SOUTHERN PLAINS RANGE RESEARCH STATION, 2000 18TH ST. WOODWARD, OK 73801

BUILDING 6 HVAC AND BUILDING 7 DEMOLITION UTILITY RELOCATION

CONTRACT # 12805B20D0002 & 12805B21F0076

DRAFT INVESTIGATIVE REPORT

OCTOBER 1, 2021

Prepared By:

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SIG212911.07 & 09

1. EXECUTIVE SUMMARY

Setty & Associates, was contracted to evaluate Buildings 6 and 7. Building 6 is to be assessed for HVAC/BAS/Boiler system deficiencies, and building 7 is to be evaluated to determine recommendations/options for utility relocation associated with the demolition of this building.

Setty contracted Apex Companies LLC. (HazMat services) to perform a HazMat survey of building 7 to identify asbestos and lead containing materials. The HazMat report is attached to the end of this investigative report. Building 6 was not surveyed for asbestos.

Task 1:

Building 6 is the main building at the USDA ARS Woodward location. Building 6, built in 1950 with a lab building addition in 2003, is mixed lab and office space totaling 26,704 SF. The scope of work is to provide an investigative report that details any deficiencies within the entire HVAC/BAS/Boiler systems, complete with cost estimate for recommended activities.

Task 2:

Building 7, and the attached greenhouse, is planned for demolition; however, there are utilities within the building that will require relocation, since they serve other buildings. The investigative report shall include recommendations and options to encapsulate or reroute the underground electrical, natural gas, and communications lines that pass through the basement of building 7, complete with cost estimate for recommended activities and a HazMat Investigation/Assessment for asbestos containing materials and lead paint.

Setty and Apex survey teams visited the site on August 19, 2021 to observe existing conditions and gather information in relevant areas of buildings 6 & 7. USDA has provided the design team with existing building drawings and valuable insight into the current uses, issues, and future expectations. The survey, existing documentation, and information gathered from discussions with USDA team members serve as the empirical basis for this investigative report.

Below is a summary of the recommended activities for building 6 HVAC and building 7 utility relocation.

Building 6 Mechanical HVAC:

1. The overarching recommendation is to replace the HVAC and BAS systems serving the lab/office spaces, as the systems are nearing their end of life expectancy, and are experiencing increasing performance and maintenance issues.
2. If a full HVAC replacement is not possible, then it is recommended to value for a budget to fix equipment that needs repaired, replace the BAS with a modern system, and recommission the building HVAC systems to ensure that the BAS and equipment operate as originally designed. Below is a list of priority equipment recommended for replacement or repair.
   - Air cooled chillers – Replace.
   - Fume hood exhaust fans – Replace.
   - Original Building 6 Lennox RTU – Replace.
   - Original Building 6 Trane RTU – No action.

- RTU-1, RTU-4, and office RTU – value for replacement of broken actuators, repair leaking piping, repair insulation, remediate rusted pipes.
- Indoor terminal units and air valves – Value for replacement of all hot water reheat coils, and have dampers, valves, and actuators replaced.
- Small Cook roof downblast exhaust fans – Replace.
- BAS – Value to update head end unit with new hardware and software.
- TAB/Commissioning – Value for systems to be tabbed and commissioned to ensure original design values and controls are met.

3. It is recommended that USDA has the chilled water system loop, hot water system loop, and makeup water sampled and tested for chemical makeup and forward the test results to Setty for review. This will allow Setty to determine if corrosive water has an effect on reported increasing equipment leakage.
4. The recommendation for the BAS would be to upgrade the system from the outdated Windows 2000 era operating system, to an entirely new head end unit with a more user friendly graphical interface.
5. The need to keep both fume hood exhaust fans running continuously indicates that there is a blockage in the fume hood exhaust ductwork, possibly a stuck damper, or the bleed damper on the roof might be stuck open. Verification of fume hood exhaust damper operation, and checking for blockages is recommended to determine the potential cause of this flow issue. Once the cause is determined, the system should be rebalanced.
6. For RTU-1 supply fans, it is recommended to verify that both backdraft damper actuators operate normally.
7. The RTUs on the roof of the original building 6 are packaged DX units with gas heat. One Trane, and one Lennox. The smaller Lennox unit is recommended to be replaced due to its age and severely damaged condenser coils. Any new units should have hail guards, and any existing unprotected coils should have hail guards installed.

Building 7 Electrical Utilities:

1. Two electrical feeders, which pass through the basement of Building 7, are recommended to be rerouted around the footprint of Building 7 prior to or in concurrence with demolition.
2. Any low voltage wiring, which pass through or terminates in Building 7, is recommended to be removed. However, if the owner determines there is still need for a connection between Building 6 and Building 54, then the wiring can be rerouted along with the electrical feeders.

Building 7 Mechanical Utilities:

1. The natural gas line, at SW corner of the building, is recommended to have the meter demolished, line capped at building 6, and the portion of the line between building 6 and 7 (going under the street) abandoned in place.
2. The water service line, at the SW corner of the building, is recommended to be demolished at the building end and capped at the isolation valve near the street.
3. The sanitary sewer ejection system, on the NW corner of the building, is recommended to be demolished in its entirety, and capped at the cleanout branch across the street. This would leave the portion of the sewer line under the road abandoned. Lines to be pumped of any remaining liquids and purging the gas line prior to demolition. For returning to a green site, the best option is to remove the system.

4. The septic system under the NE corner of the building is recommended to be abandoned in place, tank pumped to remove any remaining fluids, cleanouts removed, and returned to a green site.

2. MECHANICAL

2.1 Building 6 Mechanical Existing Conditions

2.1.1 Existing Heating Ventilation and Air Conditioning (HVAC)

Building 6 office and lab spaces are currently served by a combination of packaged DX gas heat rooftop units, and chilled water/hot water variable air volume (VAV) air handlers. The packaged rooftop units serve the original building 6 office spaces, and the 2003 addition with lab/office space is served by chilled water/hot water VAV air handlers.

The 2003 lab addition is served by a VAV 100% outdoor air (OA) unit on the roof, distributing air to supply air VAV boxes with hot water reheat. General exhaust air is controlled through exhaust air valves, which are connected to an energy recovery air handler with glycol run around coil before being exhausted out the stack. Fume hood exhaust is VAV through a damper and air flow measuring station for each hood, which is then combined at the fume hood exhaust fans. Chilled water is provided to the building by two air cooled chillers on the roof. Hot water is provided by two natural gas boilers in the mechanical room. The mechanical room houses all associated pumping and glycol feeding equipment for the hot water and chilled water systems, along with all plumbing systems that support the labs. The building has a building automation system (BAS), and controls in the building are by KMC controls.

2.1.2 Chilled Water System

The glycol chilled water is provided through two matching 100 ton Carrier air cooled chillers, Figure 2.1 below. They were both manufactured in 2003, so they are approximately 18 years old. In general, a mechanical system's life expectancy is approximately 20 years. During the survey the building engineer noted that one of the chillers only operates at partial capacity due to a failed compressor. After inspection of the chillers it was also noted that the evaporators are leaking with damaged insulation, Figure 2.2, and the condenser coils are seriously clogged with dirt, Figure 2.3. The clogged condenser coils can contribute to large capacity reductions and fan failures when seriously clogged. It is recommended that the coils be cleaned. Since the chillers are nearing their end of life cycle and require compressor replacements, and run on R-22 (which is being phased out) the recommendation is to replace the chillers with a new state of the art system.

Figure 2.1

Figure 2.2

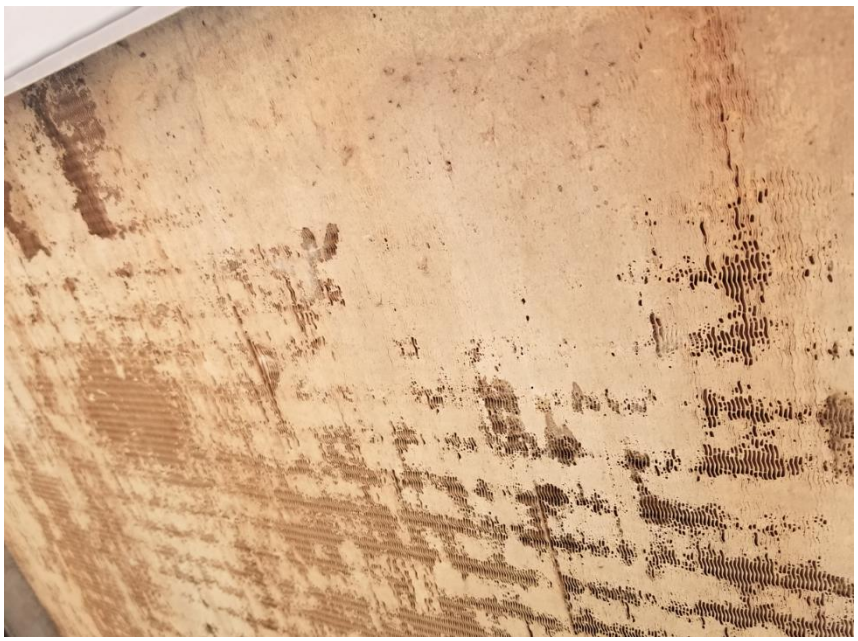

Figure 2.3

2.1.3 Hot Water System

The glycol hot water system has two recently replaced 1000 MBH condensing natural gas boilers. The new boilers seem to be operating smoothly with no issues. The issues in the hot water system appear to be downstream at the terminal units and at the glycol energy recovery system. The piping, pumps in the mechanical room appear to be in good condition. Multiple hot water reheat coils are currently leaking on site, see Figure 2.4. The building engineer suggested that the leaking issue appears to be happening more often lately.

Figure 2.4

When reviewing the reheat coil conditions in the field, it appears that this is not caused by improper connection materials, causing galvanic corrosion. In some areas the hot water piping supports were lacking, which could cause premature fatigue failure at joints between hot water coils and hot water piping, but this is not likely a widespread issue since piping was supported adequately in most places observed above ceiling. The hot water coil leak observed above ceiling was from the hot water coil itself, not a connection from the hot water piping to the coil. One potential cause for the hot water leaks, which needs further investigation and testing, is the possibility of the water chemistry not being right in the hot water system. The building engineer indicated that the only thing he has added to the hot water system is propylene glycol, and it was also noted that no chemical shot feeder was found in the mechanical room, even though it is shown on design drawings. Only glycol feeders for the hot and chilled water systems were identified.

Water chemistry is important to maintain in a hot water system, or any system running glycol, because glycol will break down over time and this process is much quicker when exposed to high temperatures (heating hot water systems). When glycol decomposes, it creates aldehydes, alcohols, ethers, and organic acids, which will erode the piping, react with galvanized fittings, and attack valve packings and gaskets, causing them to leak over an extended period when the PH and other chemicals in the water are not regularly tested and adjusted. The propylene glycol used at this USDA facility has a reserve alkalinity of 9 ml, which is average for corrosion inhibitor content. In order to rule out corrosive water as a possible cause of leaks, it is recommended that USDA have the chilled water system loop, hot water system loop, and makeup water sampled and tested for chemical makeup, and forwarded to Setty for review.

The glycol energy recovery system is also currently out of service, due to the pump age. It will remain out of service until the pump can be fixed.

2.1.4 Building Automation System

The BAS was identified as a critical item for replacement and or updating in the project requirement document (PRD). After reviewing the controls, surveying the site, and discussing issues with the building engineer and a lab user, it appears that the BAS itself may not be the cause of the control issues as much as the failing equipment controlled by the BAS. The building engineer suggested that he cannot trust that what is commanded through the BAS actually happens at the equipment due to ongoing issues with failing actuators.

At some point in the past there was an attempt to update the BAS software to fix control issues and provide a graphical user interface. The BAS head end unit had new software installed, but it stopped working soon after it was installed, so the original BAS software was reinstalled to get things working again.

Detailed commissioning of a lab space is critical to initial and ongoing function of the lab supply and exhaust systems, and their correct interaction with the BAS user controls. Any exiting building commissioning records have been requested, to identify whether or not this was performed at the time of construction.

The recommendation for the BAS would be to upgrade the system from the outdated Windows 2000 era operating system, to an entirely new head end unit with a more user friendly graphical interface. Simply updating software on the current operating system may end up having issues due to patches being required to allow the new software to be used on the old computer. Similar to what was described above.

2.1.5 Exhaust systems

The exhaust systems in building 6 consist of exhaust fans serving spaces such as toilets, the ganged VAV fume hood exhaust system, and the general office/lab exhaust system, which exhausts general exhaust only to the energy recovery unit on the roof of building 6.

The individual exhaust fans, varying from 155-2850 CFM, are all manufactured by Cook in 2004. No visual issues were identified with the fans on the roof, however, the expected life span of a commercial grade exhaust fan is 15-20 years, and the fans are around 17 years old. Similar to the chillers, they are at or near their end of life expectancy. None of the fans at the time of survey were operating.

The fume hood exhaust fans are also Cook fans, 7160 CFM each, manufactured in 2004. They are not in good condition and also have operating issues. The fans are physically degraded with large amounts of rust, see Figure 2.5. This condition indicates that they were not designed and purchased with the proper amount of corrosion protection. Both fans were operating at the time of survey, and both fans were exhibiting abnormally high vibration during operation. Excessive vibration leads to premature failure. The fume hood exhaust fans are near their expected end of life.

Figure 2.5

Fume hoods are designed to be VAV hoods, with sash position sensors and face velocity measuring devices installed to control fume hood exhaust and makeup air. The fume hood exhaust fans are designed to be lead-lag, meaning one fan runs while the other is in standby mode in case one fan fails. It was discovered during the survey that the lab users were not getting the air flow they needed through the fume hoods, so currently both fume hood exhaust fans operate in tandem at all times to maintain fume hood flow. Also it was noted that the bleed damper on the roof exhaust ductwork was open at the time of survey, pulling in a large amount of outside air, contributing to the need for both fans operating.

The fume hood controls show that the bleed damper on the roof ductwork shall open up if fan speed drops or static pressure rises above preset limits. The need to keep both fume hood exhaust fans running continuously indicates that there may be a blockage in the fume hood exhaust ductwork somewhere, possibly a stuck damper, or the bleed damper on the roof might be stuck open, bypassing the fume hoods and exhausting outdoor air through the stack. Physical verification of fume hood exhaust damper operation, and checking for blockages are required to determine the potential cause of this flow issue.

The other indication of fume hood flow issues is the fact that all fume hood rooms, with the exception of room 6168, are positively pressurized, as determined by the tissue test for airflow direction. This is not a code violation, but it is a safety issue, depending on the chemicals, materials, and experiments performed in the hoods.

The general exhaust energy recovery air handler, RTU-4, 16,862 CFM, appears to exhaust adequately. At the time of the survey, the energy recovery portion of the unit liquidside was offline due to the glycol loop pump being shut down due to leakage. The unit airside was operating at the time of survey, so the pressurized sections were not opened up for inspection. The unit is the same age as the air cooled chillers and RTU-1, nearing the end of its expected life.

2.1.6 Air handling Systems

Overall, the supply, return, and exhaust ductwork on the roof and above ceiling is in good condition. Insulation appears to be in good condition, and rooftop ductwork does not have any major leakage or degradation identified during the survey. What is visible of VAV boxes appears to be in good condition, except for the failing hot water reheat coils on the boxes. Air valves and dampers, internal to the ductwork, were not inspected, because all areas surveyed did not have inspection ports for these items.

RTU-1, is a 12,000 CFM Temtrol hot water chilled water 100% OA unit serving the lab/office spaces, and within the unit there is evidence of corrosion, missing insulation, and damper actuators clamped in place to maintain proper operation, see Figure 2.6 below.

Figure 2.6

There do not appear to be problems with RTU-1 maintaining pressurization in the lab/office spaces. Overall lab pressures indicate that the labs are negative with respect to the corridor. It was noted that Researchers had complained about the feeling of very high air change rates (ACH) in the labs, so RTU-1 is always kept in unoccupied mode (one fan running during the day and night) to reduce ACH in the labs.

The Ecology/Physiology lab space ACH was calculated based on the design drawings provided. The occupied design ACH is 11 on the exhaust, and 6 ACH during unoccupied mode. It is not an issue in this case to operate the air handler in unoccupied mode all the time. If this lab were to be designed today the occupied ACH would be 6-8, and the unoccupied ACH would be 2-4, depending on program specific requirements. If the program requirements in the labs do not require 11 air changes, then it is possible that the system was oversized. If 6 air changes is acceptable for occupied mode, it is possible that the air changes could be reduced even more during the night to save energy when the building is truly unoccupied.

When only one fan is running the building engineer noted that the standby fan VFD will go into alarm. This is likely caused by backwards airflow through the non-operating fan. Typically in a multi-fan unit each fan will have a dedicated isolation damper to prevent backflow, and the fans are controlled such that both fans operate at 50% flow. The design drawings indicate that a motorized backdraft damper is installed, but this was not verified at the time of the survey due to the unit being operational and under pressure. It is recommended to verify that both backdraft damper actuators operate normally on BAS controls.

The RTUs on the roof of the original building 6 are packaged DX units with gas heat. One Trane, and one Lennox, See Figure 2.7 below. The Trane unit on the left appears to be in good shape, and does not need replacing. The smaller Lennox unit on the right is recommended to be replaced. It appears to be an older model based on research, potentially late 90s or early 2000s. The tag is not legible. The condenser coils on the Lennox unit have severe damage, which appears to be storm damage, as illustrated in Figure 2.8.

Figure 2.7

Figure 2.8

2.2 Building 7 Mechanical Utility Relocation

Building 7 is to be demolished in its entirety, so all HVAC systems shall be removed, and will not be described. The focus shall be on the utility requirements associated with the demolition.

Building 7 has natural gas service, water service, sanitary sewer service, and a septic system. These systems are dedicated to building 7, and do not require relocation, so it is recommended that they simply be demolished or abandoned, branch lines capped as required, and tanks/pits pumped and purged as required and abandoned in place. For the sewage ejection system on the NW corner of the building, illustrated in Figure 2.9. That is recommended to be removed completely. This is more costly than abandoning in place, but if the building is removed, then it would look cleaner to remove the sewage ejection pit completely as well and simply plant grass.

Figure 2.9

3. ELECTRICAL

3.1 Electrical Existing Conditions

3.1.1 Existing Site Conditions – Building #7 Demolition

Currently between the Main Building and Building #7 there are six (6) 4” conduits carrying electrical power conductors and two (2) 4” conduits carrying telecom cabling. The content of these conduits is broken down below.

Size	System	Conductor/Cables	Serves
4”	Power – Normal	(4) 500 kcmil, #3 G.	Panel GHDP (Building #54)
4”	Power – Normal	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(4) 500 kcmil, #3 G.	Panel GHSDP (Building #54)
4”	Power – Emergency	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(4) #6, #10 G.	Sewage Lift (Building #7)
4”	Telecom	Yellow Cat5	Wall outlets
4”	Telecom	(Empty)	

Currently between Building #7 and Building #54 there are six (6) 4” conduits carrying electrical power conductors and two (2) 4” conduits carrying telecom cabling. The content of these conduits is broken down below.

Size	System	Conductor/Cables	Serves
4”	Power – Normal	(4) 500 kcmil, #3 G.	Panel GHDP (Building #54)
4”	Power – Normal	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(4) 500 kcmil, #3 G.	Panel GHSDP (Building #54)
4”	Power – Emergency	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(4) 500 kcmil, #3 G.	
4”	Power – Emergency	(Empty)	
4”	Telecom	Blue Cat5 Orange Fiber Optic	Wall Outlets Fiber Optic Terminal (Abandoned)
4”	Telecom	Red Cat5	Internet Switch (Inoperable)

3.2 Recommendations – Building #7 Demolition

As part of the demolition of Building #7, the following conductors or cables can be considered to be abandoned and removed along with Building #7:

- (4) #6, #10 G. power conductors from the Main Building to Building #7 serving the sewage lift pump outside of Building #7, which has been turned off
- Orange fiber optic cable from Building #54 to Building #7 serving the fiber optic terminal in Building #7, which has been disconnected
- Red Cat5 cable from Building #54 to Building #7 serving an internet switch, which has been turned off.

Additionally, the following cables appear to be unnecessary and can potentially be removed along with Building #7. These cables are jointed together in building #7, appear to serve some purpose for the greenhouses, and it unclear if they would continue to serve a purpose once Building #7 is demolished. The owner should verify the status of these cables to determine their removal or relocation:

- Yellow Cat5 cable between the Main Building and Building #7
- Blue Cat 5E cable between Building #7 and Building #54

The following conductors will remain in service even after the demolition of Building #7 and will need to be relocated prior to or in concurrence with the removal of Building #7:

- Two (2) sets of (4) 500 kcmil and #3 Ground between the Main Building and Building 54 serving panel GHDP
- Three (3) sets of (4) 500 kcmil and #3 Ground between the Main Building and Building 54 serving panel GHSDP

3.3 Options – Building #7 Demolition

There are two options for relocating the electrical conductors that will remain in service. Additionally, there are two alternate options which may not be viable, depending on the existing conditions of the underground conduits. These options are described below. There will also be a cost difference between the options which can be determined by a contractor experienced with this type of work in this region.

Option 1: Replace the entire feeder

In this option, a second set of feeders would be run parallel to the existing feeders. This can be done while the existing feeders are still in service and the switchover to the new feeders can occur during a single work day. The advantage is it is the simplest and would require the least amount of coordination as well as provide a clean installation. The disadvantage is the amount of material and excavation required.

Option 2: Two manholes

In this option, the existing conductors are cut within the Building #7 footprint and left to be reused, then 2 manholes intercept the conduits, one between Building #7 and Building #54 and one between the Main Building and Building #7. Conduits are routed around Building #7 foundation between the manholes. New conductors are pulled between the manholes and joined to the existing conductors in each. The advantage is this reuses the most existing conductor material. The disadvantages are the cost of two manholes and this would be the most visible solution as it includes a manhole near the roadway.

Option 3: Spliced conduits

Note: This would not be viable if the total bend radius of the new and existing conduits spliced together exceeds 360°.

In this option, the existing conductors are pulled from the conduits, the conduits are dug up near Building #7 foundation and new conduits are routed around the Building #7 foundation. New conductors are pulled. This would be the most advantageous option, providing a clean installation with minimal excavation and no manholes. However, it has the highest chance of not being viable due to existing conditions.

Option 4: Single manhole

Note: This would not be viable if the total bend radius of the new and existing conduits spliced together exceeds 360°.

In this option, the existing conductors are pulled back from one end of Building #7 to the Main Building and the remainder is left to be reused, then a manhole intercepts the conduits between Building #7 and Building #54 and conduits are routed around Building #7 foundation to the conduit from the Main Building. New conductors are pulled from the Main Building to the manhole and jointed to the existing conductors to Building #54. The advantage is the manhole can still be in a discrete location and some conductors can be reused. The disadvantage is the cost of the manhole. It does have a slightly higher chance of being viable compared to option #3.

APEX COMPANIES, LLC

Asbestos and Lead-Containing Materials – Executive Summary

USDA Greenhouse (Building 7)
2000 18th Street
Woodward, Oklahoma

Setty Project No.: SIGQ212911.07

Apex Project No.: SET21-001

Date of Report: September 30, 2021

PREPARED FOR:

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APEX

EXECUTIVE SUMMARY

Apex Companies, LLC (Apex) was retained by Setty & Associates ("Setty") to conduct pre-demolition asbestos-containing material (ACM) and lead-containing paint (LCP) surveys of the Greenhouse (Building 7, "Site") at the USDA Agricultural Research Service, 2000 18th Street, Woodward, Oklahoma. The ACM survey was performed on August 19, 2021, by Oklahoma Department of Labor (DOL)-accredited asbestos inspector Mr. Eli Barnett (Accreditation No. 402312). The lead-containing paint survey was performed on August 19, 2021, by Oklahoma certified LBP Inspector Mr. Eneojo Onuche (Certification Number OKRASR13853).
Setty requested that Apex collect samples of suspect ACM for asbestos laboratory analyses and perform X-ray fluorescence (XRF) testing of suspect LCP on interior and exterior areas of the building.

The following areas were surveyed:

- Main Building 1st and 2nd Floor: North Lab Room, South Lab Room, Hallway, Bathroom and Stairwell
- Main Building Basement
- Header Room Basement
- Header Room Main Area
- Greenhouse
- Header Room and Main Building Roofing Material
- Header Room and Main Building Exterior Features
- Header Room Roof – Heating, Ventilation and Air conditioning (HVAC) System

The survey was performed in accordance with the Oklahoma Asbestos Control Act (OAC), Title 40 O.S., Oklahoma Clean Air Act, Title 27A, Sections 2-5-114 and 116, United States Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP requires that commercial and public buildings be thoroughly inspected (surveyed) for the presence of ACM prior to conducting renovation or demolition activities. ACM is defined as material containing greater than 1% asbestos. The sampling protocol was based on procedures outlined in AHERA, 40 CFR , Part 763.

Marshall Environmental Management, LLC. (Marshall) performed an XRF survey of suspect lead-containment materials/paints. OSHA has not established a limit for lead in paint and coatings; however, the US Environmental Protection Agency (EPA)/Housing and Urban Development (HUD) action level for lead-based painted surfaces is 1.0 milligram per square centimeter (1.0 mg/cm2) using the X-ray fluorescence analyzer (XRF) method, or 0.5% by weight. This is only enforceable for child occupied housing; however, is a reasonable and conservative limit that can be used as a guideline for other types of buildings. OSHA regulations for LCP apply to any paint that contains detectable levels of lead.

Findings

1. Apex collected seventy-one (71) bulk samples of suspect ACM. Laboratory results indicate that one (1) of the sampled materials is an ACM:

    - Blue floor tile on stairs (Sample #'s HA-14-38, 39 and 40, 3% Chrysotile) in the stairwell of the main building.

    The laboratory analytical reports and associated chain-of-custody documents for ACM are included in **Attachment 1**; sample location diagrams are provided in **Attachment 2**; site photographs are included in **Attachment 3**; and copies of applicable staff and laboratory accreditations can be found in **Attachment 4**.

2. Marshall tested eighty (80) painted surfaces of lead throughout the building. Sixteen (16) painted surfaces detected lead concentrations at or above 1.0 mg/cm2 are listed below. Twenty-seven (27) painted surfaces with detected lead concentrations below 1.0 mg/cm2 are highlighted in the results table presented in **Attachment 5** along with sample location diagrams.

    - Room 3 – White paint on door, Sample 18, 14.2 mg/cm2
    - Room 3 – White paint on door casing, Sample 19, 12.5 mg/cm2
    - Room 6 – Blue paint on metal cabinet, Sample 45, 6.8 mg/cm2
    - Room 7 – White paint on wall, Sample 46, 3.1 mg/cm2
    - Room 7 – White paint on ceiling, Sample 50, 1.1 mg/cm2
    - Room 9 – White paint on windowsill, Sample 55, 6.6 mg/cm2

- Room 9 – White paint on window frame, Sample 56, 9.6 mg/cm2
- Room 11 – White paint on garage door, Sample 67, 12.5 mg/cm2
- Room 11 – White paint on door, Sample 68, 7.7 mg/cm2
- Exterior – White paint on window frame, Sample 73, 7.2 mg/cm2
- Exterior – White paint on garage door, Sample 74, 12.7 mg/cm2
- Exterior – White paint on door casing, Sample 75, 8.6 mg/cm2
- Exterior – White paint on window frame, Sample 77, 12.7 mg/cm2
- Exterior – White paint on window frame, Sample 79, 3.1 mg/cm2
- Exterior – White paint on fascia, Sample 80, 13 mg/cm2
- Exterior – White paint on soffit, Sample 81, 14.3 mg/cm2

Conclusions and Recommendations

1. The results of the surveys indicate that ACM and LCP are present in Building 7 at the USDA Agricultural Research Service facility.

2. The identified ACM (HA-14, blue floor tile, stairwell of main building) must be removed by an Oklahoma licensed asbestos abatement contractor prior to any disturbance. Asbestos abatement work should be performed in accordance with OAC 380:50, EPA regulations (40 CFR 763, subpart G), and OSHA regulations (29 CFR 1926.1101). Oklahoma asbestos removal regulations include:

    - Contractors performing asbestos abatement work must be licensed (380:50-5-5 et seq.).
    - Ten-day notification of asbestos abatement is required in most cases (380:50-9-1 and 380:50-14-1).
    - Asbestos removal procedures including wetting requirements (380:50-17-5)
    - Asbestos must be properly transported and disposed of at an authorized site (380:50-17-9).
    - Additional Oklahoma provisions for handling, storing, and transporting friable asbestos during demolition or renovation operations (in addition to national emission standards) (252:100-40-5)
    - Asbestos related violations (380:50-7-1)

3. Prior to asbestos abatement, Apex recommends establishing a work plan and developing specifications for the removal procedures. Additionally, Apex recommends that a qualified third-party consultant perform air sampling and visual inspections, before, during and after abatement procedures.

4. The identified LCP may be removed prior to demolition activities by an Oklahoma licensed lead-based paint remediation contractor. If the LCP is left in place, the contractor will have to perform the demolition work in accordance with 29 OSHA CFR 1926.62 that includes rules for worker exposure monitoring, medical monitoring, training, respiratory protection, and housekeeping. During demolition the contractor will have to separate the LCP waste from the other construction debris and test for lead toxicity to determine if the LCP debris is a hazardous waste for disposal purposes. Pre-demolition removal of the LCP also eliminates the possibility of lead dust migration and soil contamination; however, these issues may also be minimized by using wet removal methods and other recommended OSHA guidelines.

5. If suspect ACM or LCP are discovered in areas that were not identified in this survey, demolition work must be halted. The suspect material must be tested/sampled by Oklahoma accredited Inspectors prior to disturbance. Suspect asbestos samples must be analyzed by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

Limitations

Apex performed its services consistent with the level of care and expertise exercised by professionals performing the same or similar services at the same time and in the same geographic area. No express or implied warranties apply to these services or this report. Apex does not profess to be able to locate all suspect materials in a building. Apex did not inspect the Site for other hazardous materials or for unsafe or hazardous conditions.

All conclusions and recommendations in this report represent the professional opinions of the Apex personnel involved with the project. The findings, conclusions and recommendations discussed in this report apply to the Site conditions existing at the time of the survey work and the interpretation of current regulations pertaining to ACM or lead-containing materials. Therefore, the opinions and recommendations present in this report may not apply to future conditions at the Site. All applicable federal, state, and local

regulations should be verified by building owners and contractors, prior to initiating any work that will disturb regulated building materials. This survey and report were prepared for the exclusive use of Setty, solely for their use and reliance in determining the presence of ACM or lead-containing materials at the Site. The results of this report are not considered a legal interpretation of existing federal, state, or local environmental, health and safety laws or regulations. Apex assumes no responsibility or liability for errors in information or data provided to Apex by Setty or any third party or developments resulting from activities or situations outside the scope of this project. This report is not to be used as a bidding document.

Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or restoration/remediation deemed necessary. Apex does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report.

Closing

Apex appreciates the opportunity to be of service to Setty on this project. If you have questions or comments regarding the information in this report please do not hesitate to contact Apex at 918.610.3543.

Sincerely,

Apex Companies, LLC

Ted Alfred
Project Manager

Daniel Wolf, PE, CIH
Program Manager

Attachments

Attachment 1 Laboratory Analytical Reports and Chain of Custody Documents
Attachment 2 Sample Location Diagrams
Attachment 3 Site Photographs
Attachment 4 Licenses/Certifications
Attachment 5 LCP Results and Sample Location Diagrams

ATTACHMENT 1

LABORATORY ANALYTICAL REPORTS & CHAIN OF CUSTODY DOCUMENTS

QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
001	HA1-001	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
001a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
002	HA1-002	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
002a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
003	HA1-003	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
003a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
004	HA2-004	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand

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QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
004a		Layered	Black Surfacing	Asbestos Not Present	NA	Clay
004b		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
005	HA2-005	Layered	Black Surfacing	Asbestos Not Present	NA	Clay
005a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
006	HA2-006	Layered	Black Surfacing	Asbestos Not Present	NA	Clay
006a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
007	HA3-007	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand Gypsum
008	HA3-008	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand
009	HA3-009	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand
010	HA4-010	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
010a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
011	HA4-011	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
011a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
012	HA4-012	Layered	Gray Mortar	Asbestos Not Present	NA	CaCO3 Sand
012a		Layered	Red Brick	Asbestos Not Present	NA	Clay Sand
013	HA5-013	Layered	White Wrap	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Foil Binder
013a		Layered	Yellow Insulation	Asbestos Not Present	Glass Fiber 100	
014	HA5-014	Layered	White Wrap	Asbestos Not Present	Cellulose 30 Glass Fiber 30	Foil Binder
014a		Layered	Yellow Insulation	Asbestos Not Present	Glass Fiber 100	

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
015	HA5-015	Layered	White Wrap	Asbestos Not Present	Cellulose Glass Fiber	30 30	Foil Binder
015a		Layered	Yellow Insulation	Asbestos Not Present	Glass Fiber	100	
016	HA6-016	Homogeneous	Brown Insulation	Asbestos Not Present	NA		Cork Binder
017	HA6-017	Homogeneous	Brown Insulation	Asbestos Not Present	NA		Cork Binder
018	HA6-018	Homogeneous	Brown Insulation	Asbestos Not Present	NA		Cork Binder
019	HA7-019	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
019a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum

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QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
020	HA7-020	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
020a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
021	HA7-021	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
021a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
022	HA8-022	Homogeneous	Brown Caulk	Asbestos Not Present	NA		CaCO3 Binder
023	HA9-023	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
023a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
024	HA9-024	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
024a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
025	HA9-025	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
025a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
026	HA10-026	Homogeneous	Gray Flooring	Asbestos Not Present	NA		Sand Clay Binder
027	HA10-027	Homogeneous	Gray Flooring	Asbestos Not Present	NA		Sand Clay Binder

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
028	HA10-028	Homogeneous	Gray Flooring	Asbestos Not Present	NA		Sand Clay Binder
029	HA11-029	Layered	Brown Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	40 40	Paint
029a		Layered	Brown Mastic	Asbestos Not Present	NA		Glue
029b		Layered	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	15 5	Gypsum
030	HA11-030	Layered	Brown Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	40 40	Paint
030a		Layered	Brown Mastic	Asbestos Not Present	NA		Glue

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QuanTEM LABORATORIES
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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
030b		Layered	White Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	15 5	Gypsum
031	HA11-031	Homogeneous	Brown Ceiling Tile	Asbestos Not Present	Cellulose Glass Fiber	40 40	Paint
032	HA12-032	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
032a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
033	HA12-033	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3
033a		Layered	White Sheetrock	Asbestos Not Present	Cellulose	15	Gypsum
034	HA12-034	Layered	White Joint Compound	Asbestos Not Present	NA		CaCO3

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QUANTEM LABORATORIES
2033 HERITAGE PARK DR, OKLAHOMA CITY, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
034a		Layered	White Sheetrock	Asbestos Not Present	Cellulose 15	Gypsum
035	HA13-035	Layered	White Texture	Asbestos Not Present	NA	Sand Paint
035a		Layered	Gray Cement	Asbestos Not Present	NA	CaCO3 Sand Gypsum
036	HA13-036	Layered	Gray Texture	Asbestos Not Present	NA	Sand Paint
036a		Layered	Gray Cement	Asbestos Not Present	NA	CaCO3 Sand Gypsum
037	HA13-037	Layered	Gray Texture	Asbestos Not Present	NA	Paint Sand

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QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
037a		Layered	Gray Cement	Asbestos Not Present	NA	CaCO3 Sand Gypsum
038	HA14-038	Layered	Blue Floor Tile	Asbestos Present Chrysotile 3	NA	CaCO3 Vinyl
038a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
038b		Layered	Brown Stair Tread	Asbestos Not Present	NA	CaCO3 Vinyl
038c		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
039	HA14-039	Layered	Blue Floor Tile	Asbestos Present Chrysotile 3	NA	CaCO3 Vinyl
039a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue

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QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
039b		Layered	Brown Stair Tread	Asbestos Not Present	NA	CaCO3 Vinyl
039c		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
040	HA14-040	Layered	Blue Floor Tile	Asbestos Present Chrysotile 3	NA	CaCO3 Vinyl
040a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue
040b		Layered	Brown Stair Tread	Asbestos Not Present	NA	CaCO3 Vinyl
040c		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
041	HA15-041	Layered	Brown Vinyl	Asbestos Not Present	Cellulose	15	CaCO3 Vinyl
041a		Layered	Brown Mastic	Asbestos Not Present	NA		Glue
042	HA15-042	Layered	Brown Vinyl	Asbestos Not Present	Cellulose	15	CaCO3 Vinyl
042a		Layered	Yellow Mastic	Asbestos Not Present	NA		Glue
043	HA15-043	Layered	Brown Vinyl	Asbestos Not Present	Cellulose	15	CaCO3 Vinyl
043a		Layered	Yellow Mastic	Asbestos Not Present	NA		Glue
044	HA16-044	Layered	Brown Cove Base	Asbestos Not Present	NA		CaCO3 Vinyl

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
044a		Layered	Brown Mastic	Asbestos Not Present	NA	Glue CaCO3
045	HA16-045	Layered	Brown Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
045a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
046	HA16-046	Layered	Brown Cove Base	Asbestos Not Present	NA	CaCO3 Vinyl
046a		Layered	Yellow Mastic	Asbestos Not Present	NA	Glue CaCO3
047	HA17-047	Homogeneous	Black Pipe Wrap	Asbestos Not Present	NA	Foam Binder

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
048	HA17-048	Homogeneous	Black Pipe Wrap	Asbestos Not Present	NA		Foam Binder
049	HA17-049	Homogeneous	Black Pipe Wrap	Asbestos Not Present	NA		Foam Binder
050	HA18-050	Layered	Black Roofing	Asbestos Not Present	Glass Fiber	30	Tar
050a		Layered	Brown Insulation	Asbestos Not Present	Cellulose	100	
050b		Layered	Tan Wrap	Asbestos Not Present	Synthetic	20	CaCO3 Binder
050c		Layered	Green Insulation	Asbestos Not Present	NA		Foam
050d		Layered	Tan Caulk	Asbestos Not Present	NA		CaCO3 Binder

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QuanTEM LABORATORIES
2033 Heritage Park Dr, Oklahoma City, OK 73120 | 1.800.822.1650

Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
051	HA18-051	Layered	Black Roofing	Asbestos Not Present	Glass Fiber	30	Tar
051a		Layered	Brown Insulation	Asbestos Not Present	Cellulose	100	
051b		Layered	Tan Wrap	Asbestos Not Present	Synthetic	20	CaCO3 Binder
051c		Layered	Green Insulation	Asbestos Not Present	NA		Foam
051d		Layered	Tan Caulk	Asbestos Not Present	NA		CaCO3 Binder
052	HA18-052	Layered	Black Roofing	Asbestos Not Present	Glass Fiber	30	Tar

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited Testing PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested.
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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
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Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
052a		Layered	Brown Insulation	Asbestos Not Present	Cellulose	100	
052b		Layered	Tan Wrap	Asbestos Not Present	Synthetic	20	CaCO3 Binder
052c		Layered	Green Insulation	Asbestos Not Present	NA		Foam
052d		Layered	Tan Caulk	Asbestos Not Present	NA		CaCO3 Binder
053	HA19-053	Homogeneous	Black Sealant	Asbestos Not Present	Cellulose	20	Tar
054	HA20-054	Layered	Tan Shingle	Asbestos Not Present	Glass Fiber	35	Tar Sand
054a		Layered	Black Shingle	Asbestos Not Present	Cellulose	40	Tar Sand

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
054b		Layered	Black Tar Paper	Asbestos Not Present	Cellulose	70	Tar
055	HA20-055	Layered	Tan Shingle	Asbestos Not Present	Glass Fiber	35	Tar Sand
055a		Layered	Black Shingle	Asbestos Not Present	Cellulose	40	Tar Sand
055b		Layered	Black Tar Paper	Asbestos Not Present	Cellulose	70	Tar
056	HA20-056	Layered	Tan Shingle	Asbestos Not Present	Glass Fiber	35	Tar Sand
056a		Layered	Black Shingle	Asbestos Not Present	Cellulose	40	Tar Sand

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)		Non Fibrous
056b		Layered	Black Tar Paper	Asbestos Not Present	Cellulose	70	Tar
057	HA21-057	Homogeneous	Gray Caulk	Asbestos Not Present	Cellulose	3	CaCO3 Binder
058	HA21-058	Homogeneous	Gray Caulk	Asbestos Not Present	Cellulose	3	CaCO3 Binder
059	HA21-059	Homogeneous	Gray Caulk	Asbestos Not Present	Cellulose	3	CaCO3 Binder
060	HA22-060	Homogeneous	Gray Caulk	Asbestos Not Present	NA		CaCO3 Binder
061	HA22-061	Homogeneous	Gray Caulk	Asbestos Not Present	NA		CaCO3 Binder
062	HA22-062	Homogeneous	Gray Caulk	Asbestos Not Present	NA		CaCO3 Binder

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
063	HA24-066	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
064	HA24-067	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
065	HA24-068	Homogeneous	White Caulk	Asbestos Not Present	NA	CaCO3 Binder
066	HA23-063	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand Gypsum
067	HA23-064	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand Gypsum
068	HA23-065	Homogeneous	Gray Concrete	Asbestos Not Present	NA	CaCO3 Sand Gypsum

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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No. 338369
Account Number: B780

Client: APEX - OKC
Rob Hill

Date Received: 08/20/2021
Received By: Courtney Holman
Date Analyzed: 08/24/2021
Analyzed By: Dee Ammerman
Methodology: EPA/600/R-93/116

Project: Setty HazMat Survey
Project Location: Woodward, OK
Project Number: SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous
069	HA25-069	Layered	Tan Texture	Asbestos Not Present	NA	Paint CaCO3
069a		Layered	Gray Siding	Asbestos Not Present	NA	CaCO3 Sand Gypsum
070	HA25-070	Layered	Tan Texture	Asbestos Not Present	NA	Paint CaCO3
070a		Layered	Gray Siding	Asbestos Not Present	NA	CaCO3 Sand Gypsum
071	HA25-071	Layered	Tan Texture	Asbestos Not Present	NA	Paint CaCO3
071a		Layered	Gray Siding	Asbestos Not Present	NA	CaCO3 Sand Gypsum

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

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NVLAP accreditation applies only to analysis performed utilizing EPA/600/M4-82-020 and EPA/600/R-93/116 methods.
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Polarized Light Microscopy Asbestos Analysis Report

QuanTEM Lab No.	338369	Client:	APEX - OKC Rob Hill
Account Number:	B780		
Date Received:	08/20/2021		
Received By:	Courtney Holman		
Date Analyzed:	08/24/2021	Project:	Setty HazMat Survey
Analyzed By:	Dee Ammerman	Project Location:	Woodward, OK
Methodology:	EPA/600/R-93/116	Project Number:	SET 21-001

QuanTEM Sample ID	Client Sample ID	Composition	Color / Description	Asbestos (%)	Non-Asbestos Fiber (%)	Non Fibrous

Dee Ammerman, Laboratory Manager

8/24/2021
Date of Report

Unless otherwise noted, upon receipt the condition of the sample was acceptable for analysis.

QuanTEM is a NVLAP accredited Testing PLM laboratory (Lab Code: 101959-0). This report relates only to the specific items tested.
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Lab No. 338369
Accept Reject

Contact Information			
Company: Apex Companies, LLC	Phone: 937-232-2101	Project Name: Setty HazMat Survey	Report Results (☑ one box): ☐ QuanTEM Website
Contact: Ted Alfred	Cell Phone: " "	Project Location: Woodward, OK	☒ Email ted.alfred@apexcos.com
Account #:	E-mail: ted.alfred@apexcos.com	Project ID: SET21-001	☐ Other _____
SAMPLED BY: Name: Eli Barnett	Date: 8/19/21	P.O. Number:	

RELINQUISHED BY	DATE & TIME	VIA	RECEIVED BY	DATE & TIME
Eli Barnett	8/19/21 1330	In Person	Ted Alfred	8/19/21 1330
Ted Alfred	8/19/21		Timothy M. Holden	8/19 @ 5:05

REQUESTED SERVICES (Please ☑ the Appropriate Boxes)

PLM		PLM		TEM		TEM		TURNAROUND TIME	
☒	Bulk Analysis (EPA 600/R-93/116)	☐	Vermiculite Attic Insulation (EPA 600/R-04/004)	☐	Air- AHERA	☐	Bulk- Presence / Absence EPA600/R-93/116	☐	Rush
☐	400 Point Count	☐	Other	☐	Air- NIOSH 7402	☐	Bulk- Quantitative [weight%]- Chatfield	☐	Same Day
☐	1000 Point Count			☐	Air- ISO 10312	☐	Dust- Presence / Absence	☐	24 - Hour
☐	Gravimetric Preparation	PCM		☐	Drinking Water- EPA 100.2	☐	Dust- Quantitative [fibers/sq.cm]- ASTM D5755	☒	3 - Day
☐	Particle ID	☐	NIOSH 7400	☐	Waste Water- EPA 600/4-83-043	☐	Other	☐	5 - Day

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
1	HA1-001	☒	Red, Grey	Red brick (6"x10") & grey mortar		
2	-002	☒	~~Black~~			
3	-003	☒				
4	HA2-004	☒	Black	Black surfacing on red brick		
5	-005	☒				
6	-006	☒				
7	HA3-007	☒	Grey	Concrete Foundation (Basement)		
8	008	☒				
9	009	☒				
10	~~HA3-010~~ HA4-010	☒	Red, White	Red brick (2"x3"x6") w/grey mortar & white paint		

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Lab No. 338369
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Project Information

Company: Apex | Project Name: Setty HazMat Survey | Project Location: Woodward, OK

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
11	HA4-011	X	Red, White	Red brick (2"x3"x6") w/grey mortar + white paint		
12	-012	X				
13	HA5-013	X	White	~~White~~ Pipe wrap, Insulation, Tape + Elbow		
14	-014	X				
15	-015	X				
16	HA6-016	X	Brown	Cork Insulation - 2" thick		
17	-017	X				
18	-018	X				
19	HA7-019	X	White	Wallboard System, Joint Compound, Tape		
20	-020	X				
21	-021	X				
22	HA8-022	X	Tan/Brown	Exterior Window Caulk		
23	HA9-023	X	~~White~~ Tan	Wallboard + Ceiling System - Smooth, No paint - Joint Comp + Tape		
24	-024	X				
25	-025	X				
26	HA10-026	X	Blue	Floor coating		
27	027	X				
28	028	X				
29	HA-11 029	X	White	1x1 Ceiling tile system, rough		
30	030	X				

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Project Information
Company: Apex
Project Name: Sery HazMat Survey
Project Location: Woodward, OK

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
31	HA11-031	X	Blue	Floor coating		
32	HA12-032	X	White	Wallboard system, smooth, Joint Comp & Tape		
33	033	X				
34	034					
35	HA13-035		White	Cementous wall + ceiling coating + paint		
36	036					
37	037					
38	HA14-038		Blue/Brown	Vinyl Stair tile + Brown toe tread, mastic		
39	039					
40	040					
41	HA15-041		Blue/White	Flecked Sheet Vinyl Flooring, Mastic		
42	-042					
43	-043					
44	HA16-044		Brown	Vinyl Cove Base (4") w/mastic		
45	045					
46	046					
47	HA17-047		Black	Black Pipe Wrap		
48	-048					
49	-049					
~~50~~						

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Lab No. 338369
Accept Reject

Project Information
Company: Apex
Project Name: Setty Haz Mat Survey
Project Location: Woodward, OK

No.	Sample ID (10 Characters Max)	☑ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
50	HA18-050	☒	Tan/Brown	Rubber roof system, Insulation + fibreboard base (Black/Brown)		
51	051	☐	↓	↓		
52	052	☐	↓	↓		
53	HA19-053	☐	Grey	Conduit Sealant		
54	HA20-054	☐	Tan/Black	Roofing Shingle + Felt base		
55	055	☐	↓	↓		
56	056	☐	↓	↓		
57	HA21-057	☐	Grey	Window Caulk		
58	058	☐	↓	↓		
59	059	☐	↓	↓		
60	HA22-060	☐	Grey	Sheet Metal/Aluminum Frame Caulk		
61	061	☐	↓	↓		
62	062	☐	↓	↓		
63	HA24-066	☐	White	Exterior Metal-Frame Window Caulk + Glaze		HA-24-066
64	067	☐	↓	↓		HA24-067
65	068	☐	↓	↓		HA24-068
66	HA23-063	☐	Grey	Concrete Foundation/walls		HA23-063
67	064	☐	↓	↓		HA23-064
68	065	☐	↓	↓		HA23-065
69		☑				

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Lab No. 338369
Accept Reject

Project Information

Company: Apex
Project Name:
Project Location:

No.	Sample ID (10 Characters Max)	☼ To Be Analyzed	Color	Description	Volume / Area (as applicable)	Comments / Notes
69 1	HA25-069	X	Tan/Gray	Cementious Siding Texture/Paint		
70 2	070	X	↓	↓		
71 3	071	X	↓	↓		
4						
5						
6						
7						
8						
9						
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
0						

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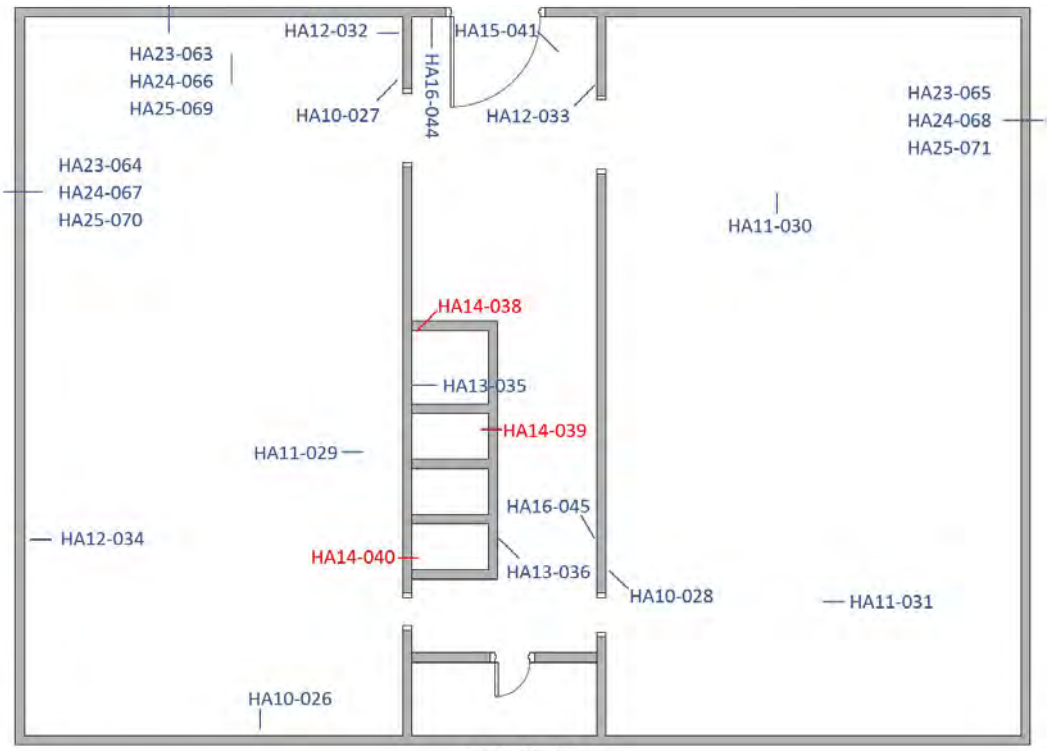
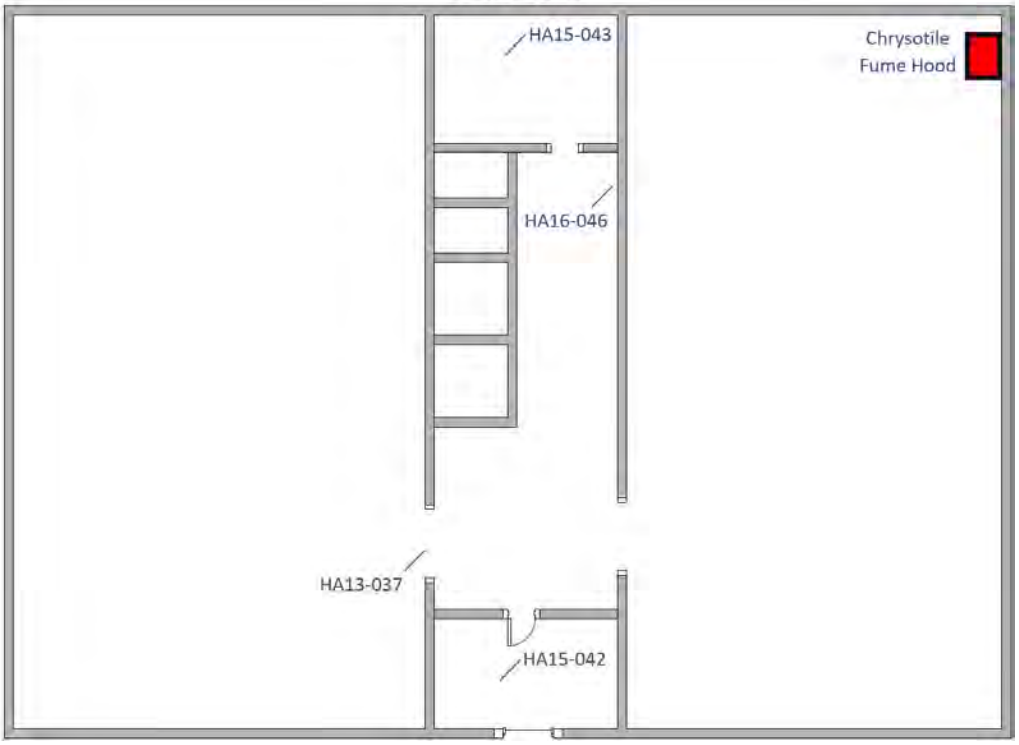
ATTACHMENT 2

SAMPLE LOCATION DIAGRAMS



Main Building
First Floor

Main Building
Second Floor



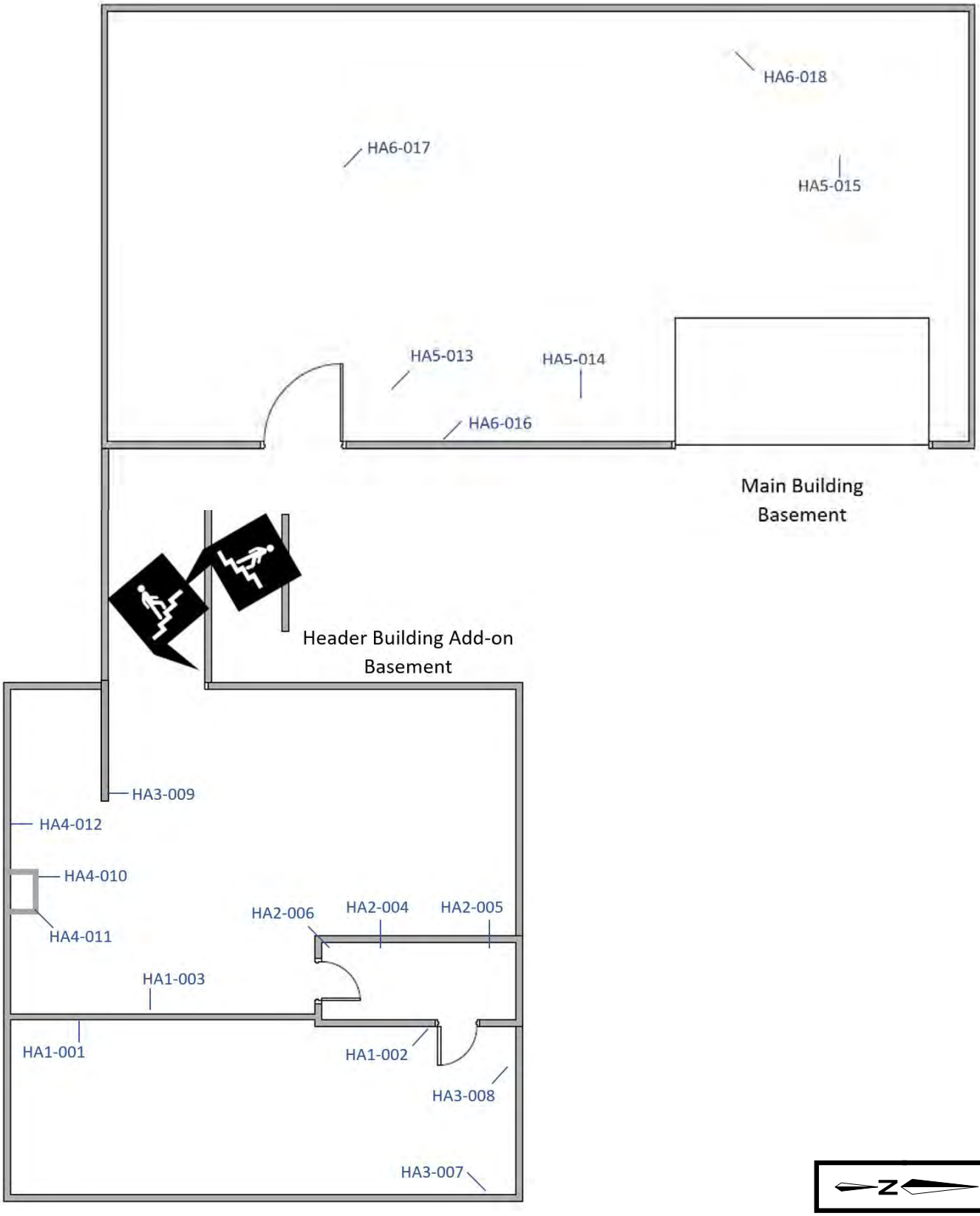
ACM Survey
USDA Greenhouse (Building 7)
Woodward, OK

Project No. SET21-001

Apex Companies, LLC
6666 S Sheridan Rd, Suite 100
Tulsa, OK 74133
www.apexcos.com

ACM FIGURE 1.1

Sample Location Diagram
Main Building 1st & 2nd Floor



ACM Survey
USDA Greenhouse (Building 7)
Woodward, OK

Project No. SET21-001

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Tulsa, OK 74133
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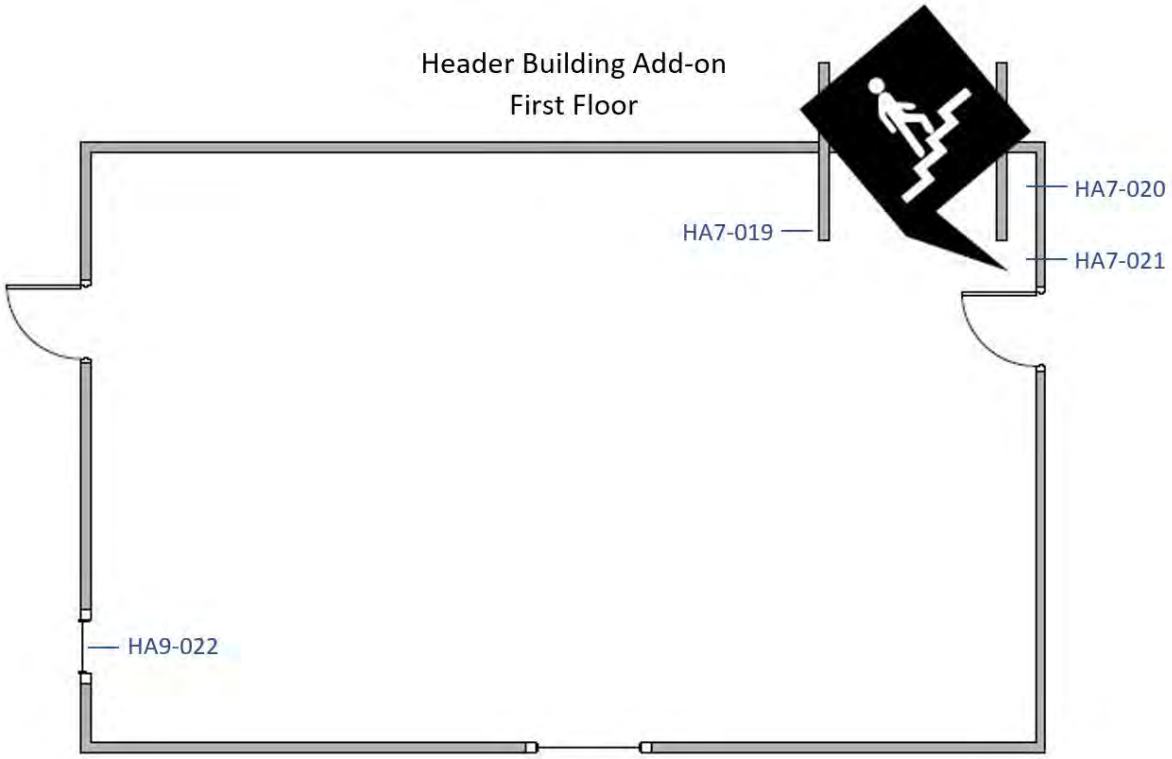
ACM FIGURE 1.2

Sample Location Diagram
Main Building & Header Add-On Basements



ACM Survey
USDA Greenhouse (Building 7)
Woodward, OK

Project No. SET21-001

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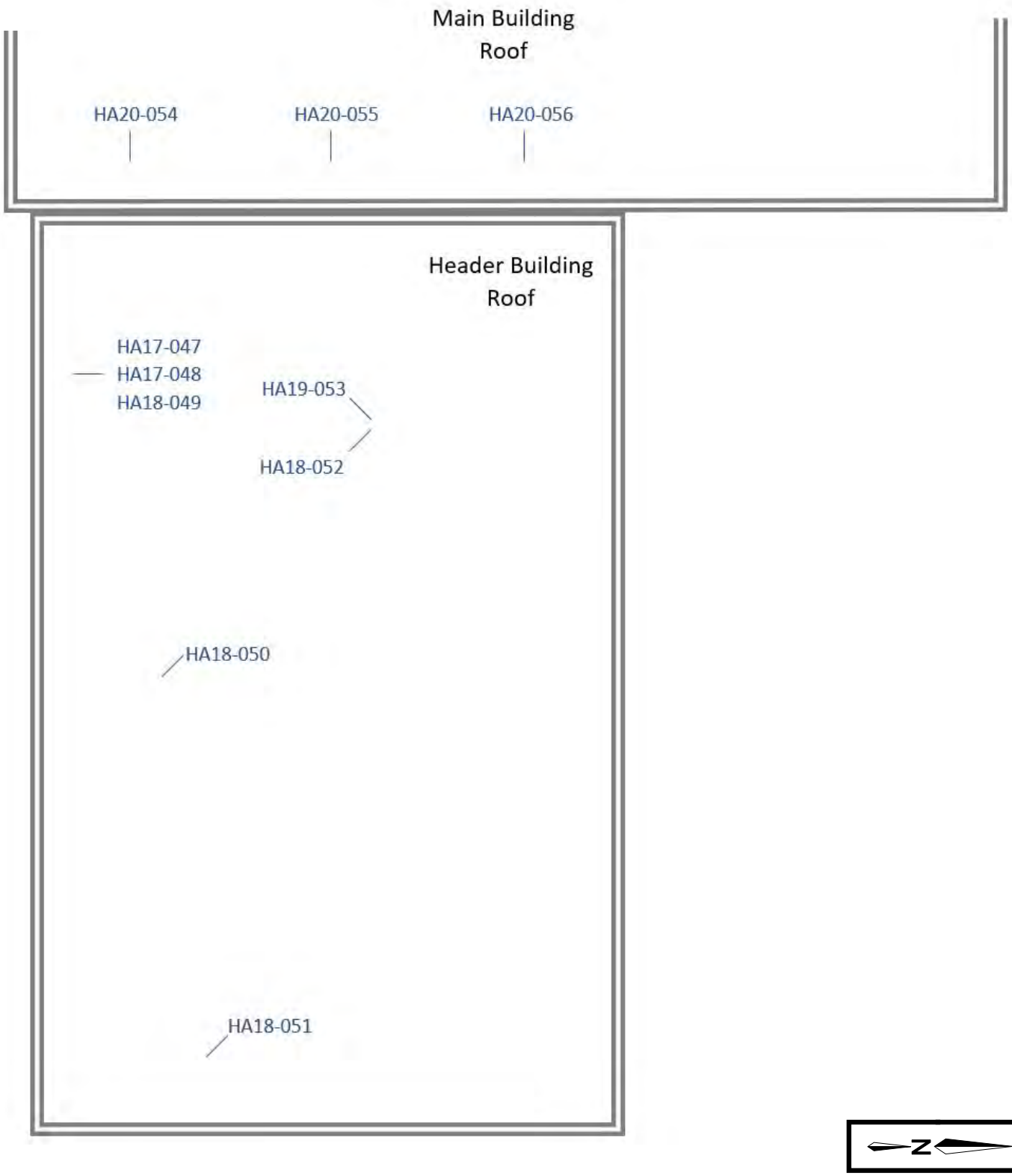
ACM FIGURE 1.3

Sample Location Diagram
Header Building Add-on
1st and 2nd Floor



ACM Survey
USDA Greenhouse (Building 7)
Woodward, OK

Project No. SET21-001

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Tulsa, OK 74133
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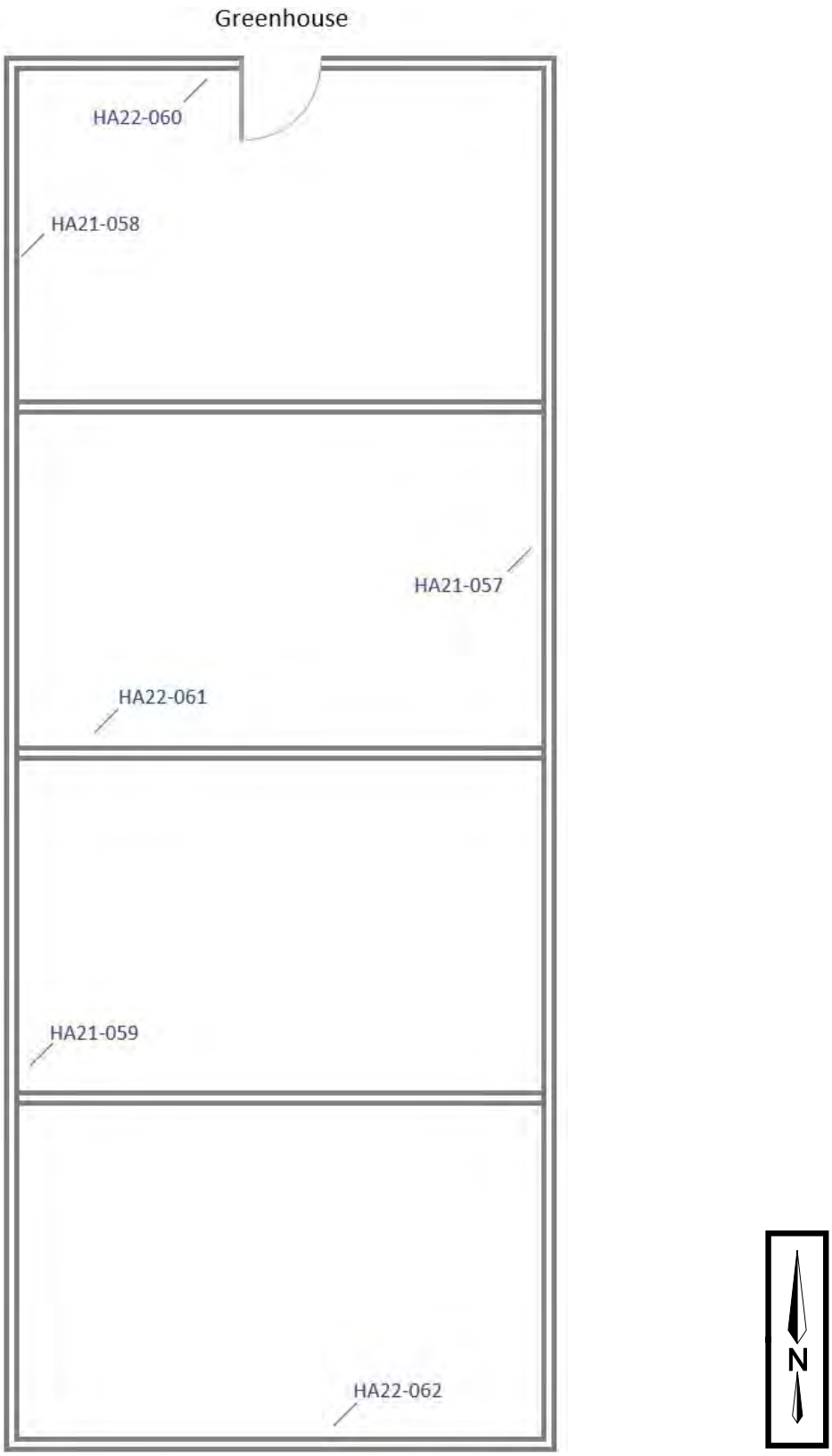
ACM FIGURE 1.4

Sample Location Diagram
Main Building and Header Add-on Roof



ACM Survey
USDA Greenhouse (Building 7)
Woodward, OK

Project No. SET21-001

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Tulsa, OK 74133
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ACM FIGURE 1.5

Sample Location Diagram
Greenhouse

ATTACHMENT 3

SITE PHOTOGRAPHS

Photo Log – USDA Greenhouse (Building 7)
HazMat Survey – ACM
Photographs Taken 08/19/2021

HA-1 Red Patterned Brick and Grey Mortar	**HA-2** Black Surfacing Material	**HA-3** Concrete Foundation (basement)
HA-4 Red Brick with Grey Mortar and White Paint	**HA-5** White Pipe Wrap, Insulation and Elbow Material	**HA-6** Brown Cork Insulation

Photo Log – USDA Greenhouse (Building 7)
HazMat Survey – ACM
Photographs Taken 08/19/2021

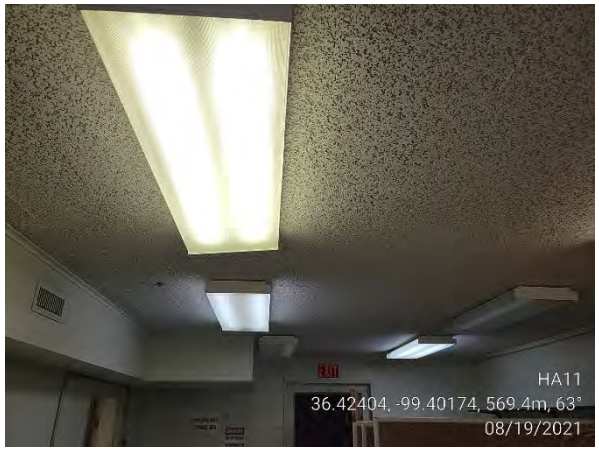
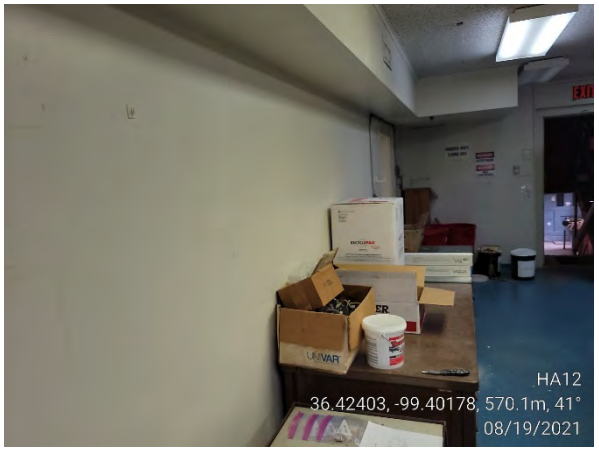
HA-7 White Wallboard System, Joint Compound and Tape	**HA-8** Exterior Window Caulk (Tan)	**HA-9** Tan Wallboard System, Ceiling System, Joint Compound and Tape
		
HA-10 Blue Floor Coating	**HA-11** Ceiling Tile – White, Rough, 1’ x 1’	**HA-12** White Wallboard System, Joint Compound and Tape

Photo Log – USDA Greenhouse (Building 7)
HazMat Survey – ACM
Photographs Taken 08/19/2021

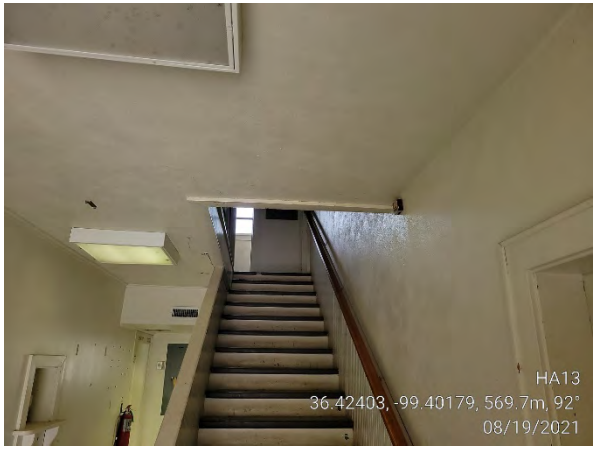
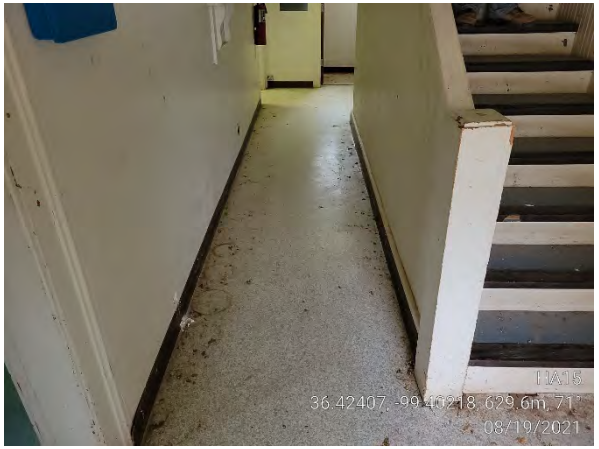
		
HA-13 Cementitious Wall and Ceiling Texture with White Paint	**HA-14** Blue Stair Tile, Brown Toe Tread and Associated Mastic	**HA-15** Blue and White Flecked Sheet Vinyl Flooring and Associated Mastic
HA-16 Brown 4” Cove Base and Associated Mastic	**HA-17** Black Pipe Wrap	**HA-18** Tan Rubber Roof System, Insulation & Fiberboard Base

Photo Log – USDA Greenhouse (Building 7)
HazMat Survey – ACM
Photographs Taken 08/19/2021

HA-19 Grey Conduit Sealant	**HA-20** Tan Roofing Shingle with Black Felt Base	**HA-21** Grey Window Caulk
HA-22 Grey/Tan Aluminum Framing Caulk	**HA-23** Grey Concrete Foundation Walls	**HA-24** White Exterior Metal-Famed Window Caulk and Glaze

Photo Log – USDA Greenhouse (Building 7)
HazMat Survey – ACM
Photographs Taken 08/19/2021

HA-25 Tan/Grey Exterior Cementitious Siding Texture	**HA-25** Tan/Grey Exterior Cementitious Siding Texture	**Chrysotile-Lined Fume Hood**
Chrysotile-Line Fume Hood	Building Exterior – Northeast Face (Main Building, Header Room Add-On)	Building Exterior – South Face (Greenhouse)

ATTACHMENT 4

LICENSES/CERTIFICATIONS

Oklahoma Department of Labor

Asbestos License

This certifies that **Eli Barnett**
has successfully met the certification requirements under the Oklahoma Asbestos Control Act 40 O.S. § 450, et seq. Abatement of Friable Asbestos Materials Rules OAC 380:50 in the following:

Inspector

Leslie Osborn
Labor Commissioner

License # : 402312

Expires : 11/02/2021

Issued : 04/02/2021

Not intended for identification purposes

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101959-0

QuanTEM Laboratories, LLC

Oklahoma City, OK

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2021-10-01 through 2022-09-30

Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

QuanTEM Laboratories, LLC
2033 Heritage Park Drive
Oklahoma City, OK 73120-7579
Mr. John E. Barnett
Phone: 405-755-7272 Fax: 405-755-2058
Email: jbarnett@quantem.com
http://www.quantem.com

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101959-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

ATTACHMENT 5

LCP RESULTS AND SAMPLE LOCATION DIAGRAMS

USDA BUILDING 7

2000 18TH STREET
WOODWARD, OK 73801

SEPTEMBER 10, 2021 | *LEAD-BASED PAINT INSPECTION*

SERVICES PROVIDED FOR:
APEX Companies
Attention: Ted Alfred
6666 South Sheridan Road, Suite 250
Tulsa, OK 74133
479.238.5939| *ted.alfred@apexcos.com*

SERVICES PROVIDED BY:
Marshall Environmental Management, Incorporated
Attention: Jamie Marshall | President
1301 North Martin Luther King Avenue
Oklahoma City, OK 73117
405.616.0401 | mem@marshallenvironmental.com

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USDA BUILDING 7

LEAD-BASED PAINT INSPECTION

CERTIFICATION

This is to certify that Marshall Environmental Management, Incorporated (MEM) was contracted by Ted Alfred, on behalf Apex Companies, to conduct a Lead-Based Paint (LBP) Inspection of the USDA Building 7 located at 2000 18th Street in Woodward, Oklahoma. This LBP Inspection was performed on August 19th of 2021, by an LBP Inspector and Risk Assessor certified by the Oklahoma Department of Environmental Quality (ODEQ). Painted surfaces were analyzed for lead content utilizing an X-Ray Fluorescence (XRF) direct-reading, data-logging instrument (Heuresis Pb200i XRF Lead Paint Analyzer). Training for the instrument was provided by an ODEQ/EPA-approved course as required prior to obtaining the ODEQ LBP Inspector/Risk Assessor Certification. The instrumentation utilized was calibrated in accordance with manufacture specifications; therefore, the analytical data resulting from this inspection event is believed to reflect the concentrations of lead in paint that were present at the time this inspection was performed.

CERTIFIED LEAD-BASED PAINT INSPECTOR/RISK ASSESSOR

September 10, 2021

Eneojo Onuche | MEd| BS — Report Date
Industrial Hygienist Associate
ODEQ Lead-Based Certification: OKRASR13853

September 10, 2021

Jamie Marshall | MS| CIH — Report Date
President
ODEQ Lead-Based Certification: OKRASR13418

EXECUTIVE SUMMARY

On August 19th, 2021, MEM conducted an LBP inspection of the two-story USDA Building 7 located at 2000 18th Street in Woodward, Oklahoma. According to the EPA, *Lead-Based Paint* is characterized as paint that contains lead in concentrations greater than or equal to 1-milligram per square centimeter (≥1-mg/cm^2). As a result of this lead-based paint inspection, **LBP components were identified** on the exterior and interior of the building. LBP Components identified include original doors and components, window frames and components, windowsills, a cabinet, a garage door, walls, ceiling, soffit, and fascia at various locations throughout the building. (See attached floor plan and photo album for LPB components). The sampling location, substrate and color of paint identified as lead-based are summarized in the Analytical Findings portion of this report (Table I).

HISTORICAL OVERVIEW OF PROPERTY & LEAD-BASED PAINT ACTIVITIES

Historical records regarding prior renovations were not provided for review nor was there evidence or information that would suggest that a prior LBP Inspection or Risk Assessment occurred at said structure.

SCOPE OF SERVICE

This LBP Inspection was accomplished so that the location(s) of paint that contain lead in concentrations ≥1-mg/cm^2, if present, could be identified. As part of this LBP Inspection, various painted surfaces, excluding non-fixed and factory-painted items, were representatively sampled, and analyzed for lead content. Readings were taken from each of the combinations listed below for each accessible area of the building.

- **Color:** Lead is added to paints for pigmentation and corrosion resistance. MEM assumes that paints of similar color contain similar amounts of lead and, therefore, each color observed was tested.
- **Substrate:** Lead is used as a primer for various substrates. However, similar to topcoats, the undercoat primer and other paint layers could be different. It is assumed that, on each substrate type in the building (e.g., metal, wood, wallboard, and stucco), primer and undercoat paint are consistently applied and contain similar quantities of lead, if any. Thus, each substrate observed was tested.
- **Building Components**: Building components (e.g., walls, floor, and ceiling) could have been painted with different colors of paint throughout the history of the building. It is assumed that the different components had different primers and undercoats applied even though the topcoat colors appeared similar. It is also assumed that similar primer and paint had been applied underneath the top layer on similar building components. Thus, each building component observed was tested.

This LBP Inspection, however, was limited to certain aspects of the building construction that can restrict and/or prevent the complete inspection of hidden or inaccessible building components. Painted surfaces were analyzed for lead content utilizing an X-Ray Fluorescence (XRF), direct reading data-logging instrument *Heuresis Pb200i Lead Analyzer.* The east street-facing side of the structure(s) was identified as side *A*, and going in a clockwise direction, the remaining sides were categorized as side *B*, *C* and *D* respectively. Lastly, the client and/or owner representative were expected to provide access to the structure(s) in addition to notifying and providing, if necessary, an explanation of the LBP Inspection to the occupants. At the time this inspection was performed, no deviations from the scope of service occurred.

DISCLAIMER & STANDARD OF CARE

Although paint on various surfaces may not contain lead in concentrations that exceed the federal standard, a hazard could be presented if painted surfaces are disturbed. Occupational Safety and Health Administration (OSHA) regulations covering worker safety and health may apply when painted surfaces, lead-based paint or not, are disturbed The EPA pre-renovation rule requires that the contractor provide a copy of the booklet Protect Your Family from Lead in Your Home or Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools for any renovation that disturbs more than 2-square feet (2-ft^2) of painted surface in a facility built before 1978. Furthermore, if renovation of any kind takes place the contractor should provide a copy of Renovate Right: Important Lead Hazard Information for Families, Child Care Providers and Schools. This Report was generated utilizing the EPA protocol referenced in the Certification portion of this Report. The analytical results associated with this inspection are only applicable on the date(s) indicated. Future activities may alter the results.

ANALYTICAL FINDINGS

The structure assessed as part of this LBP Inspection is a two-story, commercial structure. The building construction year is unknown. To all appearances, the structure is comprised of stucco and plaster exterior, concrete-slab foundation, and a pitched roof. The interior of the structure is comprised of drywall materials, plaster, floor tiles, and acoustical ceiling tiles. As a result of this LBP inspection, LBP was identified on the interior and exterior building components as part of this LBP Inspection. LBP was identified on the doors and components, window frames and components, windowsills, a cabinet, a garage door, wall, ceiling, soffit, and fascia The corresponding analytical data, including calibration checks and start/stop times, are included in the Appendix to this report.

TABLE I: XRF DATA (LBP SURFACES)

SAMPLE NUMBER	ROOM EQUIVALENT	BUILDING COMPONENT	SUBSTRATE	PAINT COLOR	PAINT CONDITION	LBP CONCENTRATION	ESTIMATED QUANTITY
18-19, 67-68, 74-75	ROOM 3, 11, EXTERIOR	DOOR & COMPONENTS	WOOD	WHITE	CRACKING/PEELING	7.7 – 14.2-mg/m3	4
45	ROOM 6	CABINET	METAL	BLUE	INTACT	6.8-mg/m3	1
46, 50	ROOM 7	WALL & CEILING	PLASTER	WHITE	INTACT	1.1 – 3.1-mg/m3	60 FT^2
55-56, 73, 77, 79	ROOM 9, EXTERIOR	WINDOWS & COMPONENTS	WOOD	WHITE	CRACKING/PEELING	3.1 – 12.7-mg/m3	23
80-81	EXTERIOR	SOFFIT & FASCIA	WOOD	WHITE	CRACKING/PEELING	13 – 14.3-mg/m3	150 LINEAR FEET

DISCLOSURE STATEMENT AND OWNERS' LEGAL OBLIGATION

Under Federal law (24 CFR Part 35 and 40 CFR Part 745), this LBP Inspection Report must be disclosed and made available to prospective tenants before becoming obligated under a lease or sales contract where LBP is present. If an Inspection finds that LBP is not present in certain multifamily dwelling units, which are to be leased, the dwelling unit(s) is exempt from disclosure requirements. However, under federal law **even if no LBP is identified** the owner is still required to fulfill certain legal responsibilities when the property is sold, not leased. Property owners and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that information is provided in order to protect children from LBP hazards.

Information regarding the legal obligation to disclose results associated with LBP inspections and/or risk assessments to tenants and/or purchasers can be obtained from the National Lead Information Center Clearinghouse (1-800-424-LEAD). This information is specified in 24 CFR Part 35 and 40 CFR Part 745 (published in the *Federal Register*, Volume 61, Number 45, April 6, 1996, beginning on p. 9064).

LEAD-BASED PAINT INFORMATION

You may contact the National Lead Information Center Clearinghouse (1-800-424-LEAD) to obtain United States Department of Housing and Urban Development (HUD) and EPA brochures, question and answer booklets, regulations, mentioned in this Report, and other information regarding LBP disclosure.

PART I: IDENTIFYING INFORMATION

OCCUPANT INFORMATION

Vacant

PROPERTY OWNER INFORMATION

United States Department of Agriculture

CERTIFIED LBP INSPECTOR/RISK ASSESSOR

Eneojo Onuche
ODEQ Certification – OKRASR13853

Jamie Marshall
ODEQ Certification – OKRASR13418

CERTIFIED LBP FIRM

Marshall Environmental Management, Inc.
1301 N Martin Luther King Ave.
Oklahoma City, OK 73117
405.616.0401| mem@marshallenvironmental.com
ODEQ Certification – OKFIRM11160

X-RAY FLUORESCE ANALYZER

Heuresis Pb200i Lead Analyzer
Serial Number: 1966

APPENDIX

XRF ANALYTICAL DATA

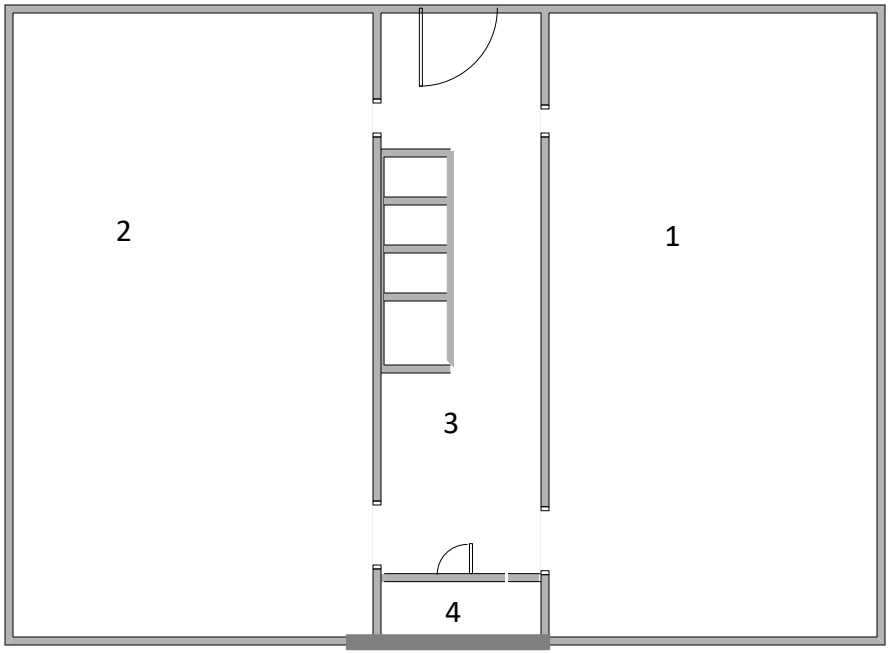
AREA DIAGRAM & PHOTO ALBUM

CERTIFICATION/LICENSURE

A

Main Entrance

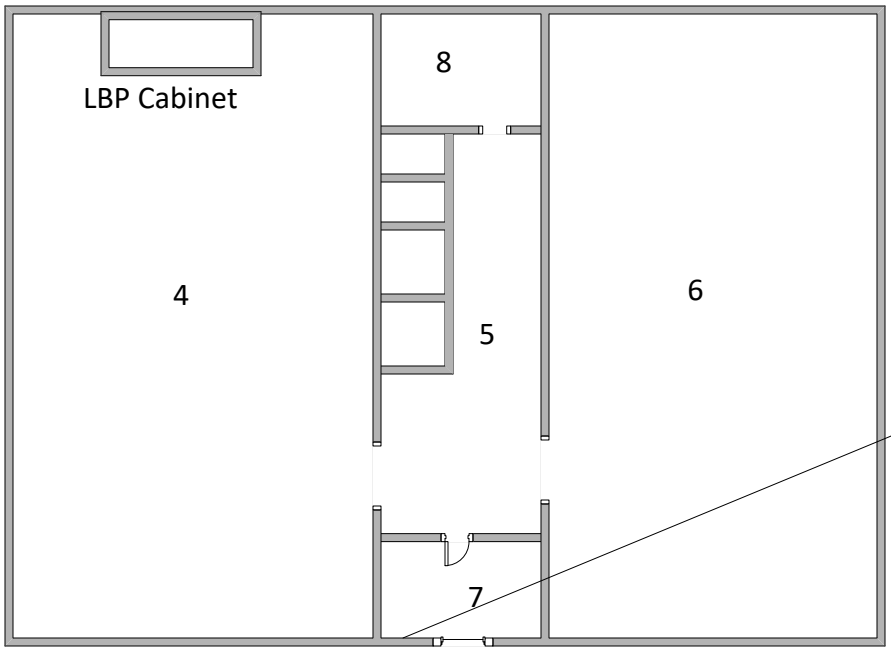
LBP Door and components



First Floor

D

B



Second Floor

LBP Plaster wall & ceiling

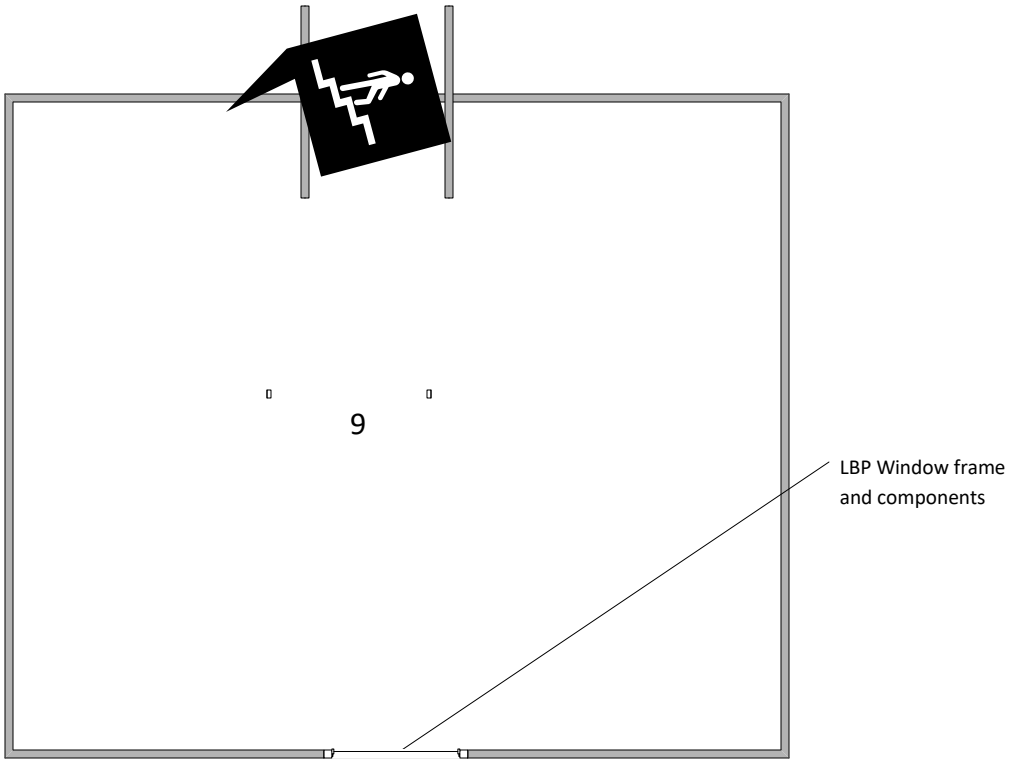
C

N

MEM MARSHALL ENVIRONMENTAL MANAGEMENT	**FLOOR PLAN** USDA BUILDING 7 2000 18TH STREET WOODWARD, OK 73801	1 FIGURE

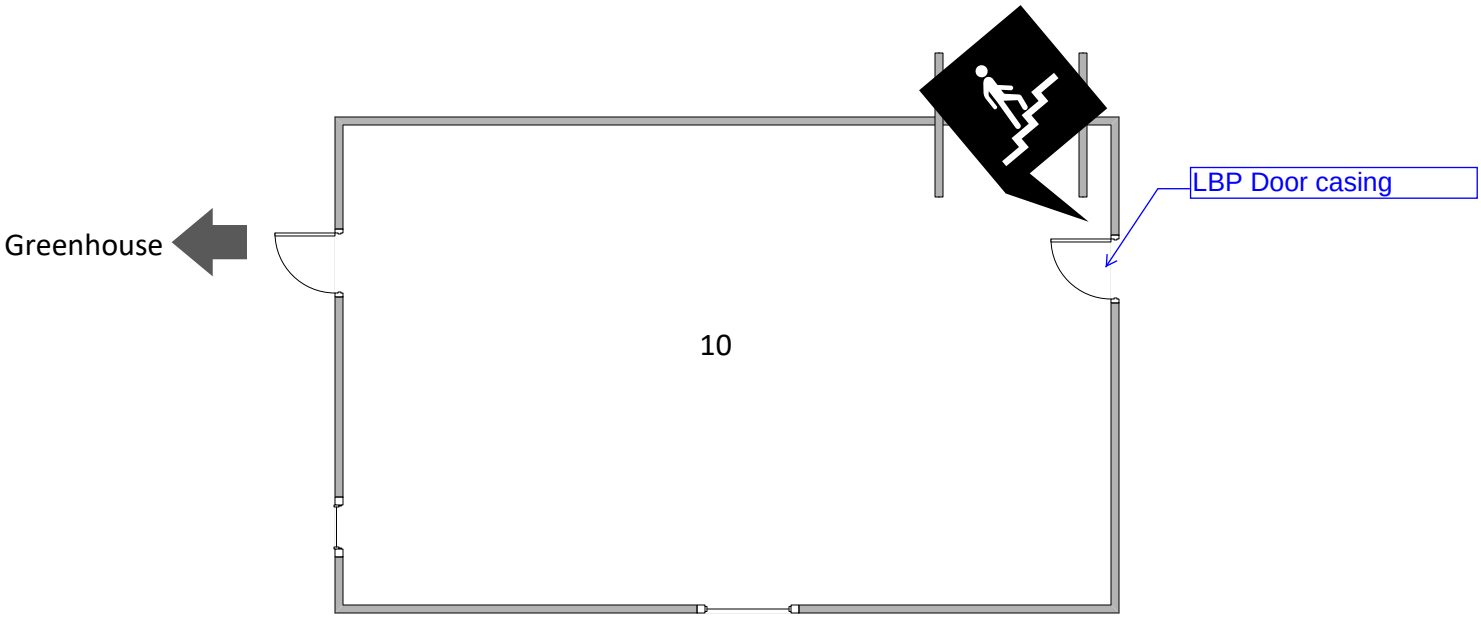
A

1st Floor Add-on



B

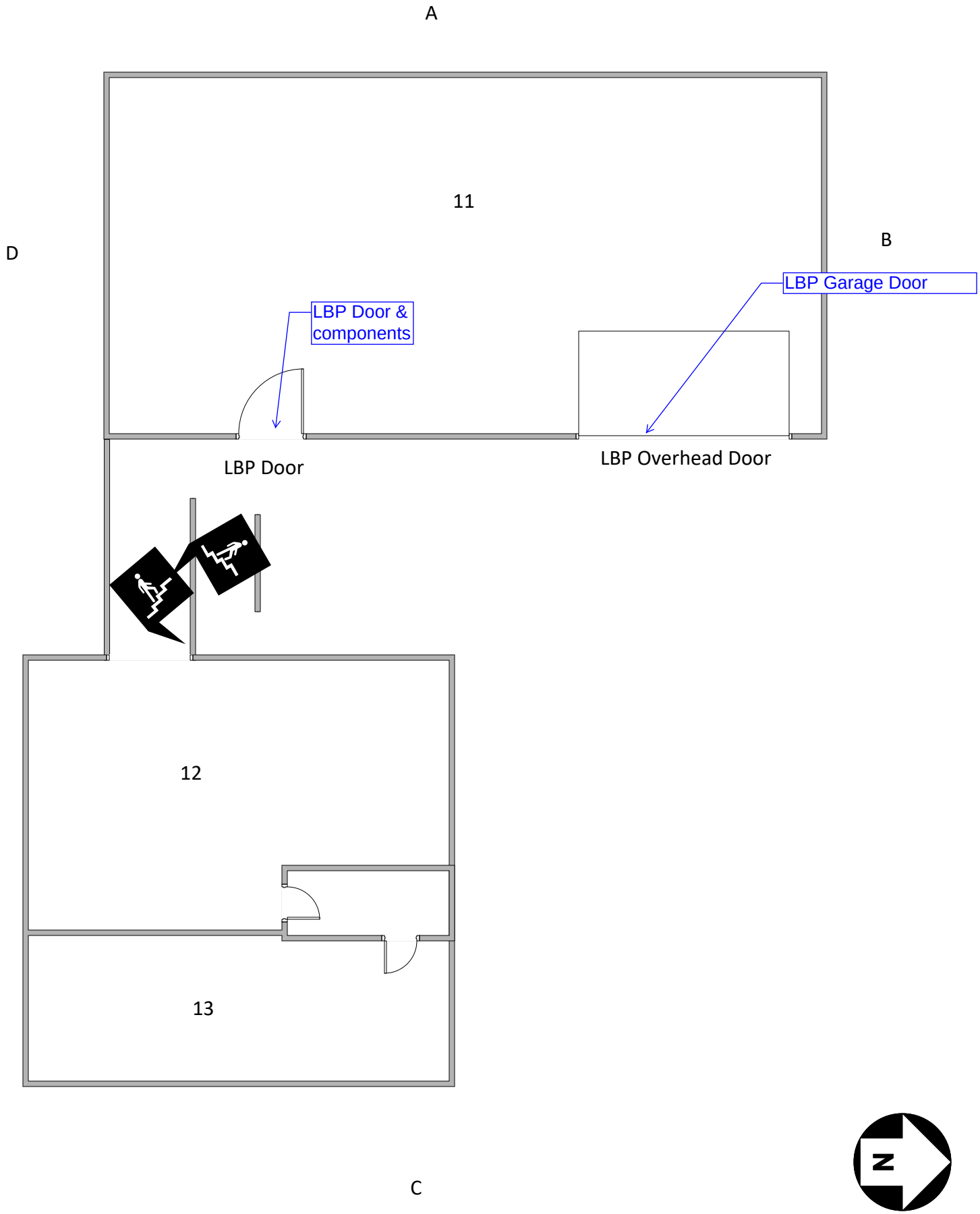
D



C

N

MEM MARSHALL ENVIRONMENTAL MANAGEMENT	**FLOOR PLAN** USDA BUILDING 7 2000 18TH STREET WOODWARD, OK 73801	2 FIGURE



MEM MARSHALL ENVIRONMENTAL MANAGEMENT	**FLOOR PLAN** USDA BUILDING 7 2000 18TH STREET WOODWARD, OK 73801	3 FIGURE

Room 7: LBP plaster wall & ceiling

Room 3 (Main entrance door) LBP door & components

Rm 9: LBP WINDOW & COMPONENTS

Room 11: LBP Door & components

Rm 11: LBP Garage door

Room 6: LBP-containing cabinet

LBP-Containing windows and components, doors and components fascia, and soffit

MEM MARSHALL ENVIRONMENTAL MANAGEMENT	**PHOTO ALBUM** USDA BUILDING 7 2000 18TH STREET WOODWARD, OK 73801	4 FIGURE

LBP-Containing exterior window s and components, doors and components, fascia and soffit

MARSHALL ENVIRONMENTAL MANAGEMENT	**PHOTO ALBUM** USDA BUILDING 7 2000 18TH STREET WOODWARD, OK 73801	5 FIGURE

USDA BUILDING 7
2000 18TH STREET
WOODWARD OK 73801

MARSHALL ENVIRONMENTAL MANAGEMENT INC
1301 N MARTIN LUTHER KING AVENUE
OKLAHOMA CITY OK 73117

INSTRUMENT INFORMATION

Company	**Heuresis Corp.**
Model	**Pb200i**
Type	**XRF Lead Paint Analyzer**
Serial Num.	**1966**
App Version	**Pb200i-4.1-11**

Job Id	Reading #	Concentration	Units	Result	Date	Room	Structure	Substrate	Wall	Color	Condition
0190-LBP-081921-JO	**1**	**1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					
0190-LBP-081921-JO	**2**	**1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					
0190-LBP-081921-JO	**3**	**1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					
0190-LBP-081921-JO	4	0	mg/cm2	Negative	8/19/2021	Room 1	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	5	0	mg/cm2	Negative	8/19/2021	Room 1	Wall	Drywall	D	White	Intact
0190-LBP-081921-JO	6	-0.2	mg/cm2	Negative	8/19/2021	Room 1	Window Sill	Wood	A	White	Intact
0190-LBP-081921-JO	7	0.1	mg/cm2	Negative	8/19/2021	Room 1	Window frame	Wood	A	White	Intact
0190-LBP-081921-JO	8	0.3	mg/cm2	Negative	8/19/2021	Room 1	Window frame	Metal	A	Black	Intact
0190-LBP-081921-JO	9	0.1	mg/cm2	Negative	8/19/2021	Room 1	Door Casing	Wood	D	White	Intact
0190-LBP-081921-JO	10	0.2	mg/cm2	Negative	8/19/2021	Room 1	Floor	Plaster	D	Blue	Intact
0190-LBP-081921-JO	11	0	mg/cm2	Negative	8/19/2021	Room 2	Wall	Plaster	A	White	Intact
0190-LBP-081921-JO	12	0.1	mg/cm2	Negative	8/19/2021	Room 2	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	13	-0.3	mg/cm2	Negative	8/19/2021	Room 2	Wall	Drywall	C	White	Intact
0190-LBP-081921-JO	14	0	mg/cm2	Negative	8/19/2021	Room 2	Window Sill	Wood	A	White	Intact
0190-LBP-081921-JO	15	-0.1	mg/cm2	Negative	8/19/2021	Room 2	Window frame	Wood	A	White	Intact
0190-LBP-081921-JO	16	0.1	mg/cm2	Negative	8/19/2021	Room 2	Door Casing	Wood	C	White	Intact
0190-LBP-081921-JO	17	0.2	mg/cm2	Negative	8/19/2021	Room 2	Floor	Plaster	B	Blue	Intact
0190-LBP-081921-JO	**18**	**14.2**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 3**	**Door**	**Wood**	**A**	**White**	**Cracking**
0190-LBP-081921-JO	**19**	**12.5**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 3**	**Door Casing**	**Wood**	**A**	**White**	**Peeling**
0190-LBP-081921-JO	20	-0.2	mg/cm2	Negative	8/19/2021	Room 3	Wall	Wood	A	White	Intact
0190-LBP-081921-JO	21	0.2	mg/cm2	Negative	8/19/2021	Room 3	Riser	Wood	A	White	Intact
0190-LBP-081921-JO	22	0.1	mg/cm2	Negative	8/19/2021	Room 3	Riser	Wood	A	White	Intact
0190-LBP-081921-JO	23	0.2	mg/cm2	Negative	8/19/2021	Room 3	Stairlanding base	Wood	A	White	Intact
0190-LBP-081921-JO	24	0	mg/cm2	Negative	8/19/2021	Room 3	Wall Shell	Wood	C	White	Intact
0190-LBP-081921-JO	25	0.1	mg/cm2	Negative	8/19/2021	Room 3	Ceiling	Plaster		White	Intact
0190-LBP-081921-JO	26	0	mg/cm2	Negative	8/19/2021	Room 4	Wall	Plaster	C	White	Intact
0190-LBP-081921-JO	27	0	mg/cm2	Negative	8/19/2021	Room 4	Window Sill	Wood	C	White	Peeling
0190-LBP-081921-JO	28	0.1	mg/cm2	Negative	8/19/2021	Room 4	Window frame	Wood	C	White	Peeling
0190-LBP-081921-JO	29	0.1	mg/cm2	Negative	8/19/2021	Room 4	Door Casing	Wood	C	White	Intact

0190-LBP-081921-JO	30	-0.1	mg/cm2	Negative	8/19/2021	Room 4A	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	31	0.1	mg/cm2	Negative	8/19/2021	Room 4A	Wall	Drywall	D	White	Intact
0190-LBP-081921-JO	32	-0.1	mg/cm2	Negative	8/19/2021	Room 4A	Window Sill	Wood	D	White	Intact
0190-LBP-081921-JO	33	0	mg/cm2	Negative	8/19/2021	Room 4A	Window frame	Wood	D	White	Intact
0190-LBP-081921-JO	34	0	mg/cm2	Negative	8/19/2021	Room 4A	Door Casing	Wood	B	White	Intact
0190-LBP-081921-JO	35	-0.1	mg/cm2	Negative	8/19/2021	Room 4A	Floor	Plaster	B	Blue	Intact
0190-LBP-081921-JO	36	-0.5	mg/cm2	Negative	8/19/2021	Room 5	Floor	Drywall	A	White	Intact
0190-LBP-081921-JO	37	-0.4	mg/cm2	Negative	8/19/2021	Room 5	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	38	-0.1	mg/cm2	Negative	8/19/2021	Room 5	Wall	Drywall	D	White	Intact
0190-LBP-081921-JO	39	0	mg/cm2	Negative	8/19/2021	Room 5	Handrail	Wood	D	White	Intact
0190-LBP-081921-JO	40	-0.2	mg/cm2	Negative	8/19/2021	Room 6	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	41	-0.2	mg/cm2	Negative	8/19/2021	Room 6	Wall	Drywall	D	White	Intact
0190-LBP-081921-JO	42	-0.1	mg/cm2	Negative	8/19/2021	Room 6	Window Sill	Wood	A	White	Intact
0190-LBP-081921-JO	43	0.1	mg/cm2	Negative	8/19/2021	Room 6	Window frame	Wood	A	White	Intact
0190-LBP-081921-JO	44	0.1	mg/cm2	Negative	8/19/2021	Room 6	Cabinet	Wood	B	White	Intact
0190-LBP-081921-JO	**45**	**6.8**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 6**	**Cabinet**	**Metal**	**C**	**Blue**	**Intact**
0190-LBP-081921-JO	**46**	**3.1**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 7**	**Wall**	**Plaster**	**C**	**White**	**Intact**
0190-LBP-081921-JO	47	0.4	mg/cm2	Negative	8/19/2021	Room 7	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	48	0.1	mg/cm2	Negative	8/19/2021	Room 7	Window Sill	Wood	C	White	Peeling
0190-LBP-081921-JO	49	-0.1	mg/cm2	Negative	8/19/2021	Room 7	Door Casing	Wood	A	White	Intact
0190-LBP-081921-JO	**50**	**1.1**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 7**	**Ceiling**	**Plaster**		**White**	**Intact**
0190-LBP-081921-JO	51	0	mg/cm2	Negative	8/19/2021	Room 8	Wall	Drywall	A	White	Intact
0190-LBP-081921-JO	52	0	mg/cm2	Negative	8/19/2021	Room 8	Wall	Drywall	D	White	Intact
0190-LBP-081921-JO	53	0	mg/cm2	Negative	8/19/2021	Room 8	Window Sill	Wood	A	White	Intact
0190-LBP-081921-JO	54	0	mg/cm2	Negative	8/19/2021	Room 8	Window frame	Wood	A	White	Intact
0190-LBP-081921-JO	**55**	**6.6**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 9**	**Window Sill**	**Wood**	**C**	**White**	**Peeling**
0190-LBP-081921-JO	**56**	**9.6**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 9**	**Window frame**	**Wood**	**C**	**White**	**Peeling**
0190-LBP-081921-JO	57	0.1	mg/cm2	Negative	8/19/2021	Room 9	Electrical panel	Metal	D	Grey	Intact
0190-LBP-081921-JO	58	0	mg/cm2	Negative	8/19/2021	Room 10	Window Sill	Wood	B	White	Cracking
0190-LBP-081921-JO	59	-0.1	mg/cm2	Negative	8/19/2021	Room 10	Window frame	Wood	B	White	Cracking
0190-LBP-081921-JO	60	0.2	mg/cm2	Negative	8/19/2021	Room 10	Window frame	Wood	B	White	Cracking
0190-LBP-081921-JO	61	0	mg/cm2	Negative	8/19/2021	Room 10	Window Sill	Wood	D	White	Cracking
0190-LBP-081921-JO	62	-0.1	mg/cm2	Negative	8/19/2021	Room 10	Window frame	Wood	D	White	Cracking
0190-LBP-081921-JO	63	-0.2	mg/cm2	Negative	8/19/2021	Room 10	Ceiling	Wood		White	Intact
0190-LBP-081921-JO	64	0	mg/cm2	Negative	8/19/2021	Room 10	Cabinet	Wood	C	Brown	Intact
0190-LBP-081921-JO	65	-0.1	mg/cm2	Negative	8/19/2021	Room 10	Door	Metal	B	White	Intact
0190-LBP-081921-JO	66	0.5	mg/cm2	Negative	8/19/2021	Room 11	Ceiling	Concrete	B	Black	Intact
0190-LBP-081921-JO	**67**	**12.5**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 11**	**Garage Door**	**Wood**	**C**	**White**	**Peeling**
0190-LBP-081921-JO	**68**	**7.7**	**mg/cm2**	**Positive**	**8/19/2021**	**Room 11**	**Door**	**Wood**	**C**	**White**	**Intact**
0190-LBP-081921-JO	69	0.2	mg/cm2	Negative	8/19/2021	Room 12	Wall	Concrete	C	Blue	Intact
0190-LBP-081921-JO	70	0.5	mg/cm2	Negative	8/19/2021	Room 12	Ceiling	Concrete		White	Intact

0190-LBP-081921-JO	71	0.1	mg/cm2	Negative	8/19/2021	Room 12	Cabinet	Wood	A	White	Cracking
0190-LBP-081921-JO	72	0.5	mg/cm2	Negative	8/19/2021	Room 13	Ceiling	Concrete	A	White	Intact
0190-LBP-081921-JO	**73**	**7.2**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Window frame**	**Wood**	**C**	**White**	**Deteriorated**
0190-LBP-081921-JO	**74**	**12.7**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Garage Door**	**Wood**	**C**	**White**	**Deteriorated**
0190-LBP-081921-JO	**75**	**8.6**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Door Casing**	**Wood**	**C**	**White**	**Deteriorated**
0190-LBP-081921-JO	76	0.1	mg/cm2	Negative	8/19/2021	Exterior	Window frame	Wood	B	White	Deteriorated
0190-LBP-081921-JO	**77**	**12.7**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Window frame**	**Wood**	**B**	**White**	**Deteriorated**
0190-LBP-081921-JO	78	0.3	mg/cm2	Negative	8/19/2021	Exterior	Window frame	Wood	A	White	Deteriorated
0190-LBP-081921-JO	**79**	**3.1**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Window frame**	**Wood**	**A**	**White**	**Deteriorated**
0190-LBP-081921-JO	**80**	**13**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Fascia**	**Wood**	**A**	**White**	**Peeling**
0190-LBP-081921-JO	**81**	**14.3**	**mg/cm2**	**Positive**	**8/19/2021**	**Exterior**	**Soffitt**	**Wood**	**A**	**White**	**Peeling**
0190-LBP-081921-JO	82	0.1	mg/cm2	Negative	8/19/2021	Exterior	Wall	Plaster	A	Brown	Intact
0190-LBP-081921-JO	83	-0.1	mg/cm2	Negative	8/19/2021	Exterior	Wall	Plaster	D	Brown	Intact
0190-LBP-081921-JO	**84**	**1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					
0190-LBP-081921-JO	**85**	**1.1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					
0190-LBP-081921-JO	**86**	**1**	**mg/cm2**	**Positive**	**8/19/2021**	**Calibrate**					

Department of Environmental Quality

This is to Certify That

ENEOJO ONUCHE

has met the specifications of the Oklahoma Lead-Based Paint Management Act
and is certified as a Lead-Based Paint

INSPECTOR/RISK ASSESSOR

Certification #: OKRASR13853

This certificate is valid from the date of issuance and expires as prescribed by law.

Issued on: **4/1/2021** Expires on: **3/31/2022**

Division Director
Air Quality Division

Heather Hesch

Environmental Programs Manager
Air Quality Division

Department of Environmental Quality

This is to Certify That

CHARLES MARSHALL

has met the specifications of the Oklahoma Lead-Based Paint Management Act
and is certified as a Lead-Based Paint

INSPECTOR/RISK ASSESSOR

Certification #: OKRASR13418

This certificate is valid from the date of issuance and expires as prescribed by law.

Issued on: **5/11/2021** Expires on: **3/31/2022**

Division Director
Air Quality Division

Heather Hirsch

Environmental Programs Manager
Air Quality Division