the requested costs of disposal are reasonable. If the City determines that the additional cost is fair and reasonable and accurate as verified by the City, compensation will be allowed.

ABILITY AND EXPERIENCE OF BIDDER

The City reserves the right not to award the contract to any bidder who does not furnish evidence of prior experience and current capabilities, including manpower and equipment, necessary to enable him to prosecute the required demolition and to successfully complete the work in the time named in the contract if requested to do so.

PERMITS

The Contractor shall obtain all necessary permits at the Contractor's expense before commencing work, including all arrangements with utility companies and City departments for discontinuance of gas, water, sewer, electricity and telephone service.

HISTORIC BUILDINGS DELAY ORDINACE

No person shall demolish any designated historic building without the approval of the Worcester Historical Commission. Any applicant for a demolition permit shall obtain evidence of approval of the commission for all buildings prior to the Building Commissioner of Inspectional Services issuing any such permit. If a building is deemed to pose an imminent threat to the public health or safety then the Building Commissioner may waive this requirement.

SANITARY AND DRAINAGE CONNECTIONS AND ALL OTHER UTILITIES

The Contractor shall assure that all utilities and city services (e.g. water, sewer, gas, electricity, etc.) are disconnected and appropriate steps taken to protect the Contractor's interest in the property (e.g. capping of disconnected sewers) prior to the scheduling of demolition. The Contractor shall excavate, break and seal all drainage and sanitary sewer connections at the street line of the building lot (property line). Seals within the building will not be accepted. The sealed pipes and drains shall not be back-filled until they have been inspected and approved by the City of Worcester's Department of Public Works.

DEMOLITION DISPOSAL AND FEES

The Contractor shall assure that the building inspector, or other official designated by the building inspector, is aware of their demolition operations at all times. The Contractor must provide sufficient evidence for a determination that he and all other subcontractors meet all Federal, State and local laws and regulations and the terms and conditions of this contract. Without limiting the foregoing, the Contractor is responsible for removal and proper off-site disposal of demolition debris, including oil tanks with or without oil, and any other hazardous debris, including, but not limited to Asbestos. It is the responsibility of the contractor to determine the nature and extent of all hazardous and special handling materials, which exists on site prior to bidding. The contractor shall submit evidence of such legal removal and disposal, in the form of trucking slips, and in the case of hazardous materials, disposal permits, as part of their payment request to the City.

RODENT CONTROL

The contractor shall take rodent control measures prior to demolition. These measures shall include a pre-demolition survey and extermination of rodents prior to the start of demolition to prevent their displacement to adjacent structures when necessary. This work when required is to be performed as part of the contract by a licensed exterminator and at no additional cost to the contract.

NOTIFICATION OF ADJACENT PROPERTIES

The Contractor shall provide notification to and protection of all adjacent properties. All demolition is to be confined to the property boundaries. No demolition activities are to be conducted on any public way without both prior consent and/or permits from the Worcester Department of Public Works, the Worcester Police Department, the Traffic Engineering Division of Public Works or the Department of Inspectional Services.

Any work conducted on adjacent private property shall be conducted only with the prior written consent of the property owner. <u>All adjacent streets and sidewalks must be protected during demolition activities</u>.

BUILDING SEARCH

The Contractor shall conduct a thorough search of the property immediately prior to the demolition to assure that the property is vacant.

SECURE SITE

The Contractor shall secure the site(s) of building(s) to be demolished, including, but not limited to, the construction of fencing or other protective barriers, police protection and protection of area residents from any and all hazards during demolition as deemed necessary to insure the safety of the public.

INVESTIGATION OF CONDITIONS

Bidders are required to submit their proposals upon the express condition that they have noted the site of the proposed work and are fully acquainted with work to be performed under this contract. The contractors are expected to make their estimates of the facilities needed and the difficulties attending the execution of proposed contract, including local conditions, availability of labor, weather and other contingencies. In no event will the City assume any responsibility whatever for interpretation, deduction or conclusion drawn from the inspection of the site. Failure to acquaint themselves with all available information concerning these conditions will not relieve the successful bidder from responsibility for estimating difficulties and costs of successfully performing and completing the work.

SITE VISIT

A site visit of the properties proposed for demolition within this bid package will be conducted on October 1, 2021 beginning at 10 a.m. at 151 Plantation Street and continuing onto the remaining properties.

METHOD AND ORDER OF DEMOLITION

Upon the award of contract, the Contractor shall immediately proceed to demolish the structure in accordance with the terms of the contract. The work must be completed for final payment. Penalties may be imposed for failure to fully complete demolition to the full satisfaction of the City as specified within this document and the governing contract within thirty days of award of the contract without just cause. The Salvaging of materials may occur at the Contractor's option providing such operation does not impede the demolition process or create either a hazardous or nuisance condition. The method of demolition to be used shall not include burning, or fire, or explosives, of any form on the premises.

The Contractor shall demolish structures in a safe and orderly manner and remove all rubbish and other materials from the premises to the satisfaction and approval of the Department of Inspectional Services of the City of Worcester. If the safety of the public so requires, in the opinion of the City of Worcester, the contractor shall arrange with the Police Department for police protection at no additional cost to the contract.

The contractor shall leave the premises free of rubbish and other like materials including existing rubbish found on the premises.

LIQIDATED DAMAGES FOR DELAY

If the work is not completed within the time stipulated in the contract documents, including any extensions of time for excusable delays, which shall be determined by the Purchasing Agent, the contractor shall pay the City a rate of \$50.00 per day for each calendar day of delay, until the work is completed. A maximum of one (1) weather related day per week shall be allowed for extensions. No extra allowance will be made for holidays. The City shall enforce the liquidated damages for failure to complete the work within the allotted time frame. Liquidated damages shall be deducted from the final payment for this contract.

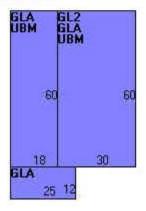
151 Plantation Street

Building Photo



Building Layout

GLA(4080)



PLANTATION ST

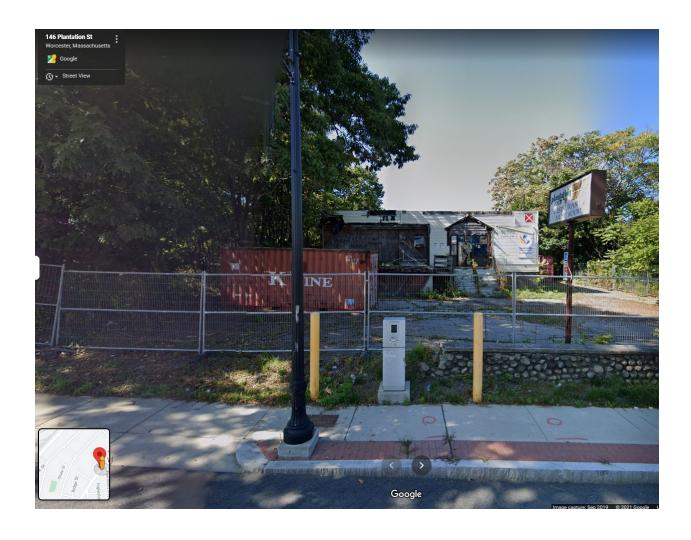
Plot Plan



151 Plantation Street Aerial View



151 Plantation Street Google Image



SPECIFICATION FOR DEMOLITION OF BUILDING(s) LOCATED at 41 Columbia Street

GENERAL

The intent of these specifications is to provide for the demolition and removal, as specified, of building(s) located at **41 Columbia Street**, Worcester, Massachusetts in a manner satisfactory to the Department of Inspectional Services of the City of Worcester, Massachusetts and in accordance with all applicable State, local and Federal laws, rules and regulations. The Demolitions are in accordance with requirements of Chapter 139, Section 1-3 inclusive of the General Laws of Massachusetts.

Please note that the demolition is for the structure(s) and its contents located on the property at 41 Columbia Street as shown on the attached plan. The building is in disrepair and cluttered with debris and some portions may not be accessible.

REQUIREMENTS

The contractor shall include in the bid the price of demolition and removal of this structure, back-filling of foundation hole and rough grading and tamping of backfill to prevent erosion or surface water nuisance on this cleared lot, removing trash, rubbish and debris, leaving lot clean and leveled to uniform grade. Demolition and removal of building(s) shall be as required by the Commonwealth of Massachusetts State Building Code with special attention given to Chapter 1 section 112 and Chapter 33 inclusive. No demolition work shall begin until a permit is issued and required fees are paid.

- A. The contractor is required to have a licensed professional remove and legally dispose of oil tanks, boilers, water tanks, etc., if any are located on the property. The contractor shall view the property and investigate for such elements prior to submitting a bid.
- B. Demolition should proceed in a systematic manner, from top to bottom. Complete demolition work above each floor or tier before disturbing supporting members on lower levels.
- C. Concrete shall be demolished in small sections.
- D. Locate demolition equipment throughout structure and remove materials so not to impose excessive loads to supporting walls, floors, or framing.
- E. Demolish foundation walls and other below grade construction, including concrete slabs, to a depth of not less than four (4') feet below existing grade.
- F. Concrete walls and floors can be used as backfill when demolished and compacted in a manner that no cavities are present. Please ensure that the area to be filled is free of standing water, frost, frozen materials, trash, and debris.
- G. Properly dispose of debris away from site in approved disposal areas.
- H. Upon completion of the demolition the property must be loomed and seeded.

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41 Columbia Street Plot plan



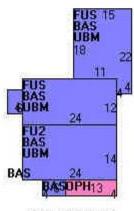
41 Columbia Street Aerial view



Building Photo

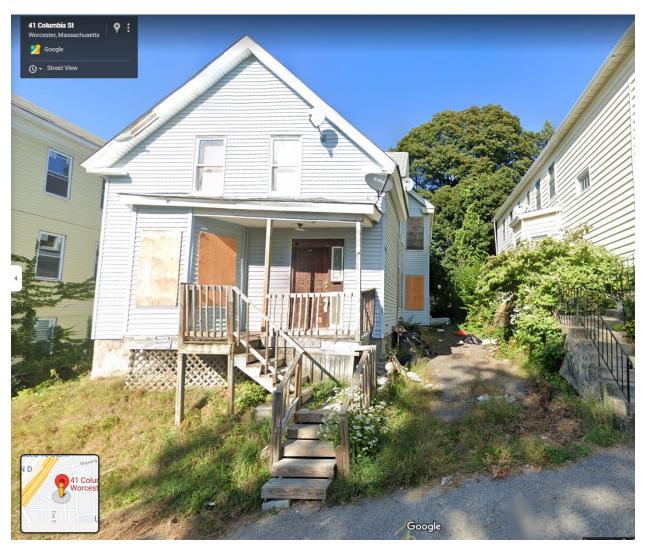


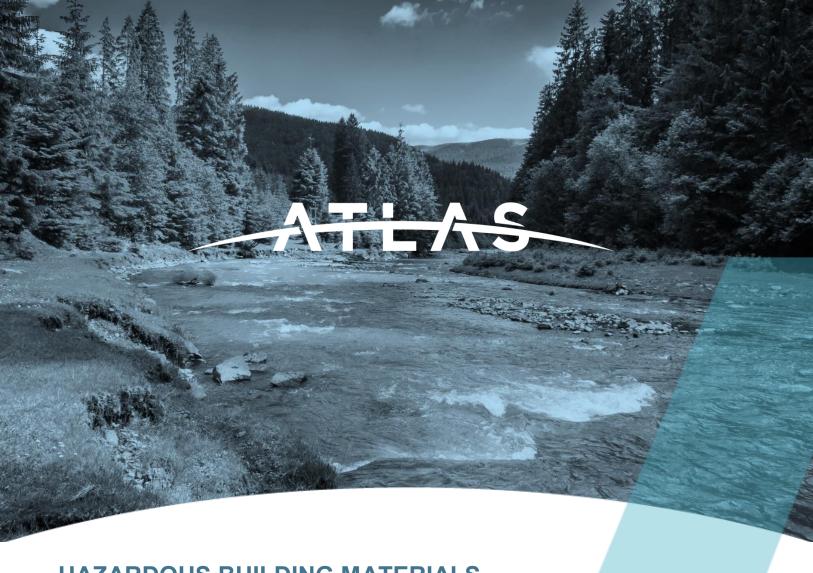
Building Layout



COLUMBIA ST

41 Columbia Street Google Image





HAZARDOUS BUILDING MATERIALS INSPECTION REPORT

151 PLANTATION STREET
WORCESTER, MASSACHUSETTS
ATLAS PROJECT 6000005912

PREPARED FOR:

Ms. Amanda M. Wilson, MPA
Director of Housing and Health Inspections
Department of Inspectional Services
City of Worcester
25 Meade Street
Worcester, Massachusetts

PREPARED BY:

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APPENDICES

Appendix I Asbestos Bulk Sample Analysis Results By PLM

Appendix II Lead Paint Chip Analysis Report



1.0 EXECUTIVE SUMMARY

ATC Group Services dba Atlas Technical Consultants (Atlas) was retained by the City of Worcester to perform a hazardous building materials survey to support the demolition of the building, located at 151 Plantation Street, Worcester, Massachusetts. Atlas understands that the building is scheduled to be demolished. The inspection was performed in accordance with Atlas Proposal 21-11613, dated July 26, 2021.

Atlas's scope of work included a survey for asbestos containing materials (ACM) and lead containing paints throughout the building.

1.1 ASBESTOS

Section 2.0 discusses the ACM survey and sampling methodology. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs.

The asbestos survey was performed by Massachusetts Division of Labor Standards (DLS) certified Asbestos Inspector, Mr. Daniel Roy (Al-900970), on August 25, 2021. A total of thirty-four (34) samples of suspect ACM were collected with thirty-two (32) analyzed to determine asbestos content. The Atlas inspector performed both the visual inspection and bulk sampling in the building according to methods outlined in the U.S. Environmental Protection Agency (EPA) guidance document titled, "Guidance for Controlling Asbestos-Containing Materials in Buildings" (Document No. 560/5-85/024). Please find the Asbestos Identification Laboratory (AIL) Polarized Light Microscopy (PLM) bulk sample results included as Appendix A.

1.2 LEAD DETERMINATION

Atlas performed a lead paint determination on representative locations of the building. The lead paint testing was performed by collecting paint chip samples. Paint chip samples were submitted to ProScience Analytical Services for analysis in accordance with EPA method SW846—3050B/7000B. ProScience is an AIHA-LAP Certified Laboratory with lab ID number: 102754.

Results of the lead determination indicated that locations throughout the building will be impacted by the upcoming project was found to contain a detectable level of lead. Table 2, found in Section 3.2 presents the findings of Atlas's lead determination.



LIMITATIONS

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

Environmental evaluations are limited in the sense that conclusions and recommendations are developed and information obtained from limited research and secondary sources. Except as set forth in this report, Atlas has made no independent investigations as to the accuracy or completeness of the information derived from the secondary sources and personal interviews and has presumed that such information was accurate and complete.

This report is intended for the sole use of City of Worcester. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user.

CERTIFICATION OF RESULTS

This report has been prepared for the exclusive use of City of Worcester. Photocopying of this document by parties other than those designated by the Client, or use of this document for purposes other than it is intended, is prohibited.

Respectfully submitted 13th day of September, 2021.

Atlas Technical Consultants LLC

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2.0 ASBESTOS CONTAINING MATERIALS SURVEY

2.1 Sampling Methodology

The initial asbestos survey was performed by Massachusetts Division of Labor Standards (DLS) certified Asbestos Inspector, Mr. Daniel Roy (Al-900970), on August 25, 2021. Bulk samples, representing individual homogenous areas of suspect materials were collected in a randomly distributed manner, in accordance with the methods outlined below.

Building materials exist in the form of thermal systems insulation (TSI), surfacing materials, and miscellaneous materials.

The following generally illustrates the sampling strategy employed by Atlas where feasible:

- (a) Surfacing materials In a randomly distributed manner, collect bulk samples of surfacing materials, representative of each homogeneous area, and not assumed to be ACM.
 - (1) Collect at least three bulk samples from each homogeneous area that is less than or equal to 1,000 ft².
 - (2) Collect at least five bulk samples from each homogeneous area that is greater than 1,000 ft², but less than or equal to 5,000 ft².
 - (3) Collect at least seven bulk samples from each homogeneous area that is greater than 5,000 ft².
- (b) Thermal systems insulation.
 - (1) In a randomly distributed manner, collect at a minimum, three (3) bulk samples of thermal systems insulation material, representative of each homogeneous area, and not assumed to be ACM.
 - (2) Collect, at a minimum, one (1) bulk sample of patched thermal systems insulation, representative of each homogenous area, and not assumed to be ACM, providing the section of patch was less than 6 linear or square feet.
 - (3) Collect, at a minimum, three (3) representative bulk samples of each insulated mechanical system not assumed to be ACM, including, but not limited to cementitious material used on pipe fittings such as tees, elbows, or valves. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.
 - (4) Bulk samples are not required to be collected from any homogeneous area where the accredited asbestos inspector has determined that the thermal systems insulation is a non-suspect material (i.e., fiberglass, foam glass, rubber, or any other non-ACM).
- (c) Miscellaneous materials Collect, at a minimum, two (2) representative bulk sample of each miscellaneous material not assumed to be ACM, including, but not limited to ceiling tiles, floor tiles, associated floor tile mastic, roofing materials, waterproofing, etc. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.



2.2 Asbestos-Containing Materials

Atlas conducted the asbestos survey in areas associated with the upcoming demolition project of the building located at 151 Plantation St., Worcester, Massachusetts. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs. Asbestos bulk sample analysis results are located in Appendix A.

PLM Bulk sample analysis indicated that the following materials identified and sampled by Atlas were found to contain asbestos:

- Black Tar Associated with White Asphalt Shingle
- Black tar Associated with Green Asphalt Shingle

None of the other materials identified and sampled by Atlas were found to contain asbestos.

The following table presents a list of the identified, confirmed ACMs in the garage building. Note, ACM is identified by the MA DEP as any material or product containing one (1) percent or greater asbestos by weight.

Table 1 – Summary of Identified Asbestos-Containing Materials 151 Plantation Street Worcester, Massachusetts

Location	Material	Estimated Quantity	Result
1 st Floor Roof	Black Tar Associated with White Asphalt Shingle	1000 SF	5%
Lot Debris	Black Tar Associated with Green Asphalt Shingle	500 SF	3%

The following table lists the suspect materials identified that were sampled and determined to be non-ACM.

Table 2 – Summary of Non Asbestos-Containing Materials 151 Plantation Street Worcester, Massachusetts

Material	Sample Location(s)
Gypsum Wallboard under Plaster	1 st Floor
Plaster over Gypsum Wallboard	1 st Floor
Ceramic Tile Mortar	Front Entrance Area
Ceramic Tile Grout	Front Entrance Area
Yellow Carpet Mastic	By Front Entrance
Tan Mirror Glue Daubs	Kitchen Area
Vinyl Sheet Flooring	1st Floor by Entrance
Mastic Associated with Vinyl Sheet Flooring	1st Floor by Entrance
Exterior Wall Grout on Rock Slabs	Exterior of Building
Exterior Wall Grout Associated with CMU	Exterior of Building
Black Asphalt Shingle	1 st Floor Roof
Black Tar Associated with Black Asphalt Shingle	1st Floor Roof



White Asphalt Shingle	1st Floor Roof
Green Asphalt Shingle	Lot Debris
Roof Vapor Barrier	1st Floor Roof

2.3 Analytical Method

Samples were placed in labeled containers, which were sealed and submitted to the laboratory for analysis. Bulk samples of suspect materials were analyzed by Asbestos Identified Laboratory (AIL) of Woburn, Massachusetts, by means of the EPA-approved polarized light microscopy with dispersion staining (PLM/DS) method using the visual estimation technique for asbestos quantification. AIL is fully accredited for bulk sample analysis under the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology, and is also licensed by the Massachusetts DLS (License Nos. AA-000208). Bulk samples were analyzed for asbestos content using EPA Method 600/R-93/116. The visual estimation technique was used to quantify asbestos concentrations. The PLM/DS analytical method is modeled after 40 CFR Part 763, Subpart F, Appendix A: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples." If a material contains 1% asbestos or greater, it is considered to be asbestos-containing material. Upon client request, or at the recommendation of the analyst, the 'Point Counting Method' may be used to verify the presence/absence of asbestos when a sample contains less than 10% asbestos by visual estimate.

2.4 Consideration for Hidden Materials

Atlas conducted the asbestos survey in areas associated with the upcoming demolition project of the building located at 151 Plantation St., Worcester, Massachusetts. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs.

Atlas recommends if a suspect material has not been positively identified, but is similar in mode of occurrence or physical properties as other identified ACM, it should be considered asbestos containing. Only through further sampling and analysis should a suspect material be identified as non-asbestos.

2.5 Recommendations

Atlas understands that demolition activities are planned for this project. All identified ACM that will be impacted by the planned demolition project should be properly removed and disposed of by a Commonwealth of Massachusetts licensed Asbestos Contractor prior to disturbance.

Atlas recommends that precautions be taken to prevent unauthorized disturbance of identified ACM in this report.

Atlas also recommends the following as part of the abatement process:

• Although the asbestos contractor is required to follow the requirements outlined in Federal, Massachusetts State, and local regulations regarding asbestos during any abatement project, Atlas recommends the development of a project specification and the use of project oversight to ensure compliance with all applicable regulations as well as protect the interest of the client for all abatement work performed at the Site. The project specification shall reference the regulations pertinent to each project, including those work procedures that shall be followed by asbestos abatement personnel.



- As part of each abatement contractor bidding process, a unit price schedule for the abatement of asbestos-containing materials should be established. The unit price schedule should include costs for those materials identified within this report, as well as those materials that may potentially be uncovered during renovation/demolition activities. Included should be unit prices for the removal of asbestos-containing materials (e.g., floor tile, floor tile mastic, gray duct sealant), as well as those non-asbestos-containing materials, which may be asbestos contaminated (i.e. carpeting, plywood, etc.).
- Project oversight will provide City of Worcester with on-site technical expertise during all
 phases of the abatement work. Project oversight provides a constant management of the
 abatement project to ensure that all identified asbestos-containing materials are removed
 in accordance with all applicable regulations and to prevent an asbestos fiber release.
 Tasks performed during project oversight should include periodic work inspections to
 ensure that all procedures employed by the abatement contractor are acceptable, and air
 monitoring around each work area to detect elevated asbestos fiber levels.



3.0 LEAD PAINT DETERMINATION

Atlas performed a limited lead-containing paint (LCP) determination on representative paints that will be impacted by the upcoming demolition project. The lead determination was performed by Atlas's Lead Paint Inspector, Mr. Daniel Roy. Paint chip samples were submitted to ProScience Analytical Services, Inc. for analysis in accordance with EPA method SW846—7000B/3051. ProScience is an AIHA-LAP Certified Laboratory with lab ID number: 102754. Paint Chip analysis results are located in Appendix B.

3.1 Summary of Findings

The table below provides the results of the lead paint testing. The Flame AAS readings are expressed in percent weight (% wt.).

Table 3 – Lead Paint Results 151 Plantation Street Worcester, Massachusetts

SAMPLE NUMBER	LOCATION	SUBSTRATE	COLOR	FLAME AAS RESULT (%WEIGHT)
01A	Interior	Cement	Light Blue	0.35
01B	Interior	Cement	Light Blue	0.30
02A	Exterior	Cement	Brown	0.10
02B	Exterior	Cement	Brown	0.10
03A	Interior	Plaster	Red	0.28
03B	Interior	Plaster	Red	0.34
04A	Interior	Wood	Brown	0.40
04B	Interior	Wood	Brown	0.55
05A	Entrance	Wood	White	<rl< td=""></rl<>
05B	Entrance	Wood	White	<rl< td=""></rl<>
06A	Entrance	Wood	Dark Blue	0.098
06B	Entrance	Wood	Dark Blue	0.14
07A	Interior	Wood	Blue	4.3
07B	Interior	Wood	Blue	9.0

<RL - Below Reporting Limit

3.2 Regulatory Implications and Regulations

The implications of lead paint existing in a non-residential building are related to the future use of the facility and the need to impact these painted surfaces during the repainting process.

The Occupational Safety and Health Administrative (OSHA) does not acknowledge any quantitative threshold for a lead-based paint. Paint with a detectable amount of lead, regardless of the level, is recognized as a <u>lead-containing</u> paint. The possible exposure hazard to workers impacting these coated surfaces should be assessed and contractors and their employees must adhere to the OSHA Lead in Construction standard found at 29 CFR 1926.62.

OSHA recognizes that construction type work on surfaces coated with lead-containing paint has a **potential** to expose workers to hazardous levels of lead and requires that appropriate safety and health measures be followed as stated in 29 CFR 1926.62. OSHA states that until the employer performs an exposure



assessment and documents that employees are not exposed above the permissible exposure limit (PEL) of greater than 50 micrograms per cubic meter ($\mu g/m^3$) of air, the employer must treat employees as if they were exposed above the PEL for the following operations:

- Manual renovation and demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- Abrasive blasting;
- Power tool cleaning;
- Lead burning;
- Using lead-containing mortar or spray painting with lead-containing paint;
- Abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- Cleanup activities where dry expendable abrasives are used; and
- Any other task the employer believes may cause exposure in excess of the PEL.

Work precautions include providing respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under this standard include a written compliance program as well as record keeping.

APPENDIX A

ASBESTOS BULK SAMPLE ANALYSIS RESULTS BY PLM



Atlas Technical Services, Woburn

Asbestos Identification Laboratory. 165 New Boston St. Ste 227

165 New Boston St., Ste 227 Woburn, MA 01801 781-932-9600

Web: www.asbestosidentificationlab.com Email: mikemanning@asbestosidentificationlab.com



Batch: 68277

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

151 Plantation St., Worcester

Dear Daniel Roy,

Woburn, MA 01801

Daniel Roy

Suite 100

10 State Street

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project. The Analysis Method is BULK PLM ANALYSIS, EPA/600/R-93/116The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. Samples containing subsamples or layers will be analyzed separately when applicable. Reports are kept at Asbestos Identification Laboratory for three years. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations. Department of Health Certification: AAL-121
- State of Vermont, Department of Health Environmental Health License AL934461

Thank you Daniel Roy for your business.

Michael Thamy

Michael Manning Owner/Director Daniel Roy Atlas Technical Services, Woburn 10 State Street Suite 100 Woburn, MA 01801

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

151 Plantation St., Worcester

Field	IID	Material	Location	Color	Non-Asbestos %	Asbestos %
	LabID					
01A		Gypsum Wallboard under Plaster	1st Floor	gray	Cellulose 2 Non-Fibrous 98	None Detected
01B	758350	Gypsum Wallboard under Plaster	1st Floor	gray	Cellulose 2 Non-Fibrous 98	None Detected
02A	758351	Plaster over Gypsum Board	1st Floor	gray	Non-Fibrous 100	None Detected
02B	758352	Plaster over Gypsum Board	1st Floor	gray	Non-Fibrous 100	None Detected
03A	758353	Ceramic Tile Thiset	Front Entrance Area	gray	Non-Fibrous 100	None Detected
03B	758354	Ceramic Tile Thinset	Front Entrance Area	gray	Non-Fibrous 100	None Detected
	758355					
04A		Ceramic Tile Grout	Front Entrance Area	gray	Non-Fibrous 100	None Detected
04B	758356	Cermaic Tile Grout	Front Entrance Area	gray	Non-Fibrous 100	None Detected
05A	758357	Yellow Carpet Mastic	By Front Entrance	yellow	Non-Fibrous 100	None Detected
	758358	Tellow Carpet Mastic	By From Emilance	yellow	Non-Fibrous 100	none Detected
05B		Yellow Carpet Mastic	By Front Entrance	yellow	Non-Fibrous 100	None Detected
06A	758359	Tan Mirror Glue Daubs	Kitchen Area	yellow	Non-Fibrous 100	None Detected
06B	758360	Tan Mirror Glue Daubs	Kitchen Area	yellow	Non-Fibrous 100	None Detected
07A	758361	Vinyl Sheet Flooring	1st Floor by Entrance	multi		None Detected
070	758362				Non-Fibrous 95	
07B	758363	Vinyl Sheet Flooring	1st Floor by Entrance	multi	Cellulose 9 Non-Fibrous 95	None Detected
08A	730303	Mastic Assoc. W/ Vinyl Sheet Flooring	1st Floor by Entrance	black	Cellulose 2 Non-Fibrous 98	None Detected
08B	758364	Mastic Assoc. W/ Vinyl	1st Floor by Entrance	black		None Detected
	758365	Sheet Flooring			Non-Fibrous 98	3

Sampled: August 25, 2021
Thursday 26 August 2021
Analyzed by: Received: August 25, 2021 Analyzed: August 25, 2021

Batch:

68277

Daniel Roy Atlas Technical Services, Woburn 10 State Street Suite 100 Woburn, MA 01801

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

151 Plantation St., Worcester

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
09A	Exterior Wall Grout on Rock Slabs	Exterior of Building	gray	Non-Fibrous 100	None Detected
758366 09B	Exterior Wall Grout on Rock Slabs	Exterior of Building	gray	Non-Fibrous 100	None Detected
758367 10A	Exterior Wall Grout Assoc. W/ CMU	Exterior of Building	gray	Fiberglass 2 Non-Fibrous 98	None Detected
758368 10B		Exterior of Building	gray		None Detected
758369	W/ CMU			Non-Fibrous 98	
758370	Black Asphalt Shingle	1st Floor Roof	black	Cellulose 20 Non-Fibrous 80	None Detected
11B	Black Asphalt Shingle	1st Floor Roof	black	Cellulose 20 Non-Fibrous 80	None Detected
758371 12A	Black Tar Assoc. W/ 11A	1st Floor Roof	black	Cellulose 60 Non-Fibrous 40	None Detected
758372 12B	Black Tar Assoc. W/ 11A	1st Floor Roof	black	Cellulose 60 Non-Fibrous 40	None Detected
758373 13A	White Asphalt Shingle	1st Floor Roof	black	Cellulose 20	None Detected
758374 13B	White Asphalt Shingle	1st Floor Roof	black	Non-Fibrous 80 Cellulose 20	None Detected
758375				Non-Fibrous 80	
14A 758376	Black Tar Assoc. W/ 13A	1st Floor Roof	black		Detected Chrysotile 5
14B	Black Tar Assoc. W/ 13A	1st Floor Roof			Not Analyzed
758377 15A	Green Asphalt Shingle	Lot Debris	black	Cellulose 20 Non-Fibrous 80	None Detected
758378 15B	Green Asphalt Shingle	Lot Debris	black	Cellulose 20	None Detected
758379				Non-Fibrous 80	
16A 759390	Black Tar Assoc. W/ 15A	Lot Debris	black		Detected Chrysotile 3
758380 16B	Black Tar Assoc. W/ 15A	Lot Debris			Not Analyzed
758381					

Sampled: August 25, 2021
Thursday 26 August 2021
Analyzed by: Received: August 25, 2021 Analyzed: August 25, 2021

Batch: 68277 Daniel Roy Atlas Technical Services, Woburn 10 State Street Suite 100 Woburn, MA 01801

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

151 Plantation St., Worcester

Field	dID	Material	Location	Color	Non-Asbestos %	Asbestos %
	LabID					
17A	758382	Roof Vapor Barrier	1st Floor Roof	black	Cellulose 70 Non-Fibrous 30	None Detected
17B	758383	Roof Vapor Barrier	1st Floor Roof	black	Cellulose 70 Non-Fibrous 30	None Detected

Received: August 25, 2021 Analyzed: August 25, 2021

Sampled: August 25, 2021
Thursday 26 August 2021
Analyzed by: Page 4 of 4 Batch: 68277

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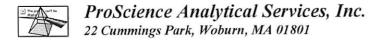
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APPENDIX B

LEAD PAINT CHIP ANALYSIS RESULTS



Telephone: 781-935-3212 Facsimile: 781-932-4857

Email: chemistry@proscience.net

Laboratory Report

Contact:

Dan Roy

Client:

Atlas Technical Consultants, LLC

Address:

10 State St., Suite 100

Woburn, MA 01801

Batch #: C 308417

Date received: 8/25/2021 Date analyzed: 8/26/2021 Date of report: 8/26/2021

AIHA-LAP, LLC Lab ID 102754

Project # N/A P.O.# N/A

Project Site: City of Worcester

151 Plantation Street, Worcester, MA

Lead Analysis In Paint Using SOP Based on SW846-7000B/3051

Results in weight percent on an "as received" weight basis

		Sample			Reporting	
Lab ID	Client ID	date	Description	Result	Limit	Comments
C 685570	01A	8/25/21	Light Blue Paint on Cement (Interior)	0.35	0.019	
C 685571	01B	8/25/21	Light Blue Paint on Cement (Interior)	0.30	0.037	
C 685572	02A	8/25/21	Exterior Brown Paint on Cement	0.10	0.025	
C 685573	02B	8/25/21	Exterior Brown Paint on Cement	0.10	0.032	
C 685574	03A	8/25/21	Red Paint on Plaster (Interior)	0.28	0.021	
C 685575	03B	8/25/21	Red Paint on Plaster (Interior)	0.34	0.021	
C 685576	04A	8/25/21	Brown Paint on Wood Interior	0.40	0.039	
C 685577	04B	8/25/21	Brown Paint on Wood Interior	0.55	0.011	
C 685578	05A	8/25/21	White Paint on Wood Wall by Entrance	/ <rl< td=""><td>0.034</td><td></td></rl<>	0.034	
C 685579	05B	8/25/21	White Paint on Wood Wall by Entrance	<rl< td=""><td>0.022</td><td></td></rl<>	0.022	

Simona Peavey, Tech. Manager Chemistry

Aimee Cormier, Lab Director

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Unless otherwise indicated, all samples were received in acceptable condition.

All results apply only to the samples tested and as received and are accurate to no more than three significant figures.

Unless otherwise indicated, all the quality control criteria for the method above have been met.

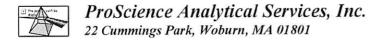
RL-Reporting Limit(%by weight)

Note on units: mg/Kg is the same as ppm by weight.

RL-Reporting Limit; Defined as the lowest concentration the laboratory can accurately quantitate.

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Telephone: 781-935-3212 Facsimile: 781-932-4857

Email: chemistry@proscience.net

Laboratory Report

Contact:

Dan Roy

Client:

Atlas Technical Consultants, LLC

Address:

10 State St., Suite 100 Woburn, MA 01801

Batch #: C 308417

Date received: 8/25/2021 Date analyzed: 8/26/2021

Date of report: 8/26/2021

Project # N/A

P.O.# N/A

Project Site: City of Worcester

151 Plantation Street, Worcester, MA

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7000B/3051

Results in weight percent on an "as received" weight basis

		Sample			Reporting	
Lab ID	Client ID	date	Description	Result	Limit	Comments
C 685580	06A	8/25/21	Dark Blue Paint on Wood by Entrance	0.098	0.020	
C 685581	06B	8/25/21	Dark Blue Paint on Wood by Entrance	0.14	0.031	
C 685582	07A	8/25/21	Blue Paint on Wood Wall (Interior)	4.3	0.028	
C 685583	07B	8/25/21	Blue Paint on Wood Wall (Interior)	9.0	0.022	
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Simona Peavey, Tech. Manager Chemistry

Aimee Cormier, Lab Director

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Unless otherwise indicated, all samples were received in acceptable condition.

All results apply only to the samples tested and as received and are accurate to no more than three significant figures. Unless otherwise indicated, all the quality control criteria for the method above have been met.

RL-Reporting Limit(%by weight)

Note on units: mg/Kg is the same as ppm by weight.

RL-Reporting Limit; Defined as the lowest concentration the laboratory can accurately quantitate.

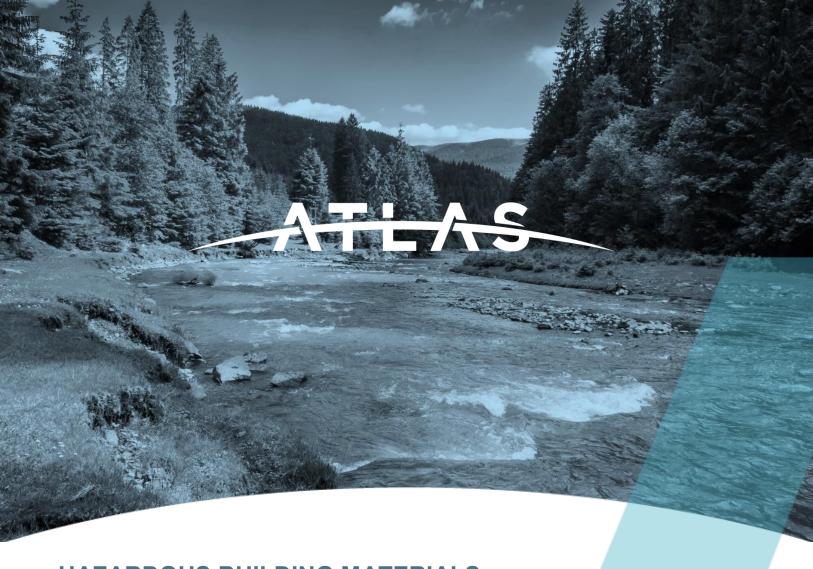
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LABORATORY/HEADQUARTERS 22 Cummings Park, Woburn, MA 01801 T:781-935-3212 F:781-932-4857	/HEADQUAI k, Woburn, M/ 781-932-4857	www.proscience.net answ.proscience.net general@proscience.net $\mathcal{H} f(q_{S} - l_{I}) \delta b u \ell h$		Same Day	Next Day	2 Day	3 Day 5 Days
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HAZARDOUS BUILDING MATERIALS INSPECTION REPORT

41 COLUMBIA STREET
WORCESTER, MASSACHUSETTS
ATLAS PROJECT 6000005912

PREPARED FOR:

Ms. Amanda M. Wilson, MPA
Director of Housing and Health Inspections
Department of Inspectional Services
City of Worcester
25 Meade Street
Worcester. Massachusetts

PREPARED BY:

Atlas Technical Consultants LLC 10 State Street, Suite 100 Woburn, Massachusetts 01801



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APPENDICES

Appendix I Asbestos Bulk Sample Analysis Results By PLM

Appendix II Lead Paint Chip Analysis Report



1.0 EXECUTIVE SUMMARY

ATC Group Services dba Atlas Technical Consultants (Atlas) was retained by the City of Worcester to perform a hazardous building materials survey to support the demolition of the building, located at 41 Columbia Street, Worcester, Massachusetts. Atlas understands that the building is scheduled to be demolished. The inspection was performed in accordance with Atlas Proposal 21-11613, dated July 26, 2021.

Atlas's scope of work included a survey for asbestos containing materials (ACM) and lead containing paints throughout the building.

1.1 ASBESTOS

Section 2.0 discusses the ACM survey and sampling methodology. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs.

The asbestos survey was performed by Massachusetts Division of Labor Standards (DLS) certified Asbestos Inspector, Mr. Daniel Roy (AI-900970), on August 26, 2021. A total of sixty-two (62) samples of suspect ACM were collected with fifty-nine (59) analyzed to determine asbestos content. The Atlas inspector performed both the visual inspection and bulk sampling in the building according to methods outlined in the U.S. Environmental Protection Agency (EPA) guidance document titled, "Guidance for Controlling Asbestos-Containing Materials in Buildings" (Document No. 560/5-85/024). Please find the Asbestos Identification Laboratory (AIL) Polarized Light Microscopy (PLM) bulk sample results included as Appendix A.

1.2 LEAD DETERMINATION

Atlas performed a lead paint determination on representative locations of the building. The lead paint testing was performed by collecting paint chip samples. Paint chip samples were submitted to ProScience Analytical Services for analysis in accordance with EPA method SW846—3050B/7000B. ProScience is an AIHA-LAP Certified Laboratory with lab ID number: 102754.

Results of the lead determination indicated that locations throughout the building will be impacted by the upcoming project was found to contain a detectable level of lead. Table 2, found in Section 3.2 presents the findings of Atlas's lead determination.



LIMITATIONS

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

Environmental evaluations are limited in the sense that conclusions and recommendations are developed and information obtained from limited research and secondary sources. Except as set forth in this report, Atlas has made no independent investigations as to the accuracy or completeness of the information derived from the secondary sources and personal interviews and has presumed that such information was accurate and complete.

This report is intended for the sole use of City of Worcester. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations, is at risk of said user.

CERTIFICATION OF RESULTS

This report has been prepared for the exclusive use of City of Worcester. Photocopying of this document by parties other than those designated by the Client, or use of this document for purposes other than it is intended, is prohibited.

Respectfully submitted 13th day of September, 2021.

Atlas Technical Consultants LLC

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2.0 ASBESTOS CONTAINING MATERIALS SURVEY

2.1 Sampling Methodology

The asbestos survey was performed by Massachusetts Division of Labor Standards (DLS) certified Asbestos Inspector, Mr. Daniel Roy (Al-900970), on August 26, 2021. Bulk samples, representing individual homogenous areas of suspect materials were collected in a randomly distributed manner, in accordance with the methods outlined below.

Building materials exist in the form of thermal systems insulation (TSI), surfacing materials, and miscellaneous materials.

The following generally illustrates the sampling strategy employed by Atlas where feasible:

- (a) Surfacing materials In a randomly distributed manner, collect bulk samples of surfacing materials, representative of each homogeneous area, and not assumed to be ACM.
 - (1) Collect at least three bulk samples from each homogeneous area that is less than or equal to 1,000 ft².
 - (2) Collect at least five bulk samples from each homogeneous area that is greater than 1,000 ft², but less than or equal to 5,000 ft².
 - (3) Collect at least seven bulk samples from each homogeneous area that is greater than 5,000 ft².
- (b) Thermal systems insulation.
 - (1) In a randomly distributed manner, collect at a minimum, three (3) bulk samples of thermal systems insulation material, representative of each homogeneous area, and not assumed to be ACM.
 - (2) Collect, at a minimum, one (1) bulk sample of patched thermal systems insulation, representative of each homogenous area, and not assumed to be ACM, providing the section of patch was less than 6 linear or square feet.
 - (3) Collect, at a minimum, three (3) representative bulk samples of each insulated mechanical system not assumed to be ACM, including, but not limited to cementitious material used on pipe fittings such as tees, elbows, or valves. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.
 - (4) Bulk samples are not required to be collected from any homogeneous area where the accredited asbestos inspector has determined that the thermal systems insulation is a non-suspect material (i.e., fiberglass, foam glass, rubber, or any other non-ACM).
- (c) Miscellaneous materials Collect, at a minimum, two (2) representative bulk sample of each miscellaneous material not assumed to be ACM, including, but not limited to ceiling tiles, floor tiles, associated floor tile mastic, roofing materials, waterproofing, etc. Representative sampling was conducted in a manner sufficient as to identify whether each homogenous area is either asbestos or non-asbestos containing.



2.2 Asbestos-Containing Materials

Atlas conducted the asbestos survey in areas associated with the upcoming demolition project of the building located at 41 Columbia St., Worcester, Massachusetts. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs. Asbestos bulk sample analysis results are located in Appendix A.

PLM Bulk sample analysis indicated that the following materials identified and sampled by Atlas were found to contain asbestos:

- Pipe Insulation
- Black Tar Associated with Red Asphalt Shingle
- Black Tar Associated with Black Asphalt Shingle

None of the other materials identified and sampled by Atlas were found to contain asbestos.

The following table presents a list of the identified, confirmed ACMs in the garage building. Note, ACM is identified by the Mass DEP as any material or product containing one (1) percent or greater asbestos by weight.

Table 1 – Summary of Identified Asbestos-Containing Materials 41 Columbia Street Worcester, Massachusetts

Location	Material	Estimated Quantity	Result
Basement	Pipe Insulation	50 In ft	60%
Roof	Black Tar Associated with Black And Red Asphalt Shingle	2,000 sq ft	2%

The following table lists the suspect materials identified that were sampled and determined to be non-ACM.

Table 2 – Summary of Non Asbestos-Containing Materials
41 Columbia Street
Worcester, Massachusetts

Material	Sample Location(s)
Gypsum Wall Board	Kitchen, Living Room
Joint Compound	Kitchen, Living Room
Yellow Cove Base Mastic	Living Room
White Speckled Vinyl Floor Tile	Rear Bathroom
Tan Mastic Associated with White Speckled Vinyl Floor Tile	Rear Bathroom
Tan Vinyl Floor Tile	Living Room
Clear Mastic Associated with Tan Vinyl Floor Tile	Living Room
Marbled Tan Vinyl Sheet Flooring	Back Entrance
Clear Mastic Associated with Marbled Tan Vinyl Floor Tile	Back Entrance
Tan with Red Pattern Vinyl Sheet Flooring	Back Entrance
Textured Ceiling	Kitchen, Bedroom



2 x 2 Ceiling Tile	Rear Bathroom
1 x 1 Ceiling Tile	Living Room
Grey Vinyl Floor Tile	2 nd Floor Bathroom
Tan Glue Daubs on Fiber Reinforced Panel	2 nd Floor Bathroom
Plaster	Living Room Wall, Living Room Ceiling, 1 st Floor Hallway, Front Room Wall, Front Room Ceiling, 2 nd Floor Hallway Wall, 2 nd Floor Hallway Ceiling
Blown-in Insulation	Living Room, By Entrance, 1 st Floor Stairwell, 2 nd Floor Stairwell, 2 nd Floor Hallway, 2 nd Floor Bedroom, 2 nd Floor Back Stairwell
Stone Block Grout	Basement
Brick Work Grout	Basement
Paper Vapor Barrier	Exterior Wall
Red Asphalt Shingle	Roof
Black Asphalt Shingle	Roof
Paper Vapor Barrier	Roof

2.3 Analytical Method

Samples were placed in labeled containers, which were sealed and submitted to the laboratory for analysis. Bulk samples of suspect materials were analyzed by Asbestos Identified Laboratory (AIL) of Woburn, Massachusetts, by means of the EPA-approved polarized light microscopy with dispersion staining (PLM/DS) method using the visual estimation technique for asbestos quantification. AIL is fully accredited for bulk sample analysis under the National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards and Technology, and is also licensed by the Massachusetts DLS (License Nos. AA-000208). Bulk samples were analyzed for asbestos content using EPA Method 600/R-93/116. The visual estimation technique was used to quantify asbestos concentrations. The PLM/DS analytical method is modeled after 40 CFR Part 763, Subpart F, Appendix A: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples." If a material contains 1% asbestos or greater, it is considered to be asbestos-containing material. Upon client request, or at the recommendation of the analyst, the 'Point Counting Method' may be used to verify the presence/absence of asbestos when a sample contains less than 10% asbestos by visual estimate.

2.4 Consideration for Hidden Materials

Atlas conducted the asbestos survey in areas associated with the upcoming demolition project of the building located at 41 Columbia St., Worcester, Massachusetts. This survey involved a visual inspection and collection of the suspect building materials. In consideration that the building is scheduled for demolition, Atlas performed limited exploratory demolition to identify hidden ACMs.

Atlas recommends if a suspect material has not been positively identified, but is similar in mode of occurrence or physical properties as other identified ACM, it should be considered asbestos containing. Only through further sampling and analysis should a suspect material be identified as non-asbestos.



2.5 Recommendations

Atlas understands that demolition activities are planned for this project. All identified ACM that will be impacted by the planned demolition project should be properly removed and disposed of by a Commonwealth of Massachusetts licensed Asbestos Contractor prior to disturbance.

Atlas recommends that precautions be taken to prevent unauthorized disturbance of identified ACM in this report.

Atlas also recommends the following as part of the abatement process:

- Although the asbestos contractor is required to follow the requirements outlined in Federal, Massachusetts State, and local regulations regarding asbestos during any abatement project, Atlas recommends the development of a project specification and the use of project oversight to ensure compliance with all applicable regulations as well as protect the interest of the client for all abatement work performed at the Site. The project specification shall reference the regulations pertinent to each project, including those work procedures that shall be followed by asbestos abatement personnel.
- As part of each abatement contractor bidding process, a unit price schedule for the abatement of asbestos-containing materials should be established. The unit price schedule should include costs for those materials identified within this report, as well as those materials that may potentially be uncovered during renovation/demolition activities. Included should be unit prices for the removal of asbestos-containing materials (e.g., floor tile, floor tile mastic, gray duct sealant), as well as those non-asbestos-containing materials, which may be asbestos contaminated (i.e. carpeting, plywood, etc.).
- Project oversight will provide City of Worcester with on-site technical expertise during all phases of the abatement work. Project oversight provides a constant management of the abatement project to ensure that all identified asbestos-containing materials are removed in accordance with all applicable regulations and to prevent an asbestos fiber release. Tasks performed during project oversight should include periodic work inspections to ensure that all procedures employed by the abatement contractor are acceptable, and air monitoring around each work area to detect elevated asbestos fiber levels.



3.0 LEAD PAINT DETERMINATION

Atlas performed a limited lead-containing paint (LCP) determination on representative paints that will be impacted by the upcoming demolition project. The lead determination was performed by Atlas's Lead Paint Inspector, Mr. Daniel Roy. Paint chip samples were submitted to ProScience Analytical Services, Inc. for analysis in accordance with EPA method SW846—7000B/3051. ProScience is an AIHA-LAP Certified Laboratory with lab ID number: 102754. Paint Chip analysis results are located in Appendix B.

3.1 Summary of Findings

The table below provides the results of the lead paint testing. The Flame AAS readings are expressed in percent weight (% wt.).

Table 3 – Lead Paint Results 41 Columbia Street Worcester, Massachusetts

SAMPLE NUMBER	LOCATION	SUBSTRATE	COLOR	FLAME AAS RESULT (%WEIGHT)
01A	2 nd Floor Bedroom	Wood	Brown	0.027
01B	2 nd Floor Bedroom	Wood	Brown	8.93
02A	2 nd Floor Bedroom	Wood	White	0.275
02B	2 nd Floor Bedroom	Wood	White	2.71
03A	2 nd Floor Bedroom	Plaster	Yellow	<rl< td=""></rl<>
03B	2 nd Floor Bedroom	Plaster	Yellow	<rl< td=""></rl<>

<RL - Below Reporting Limit

3.2 Regulatory Implications and Regulations

The implications of lead paint existing in a non-residential building are related to the future use of the facility and the need to impact these painted surfaces during the repainting process.

The Occupational Safety and Health Administrative (OSHA) does not acknowledge any quantitative threshold for a lead-based paint. Paint with a detectable amount of lead, regardless of the level, is recognized as a <u>lead-containing</u> paint. The possible exposure hazard to workers impacting these coated surfaces should be assessed and contractors and their employees must adhere to the OSHA Lead in Construction standard found at 29 CFR 1926.62.

OSHA recognizes that construction type work on surfaces coated with lead-containing paint has a **potential** to expose workers to hazardous levels of lead and requires that appropriate safety and health measures be followed as stated in 29 CFR 1926.62. OSHA states that until the employer performs an exposure assessment and documents that employees are not exposed above the permissible exposure limit (PEL) of greater than 50 micrograms per cubic meter (μ g/m³) of air, the employer must treat employees as if they were exposed above the PEL for the following operations:

- Manual renovation and demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;
- Abrasive blasting;
- Power tool cleaning;



- Lead burning;
- Using lead-containing mortar or spray painting with lead-containing paint;
- Abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- Cleanup activities where dry expendable abrasives are used; and
- Any other task the employer believes may cause exposure in excess of the PEL.

Work precautions include providing respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under this standard include a written compliance program as well as record keeping.

APPENDIX A

ASBESTOS BULK SAMPLE ANALYSIS RESULTS BY PLM



Daniel Roy Atlas Technical Services, Woburn 10 State Street Suite 100

Asbestos Identification Laboratory.

165 New Boston St., Ste 227 Woburn, MA 01801 781-932-9600

Web: www.asbestosidentificationlab.com Email: mikemanning@asbestosidentificationlab.com



Batch: 68353

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

41 Columbia St., Worcester, MA

Dear Daniel Roy,

Woburn, MA 01801

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project. The Analysis Method is BULK PLM ANALYSIS, EPA/600/R-93/116The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.

Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. Samples containing subsamples or layers will be analyzed separately when applicable. Reports are kept at Asbestos Identification Laboratory for three years. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations. Department of Health Certification: AAL-121
- State of Vermont, Department of Health Environmental Health License AL934461

Thank you Daniel Roy for your business.

Michael Thamy

Michael Manning Owner/Director

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

41 Columbia St., Worcester, MA

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
)1A	Gypsum Board	Kitchen	gray	Cellulose 10 Non-Fibrous 90	None Detected
758973 01B	Gypsum Board	Living Room	gray	Cellulose 10 Non-Fibrous 90	None Detected
758974 2A	Joint Compound	Kitchen	white	Non-Fibrous 100	None Detected
758975					
2B	Joint Compound	Living Room	white	Non-Fibrous 100	None Detected
758976)3A	Yellow Cove Base Mastic	Living Room	yellow	Cellulose 5 Non-Fibrous 95	None Detected
758977 03B	Yellow Cove Base Mastic	Living Room	yellow	Cellulose 5 Non-Fibrous 95	None Detected
758978 04A	White Speckled Vinyl Floor Tile	Rear Bathroom	white	Non-Fibrous 100	None Detected
758979 1 4B	White Speckled Vinyl Floor Tile	Rear Bathroom	white	Non-Fibrous 100	None Detected
758980					
05A	Tan Mastic Assoc. w/ 04A	Rear Bathroom	multi	Non-Fibrous 100	None Detected
758981 05B	Tan Mastic Assoc. w/ 04B	Rear Bathroom	multi	Non-Fibrous 100	None Detected
758982 06A	Tan Vinyl Floor Tile	Living Room	tan	Non-Fibrous 100	None Detected
758983 96B	Tan Vinyl Floor Tile	Living Room	tan	Non-Fibrous 100	None Detected
758984 7 7A	Clear Mastic Assoc. with 06A	Living Room	multi	Cellulose 5 Non-Fibrous 95	None Detected
758985 7 7B	Clear Mastic Assoc. w/	Living Room	multi	Cellulose 5 Non-Fibrous 95	None Detected
758986 8A	Marbled Tan Vinyl Sheet Flooring	Back Entrance	gray	Non-Fibrous 100	None Detected
758987 08B	Marbled Tan Vinyl Sheet Flooring	Back Entrance	gray	Non-Fibrous 100	None Detected
758988	i looming				

Sampled: August 26, 2021 Received: August 26, 2021 Analyzed: August 27, 2021

Friday 27 August 2021

Analyzed by:

Batch: 68353

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

41 Columbia St., Worcester, MA

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
l elel					
<u>Labl</u> 9A		Daals Entrance	-1	a 11 1	
9A 	Clear Mastic Assoc. w/ 08A	Back Entrance	clear	Cellulose 5 Non-Fibrous 95	None Detected
75898				Non Tibroab 75	
9B	Clear Mastic Assoc. w/	Back Entrance	clear	Cellulose 5	None Detected
	08B			Non-Fibrous 95	5
75899					
OA	Tan with Red Pattern Vinyl	Back Entrance	black	Non-Fibrous 100	None Detected
75899	Sheet Flooring				
OB	Tan with Red Pattern Vinyl	Back Entrance	black	Non-Fibrous 100	None Detected
	Sheet Flooring				
75899					
1A	Textured Ceiling	Kitchen	white	Non-Fibrous 100	None Detected
75899	93				
1B	Textured Ceiling	Bedroom	multi	Non-Fibrous 100	None Detected
			1110111	1.011 1 1010 40 100	Trong Beceded
75899					
2A	2'x2' Ceiling Tile	Rear Bathroom	gray	_	None Detected
				Mineral Wool 30 Cellulose 40	
	25			Cellulose 40 Non-Fibrous 10	
75899 2B	2'x2' Ceiling Tile	Rear Bathroom	aray		None Detected
20	Z XZ Celling The	Real Ballilooni	gray	Mineral Wool 30	
				Cellulose 40	
75899	96			Non-Fibrous 10	
3A	1'x1' Ceiling Tile	Living Room	brown	Mineral Wool 20	None Detected
				Cellulose 70	
75899				Non-Fibrous 10)
3B	1'x1' Ceiling Tile	Living Room	brown		None Detected
				Cellulose 70 Non-Fibrous 10	
75899		On d El Doth as a se			
4A	Grey Vinyl Floor Tile	2nd Fl. Bathroom	gray	Non-Fibrous 100	None Detected
75899	99				
4B	Grey Vinyl Floor Tile	2nd Fl. Bathroom	gray	Non-Fibrous 100	None Detected
75900		2nd El Dathra		NTere III-learn 100) NT
5A 	Fiber Reinforced Panel Tan Glue Daubs	2nd Fl. Bathroom	yellow	Non-Fibrous 100	None Detected
75900					
5B	Fiber Reinforced Panel	2nd Fl. Bathroom	yellow	Non-Fibrous 100	None Detected
	Tan Glue Daubs				
75900					
6A	Plaster	Living Room Wall	gray		None Detected
			1	Non-Fibrous 95	?

Sampled: August 26, 2021 Received: August 26, 2021 Analyzed: August 27, 2021

Friday 27 August 2021

Analyzed by: Batch: 68353 Page 3 of 5

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

41 Columbia St., Worcester, MA

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
16B	Plaster	Living Room Ceiling	gray	Hair 5 Non-Fibrous 95	1.0110 20000000
759004 16C	Plaster	1st Floor Hallway	gray	Hair 5 Non-Fibrous 95	None Detected
759005 16D	Plaster	Front Room Wall	gray	Hair 5 Non-Fibrous 95	None Detected
759006 16E	Plaster	Front Room Ceiling	multi		None Detected
759007 16F	Plaster	2nd Floor Hallway Wall	gray	Non-Fibrous 98	None Detected
759008 16G	Plaster	2nd Floor Hallway Ceiling	multi	Non-Fibrous 97	None Detected
759009	Plastei	2nd Floor Hallway Celling	muiu	Non-Fibrous 95	
17A 759010	Blown-in Insulation	Living Room	brown	Cellulose 95 Non-Fibrous 5	None Detected
17B	Blown-in Insulation	By Entrance	brown	Cellulose 95 Non-Fibrous 5	None Detected
759011 17C	Blown-in Insulation	1st Floor Stairwell	brown	Cellulose 95	None Detected
759012 17D	Blown-in Insulation	2nd Floor Stairwell	brown	Cellulose 95	None Detected
759013 17E	Blown-in Insulation	2nd Floor Hallway	brown	Cellulose 95	None Detected
759014 17F	Blown-in Insulation	2nd Floor Bedroom	brown		None Detected
759015 17G	Blown-in Insulation	2nd Floor Back Stairwell	brown		None Detected
759016 18A	Pipe TSI	Basement	gray	Cellulose 10	Detected Chrysotile 60
759017 18B	Pipe TSI	Basement		mon-trans 30	Not Analyzed
759018 19A	Stone Block Grout	Basement	gray	Non-Fibrous 100	None Detected
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Sampled: August 26, 2021 Received: August 26, 2021 Analyzed: August 27, 2021

Friday 27 August 2021

Analyzed by:

Batch: 68353

Project Information

Method: BULK PLM ANALYSIS, EPA/600/R-93/116

41 Columbia St., Worcester, MA

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
19B	Stone Block Grout	Basement	gray	Non-Fibrous 10	None Detected
759020		D		'1	
20A	Brick Work Grout	Basement	gray	Non-Fibrous 10	None Detected
759021					
20B	Brick Work Grout	Basement	gray	Non-Fibrous 10	None Detected
759022					
21A	Paper Vapor Barrier	Exterior Wall	gray	Cellulose 8	None Detected
			١	Non-Fibrous 2	0
759023					_
21B	Paper Vapor Barrier	Exterior Wall	gray	Cellulose 80 Non-Fibrous 20	None Detected
759024				Non Fibrous 2	
22A	Red Shingle Asphalt	Roof	black	Cellulose 2	None Detected
759025				Non-Fibrous 8	0
22B	Red Asphalt Shingle	Roof			Not Analyzed
					1.00 1.1.01, 2.00
759026					_
23A	Black Tar Assoc. w/ 22A	Roof	black	•	Detected Chrysotile 2
759027				Non-Fibrous 4	, , , , , , , , , , , , , , , , , , , ,
23B	Black Tar Assoc. w/ 22B	Roof			Not Analyzed
759028					
24A	Black Asphalt Shingle	Roof	black	Cellulose 2	None Detected
			2.33	Non-Fibrous 8	
759029					
24B	Black Asphalt Shingle	Roof	black	Cellulose 2	None Detected
759030				Non Fibrous 0	
25A	Black Tar Assoc. w/ 24A	Roof	black		Detected
759031				Non-Fibrous 4	Chrysotile 2
25B	Black Tar Assoc. w/ 24B	Roof			Not Analyzed
759032		<u> </u>			_
26A	Paper Vapor Barrier	Roof	black	Cellulose 7	None Detected
759033				INOII-LIDIOUS 3	
26B	Paper Vapor Barrier	Roof	black	Cellulose 7	None Detected
				Non-Fibrous 3	
759034	<u> </u>				

Sampled: August 26, 2021 Received: August 26, 2021 Analyzed: August 27, 2021

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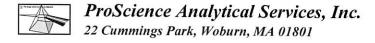
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APPENDIX B

LEAD PAINT CHIP ANALYSIS RESULTS



Telephone: 781-935-3212 Facsimile: 781-932-4857

Email: chemistry@proscience.net

Laboratory Report

Contact:

Daniel Roy

Client:

Atlas Technical Consultants, LLC

Address:

10 State St., Suite 100

Woburn, MA 01801

Batch #: C 308425

Date received: 8/26/2021 Date analyzed: 8/27/2021

Date of report: 8/27/2021

Project # N/A P.O.# N/A

Project Site: 41 Columbia St.

Worcester, MA

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7000B/3051

Results in weight percent on an "as received" weight basis

E		Sample			Reporting	
Lab ID	Client ID	date	Description	Result	Limit	Comments
			Top Layer Brown Paint over White Paint on			
C 685660	01A	8/26/21	Wood / 2nd Floor Bedroom	0.027	0.012	
			Top Layer Brown Paint over White Paint on			
C 685661	01B	8/26/21	Wood / 2nd Floor Bedroom	8.93	0.013	
			Bottom Layer White Paint on Wood / 2nd			
C 685662	02A	8/26/21	Floor Bedroom	0.275	0.022	
			Bottom Layer White Paint on Wood / 2nd			
C 685663	02B	8/26/21	Floor Bedroom	2.71	0.024	
			Yellow Paint on Plaster / 2nd Floor	***************************************		
C 685664	03A	8/26/21	Bedroom	<rl< td=""><td>0.020</td><td></td></rl<>	0.020	
			Yellow Paint on Plaster / 2nd Floor			
C 685665	03B	8/26/21	Bedroom	<rl< td=""><td>0.012</td><td></td></rl<>	0.012	

Simona Peavey, **∜**ech. Manager Chemistry

Aimee Cormier, Lab Director

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of 1

Unless otherwise indicated, all samples were received in acceptable condition.

All results apply only to the samples tested and as received and are accurate to no more than three significant figures.

<u>Unless otherwise indicated, all the quality control criteria for the method above have been met.</u>

RL-Reporting Limit(%by weight)

Note on units: mg/Kg is the same as ppm by weight.

RL-Reporting Limit; Defined as the lowest concentration the laboratory can accurately quantitate.

The Report shall not be reproduced except in full without the written approval of the laboratory.

Please visit our website at www.proscience.net for the current accreditation status.

<i>ProScienc</i> Chemistry (e Analy	ProScience Analytical Services, Inc. Chemistry Chain of Custody Record				Rush/<6 Hours		Turn Around Time Requested	e Requested		
LABORATORY/HEADQUARTERS 22 Cummings Park, Woburn, MA 01801 T:781-935-3212 F:781-932-4857	HEADQUAR , Woburn, MA 781-932-4857	1TERS 01801	www.proscience.net general@proscience.net	net se.net		Same Day	Next Day	2 Day	3 Day		5 Days
4	\ <u>\</u>				NELAC analysis	analysis	Element	ıt gravimetric	etric		
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Line 2			PO	(cim)	PM10	Other		ſ		C	
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Comments: ver 5.5								PAGE	_	PO HO	

Field blanks are required for air and wipe samples per the sampling method and should be from the same source lot as was used for the collected field samples. Proscience Analytical Services reserves the right to subcontract samples to an appropriately accredited laboratory when we are unable to perform the analysis in house.