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June 19, 2018

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Subject: Focused Destructive Inspection at Bridgeport Elementary School
Saugus Unified School District, Valencia, California
Exponent Project No. 1703766.000

Dear Ms. Beekman:

Exponent conducted a destructive inspection of representative areas and a focused indoor environmental quality investigation based on the results of our destructive inspection at Bridgeport Elementary School in Valencia, California, on May 26 and 27, 2018. The objective of the investigation was to inspect for the presence of fungi (or mold) under wallpaper and within wall cavities. Additionally, we evaluated current indoor environmental conditions within the school. This work was conducted in response to complaints of odor and/or moisture conditions, and indoor air quality complaints. This information was provided to Exponent by representatives of the school district. The inspected locations included those selected by Exponent and in all areas that were identified by teachers within some of the classrooms. The Exponent selected locations were in areas where we believed there was a higher possibility of water intrusion. The inspections were attended by Mr. Michael Posson (Exponent) and a member of the custodial/maintenance staff, as outlined in this letter report.

This evaluation included the following tasks:

- Removal of sections of wallpaper and visual inspection of the drywall and wallpaper backing.
- Examination of interior wall cavities by drilling cores within both exterior and interior walls. These inspection points also included lifting the wallpaper and removal of base coving. At each site, the back of the drywall core that was removed was examined, and wall cavities were viewed with an illuminated borescope.

- Collection of moisture meter measurements from accessible building materials.
- Lifting of floor tiles and visually inspecting the concrete floor beneath the tiles for the presence of staining or liquid water in focused areas within the room. A concrete moisture meter was used to take measurements from the concrete slab.
- Collection of in-room temperature and humidity measurements in all inspected rooms.
- Visual inspection and collection of moisture meter measurements under sinks located in common areas in the A building. In one instance, an inspection hole was drilled to visually inspect the spaces behind the cabinetry.
- Collection of surface and air samples for the presence of fungal growth, as necessary, based on the findings of our inspection in the spaces accessed.

This report presents the study methods, observations, conclusions, and limitations associated with our inspections.

Executive Summary

Our inspection revealed that there were two small areas of fungal growth behind the wallpaper in two classrooms, and this appears to be a limited occurrence since no fungal growth was identified in 38 other locations in the 18 classrooms examined. We did not identify any hazardous indoor air quality conditions within the areas of the school inspected on May 26 through 27, 2018. A total of 18 classrooms (including the Teacher's Staff Room), health office, front administration office, hallway adjacent to the Teacher's Staff Room, and beneath common sinks in the A building were inspected on May 26 through 27, 2018.

In classrooms E3 and D2, there was visible staining located on the backing of the wallpaper and on the exposed drywall when lifted. These findings were localized to an area beneath an exterior window (Room E3) and approximately six feet from the ground on an exterior wall in one room (Room D2). Once these spaces in Rooms E3 and D2 were identified, the wallpaper and building materials removed were repaired by the maintenance staff and the immediate walls and floor were wet wiped and vacuumed with a HEPA vacuum. A visual inspection of the repaired areas and spore trap air sampling was conducted following the repairs. The results of the visual inspection and air sampling after the inspection activities in these rooms were normal. We have recommended that these areas be remediated by a licensed mold remediation contractor following standard industry practice at the conclusion of the 2018 school year.

Study Methods

Focused Building Inspections

A tour was conducted of the select areas of the school, which included the interior occupiable spaces and the exterior of the school areas under study. Exponent advised and understands that the HVAC system was under typical school-time operation at the time of our inspection based on information provided by the School District. Prior to our inspection, the spaces listed in Table 1 were identified in concert with the School District based on current and/or historical indoor environmental quality complaints and based on Exponent's previous inspections conducted at the school in 2017 and 2018. The focused building surveys included one or more of the following activities for each specific area of the school inspected, as noted in Table 1:

- Visual inspection and noting odor sensations
- Destructive inspection that included:
 - Lifting of wallpaper by School District employees in areas where peeling wallpaper was observed, in areas where moisture intrusion is likely if leak sites exist (e.g., exterior walls, walls potentially exposed to rain or irrigation water, below exterior windows, areas backing likely water intrusion sources including common hallway sinks as applicable). The areas where wallpaper was lifted are identified in the column titled "Location where Base Coving and Wallpaper were Lifted" in Table 1.
 - Drilling of 2" diameter cores by School District employees through drywall after lifting wallpaper. Visual inspection of the backing of the core (surface exposed to the wall cavity) and aided inspection of the insulation (if present) and interior wall cavity using an illuminated high-definition borescope. Consistent with areas noted above regarding the wallpaper, areas where drilling occurred coincided with areas where moisture intrusion was likely or staining was found under the wallpaper upon lifting it. The areas where cores were drilled are identified in the column titled "Locations of Core Drill Into Wall Cavity" in Table 1.
 - Lifting of floor tiles and examining the concrete floor beneath the tiles for the presence of staining or liquid water. Tiles were lifted in at least 4 locations in each room that we inspected. The rooms where moisture or staining were found beneath floor tiles are identified in the column titled "Visible Staining/Water-Observed Under One or More Carpet Tiles in Room" in Table 1.
 - Moisture meter measurements either in construction materials or on the concrete slab at points of inspection or beneath lifted carpet tiles.

- Collection of thermal comfort parameters, including atmospheric relative humidity and temperature in the inspected classrooms
- Surface and air sampling in selected areas, including:
 - Collection of tape lift samples in stained or suspect locations
 - Collection of air samples for analysis of fungal spore concentrations in two classrooms, and at outdoor locations for comparison purposes

During our inspections, information was recorded concerning general observations and any remarkable conditions as well as noticeable odors and visible observations of moisture or water intrusion. Photographs were taken to document the observations and are included in Attachment A. These observations were recorded on an inspection form.

Odor sensations were noted upon entering each room, during the inspection of each area where wallpaper was lifted, where holes were drilled into wall cavities, and also when lifting a carpet tile, if applicable.

Concrete moisture meter measurements were taken in locations using a handheld Tramex moisture meter. Moisture meter measurements from wall assemblies were taken using a handheld GE Protimeter Hygromaster. The moisture meter was calibrated according to the manufacturer's instructions before and after use and was found to be within normal operating conditions.

Temperature and Relative Humidity Measurements

A calibrated, handheld QTrak (TSI Model 7575) was used to measure temperature and humidity levels at each sampling location, as applicable. The instrument was placed in the area under study and allowed to equilibrate (approximately five minutes or less). Triplicate measurements were recorded during the inspection at each location. The average of the three measurements is reported.

Airborne Fungal Spore Concentrations

Air samples from Classrooms E3 and D2 were collected at selected indoor and outdoor locations to determine the types and concentrations of airborne fungal spores present. Two samples were collected at each outdoor location. Two indoor sample locations were identified for each of the two classrooms. The air samples were collected using Zefon Air-O-Cell[®] spore-trap devices. This device consists of a microscope cover slip coated with a transparent adhesive material encased in a 37-millimeter-diameter polystyrene cassette fitted with an inlet nozzle.

Air was passed through each sampling cassette by an electrically-driven, high-volume air-sampling pump calibrated at a flow rate of 15 liters per minute by use of a precision rotameter that had been calibrated against a primary standard. The sampling cassettes were placed approximately four to five feet above the floor surface on a tripod stand (i.e., breathing zone height) and away from walls or other obstructions. Each sample was collected for five consecutive minutes. A field blank sample was collected for quality control purposes during the evaluation. A field blank identifies contamination as a result of collection and transport of the samples and is collected by handling the Air-O-Cell[®] spore trap cassette media in the same manner as the samples except that the field blanks were not used to sample the air. A representative photograph depicting the sampling setup is shown in Photo Air-1 in Attachment A.

Surface Sampling

Surface samples from areas with visible staining in Classrooms E3 and D2 were collected to determine if the stains were from fungal growth. Vinyl exam gloves were donned by the sampler during the collection of each sample. Tape-lift samples were collected using 0.75-inch wide, clear, transparent adhesive tape. A two- to-three-inch piece of tape was removed from the tape dispenser. The adhesive side of the tape was applied to the surface being sampled, ensuring contact. The index finger was used to apply light pressure on the tape to assure adherence of the material being sampled on the target surface to the tape. The section of tape was then removed, placed into a dedicated polyethylene bag, labeled, and submitted to the laboratory for analysis.

Sample Handling

Upon completion of sample collection, the cassettes and tape-lift samples were sealed, uniquely labeled, and hand delivered under standard chain-of-custody procedures to Aemtek, Inc. (Aemtek) laboratory in Fremont, California. In the laboratory, fungal spores were identified and counted or qualitatively reported for tape lift samples.

Observations and Results

Visual Inspection and Odor Observations

The results of the inspections are shown in Table 1. Exponent requested that the conditions within each classroom to be examined be representative of a normal school day. In each room that we examined, we noted that the heating, ventilating and air conditioning (HVAC) systems were operating and comfort conditions were normal.

Aside from Classroom A8, no odors consistent with fungal growth or unusual moisture conditions were encountered. Where noticeable odors were encountered, the odors were consistent with air fresheners or other fragrances and were not consistent with odors attributable to fungal growth.

In Classroom A8, a slight musty odor was noted upon entering the room. Staining beneath the carpet tiles was noted in some areas and this may be a source of odor. These observations of water and staining beneath the carpet tiles were consistent with historical observations made at the site during previous inspections. As noted below, the observations during wallpaper lifting, removal of base molding, and inspection of wall cavities in Classroom A8, did not reveal signs of fungal growth.

Representative photos of our inspection are presented in Attachment A. For each of the areas inspected, a set of photos (located in Attachment A) of the destructive inspection locations are noted in Table 1.

Destructive Inspections

Destructive inspections were conducted in 18 classrooms, as noted in Table 1. One to five areas were subjected to destructive inspection efforts in each classroom and included removal of base cove and lifting the wallpaper, with the exception of one area beneath a sink where there was no wallpaper present. In most cases, when the wallpaper was lifted a core was drilled through the exposed drywall to allow for the inspection of the wall cavity

Wall surfaces under 40 areas of wallpaper were examined. In two small areas, in two different classrooms, unusual staining was observed when the wallpaper was lifted. In classrooms E3 and D2, there was visible staining located on the backing of the wallpaper and on the exposed drywall when lifted. These findings were localized to an area beneath an exterior window on the south elevation (Room E3) and approximately six feet from the ground on an exterior wall on the west elevation in one room (Room D2). Surface samples were collected and are discussed in the section below. Any released dust was cleaned by use of a HEPA vacuum and wet wiping. Air sampling was also conducted in each of these rooms after the hole in the wall was patched. An obvious cause of these stains was not found. It is possible that an object was rested against these areas for a period of time trapping atmospheric moisture (humidity), but a complete determination as to the cause of the leak was not made by Exponent and we recommend that it should be investigated further by the School District, as noted in the summary at the end of this report. Representative photos of these areas in Rooms E3 and D2 are included as photographs E3-3 to E3-4 and D2-6, respectively, in Attachment A.

Over 35 locations had cores drilled through the drywall for inspection of the wall cavity. The locations included both interior and exterior wall cavities. In all cases, no unusual

staining or odors consistent with fungi were noted. This observation includes the inspection of the wall cavities where the staining was observed in Rooms D2 and E3, as discussed above. Representative photographs of some locations inspected with the borescope are included in photos BS-1 through BS-5 in Attachment A (Note that the date and time stamp on these photos is not correct). All drywall surfaces tested with the moisture meter were dry.

Possible or obvious visible staining or liquid moisture was found under the floor covering in at least one area within 14 of the 18 rooms inspected, as summarized in Table 1. The presence of staining and liquid water under the floor covering in some areas has been observed and tested by Exponent during previous investigations in 2017 and 2018. During those investigations, Exponent did not identify any hazardous conditions. We understand that the School District is conducting investigations to determine a remedy to this condition. In some instances, the slab tested “wet” with a concrete moisture meter, which is a condition that has been observed by Exponent during prior inspections.

Comfort Observations and Measurements

Comfort measurements were collected at the start and end of the inspection in each classroom. The temperature and relative humidity measurements are presented in Table 1. No unusual readings were recorded while taking these measurements, and conditions were within the normal comfort range for occupied buildings.

Surface and Air Sampling Results

The laboratory results for the surface samples are presented in Attachment B. The stains noted behind the wallpaper in rooms E3 and D2 were associated with fungal growth. The surface samples collected in Room E3 (Sample E3-T1) showed the presence of fungi primarily dominated by *Aspergillus/Penicillium-like*, which is a type of fungi that is commonly found on wet building materials, including drywall. Colonies¹ of *Mucor* and *Penicillium* were also identified in the sample collected from Room E3. In Room D2 (sample D2-T1), there were similar findings with *Aspergillus/Penicillium-like* fungi dominating the sample, with some colonies of *Aspergillus*. In addition, hyphal fragments were identified in both of these samples at an elevated qualitative level (TNTC)², which indicates fungal growth was or is likely present in these areas.

¹ Colony is defined in the Analytical Report as “Abundant or numerous spores and associated fruiting structures observed.”

² Too Numerous to Count (TNTC) is defined in the Analytical Report as “Too numerous to count, but no fruiting structure observed.”

Following the destructive inspections in these rooms, the areas disturbed were reconstructed by School District Staff. The areas where the destructive testing occurred were then carefully cleaned using wet wiping with Simple Green and HEPA vacuuming. Upon the completion of that work, the rooms were allowed to equilibrate via the operation of the HVAC system. Confirmatory air samples were then collected outdoors and then inside of Rooms E3 and D2.

The results from the spore-trap air samples obtained during this inspection are presented in the Aemtek report dated May 29, 2018 (Attachment B). The sample numbers and corresponding locations are presented in the following list:

Sample No.	Location
0527-OA2	Outdoor – Courtyard between Buildings A, D, and E
0527-OA3	Outdoor – Near Room F2
0527-D2-1	West Side of Room, Room D2
0527-D2-2	East Side of Room, Room D2
0527-E3-1	East Side of Room, Room E3
0527-E3-2	West Side of Room, Room E3
0527-OA4	Same location as 0527-OA2
0527-OA5	Same location as 0527-OA3
0527-OA1	Field Blank

The results of the air samples obtained indoors relative to outdoor air revealed normal levels. The indoor types were similar to the outdoor types, but at lower concentrations.

No spore types were found in either the surface or spore trap field blank samples.

Summary and Recommendations

Our inspection revealed that there were two small areas of fungal growth behind the wallpaper in two classrooms, and this appears to be a limited occurrence since no fungal growth was identified in 38 other locations in the 18 classrooms examined. This inspection was intended to include an inspection of representative locations within the school where moisture intrusion was likely or suspected, as discussed above. There is not a widespread presence of fungal growth either behind the wallpaper or within wall cavities in the rooms we examined. We did not identify any unusual indoor air quality conditions within the areas of the school inspected. In classrooms E3 and D2, there was visible staining located on the backing of the wallpaper and on the exposed underlying drywall. Laboratory testing shows that the stains were from fungal

growth. Common types of fungi were growing at these locations. These findings were localized to an area beneath an exterior window (Room E3) and approximately six feet from the ground on an exterior wall in one room (Room D2); in both instances, these locations had peeling wallpaper and were also identified by teachers as areas to be inspected. Once these spaces in Rooms E3 and D2 were identified, the wallpaper and holes drilled were repaired by the maintenance staff. The inspection of the backing of the drywall core and wall cavity in the areas of these stains found no unusual staining or odors consistent with fungi. Surfaces were cleaned by wet wiping and HEPA vacuuming. A visual inspection was made to verify that the cleanup had been properly completed, and air sampling was performed. The results of the visual inspection and air sampling after the inspection activities in these rooms were normal.

Exponent offers the following recommendations based on our inspection and the review of documentation noted in this report.

- The areas identified in Rooms D2 and E3 should be remediated by a licensed mold remediation contractor following standard industry practice at the conclusion of the 2018 school year. Stained and affected building materials should be removed (including any drywall, any stained insulation, and wallpaper, if within the impacted area). The full extent of these stained areas was not determined during this inspection, particularly for the area observed in Room D2. The source of the leak or source of water should be identified and repaired prior to remediation. After remediation, a post-remediation inspection should be conducted by a third party inspection.
- Based on the observed staining and visible moisture under the carpet tiles noted in this report, further investigation as to the extent and cause of the moisture intrusion is needed. This may involve consultation with additional flooring experts and materials scientists to find a solution to the issue.
- Relative humidity should be periodically monitored within the classrooms, particularly in the routinely occupied rooms within the A, C, D, and E buildings, to assure they are maintained at levels consistent with the recommendations in USEPA's Tool for Schools Guideline.³ Low humidity levels were measured during the inspection. However, this is likely attributed to low outdoor relative humidity levels observed at the time of our inspection. This condition should be monitored.

Limitations

This assessment was limited to visible and accessible surfaces and the conditions that existed on May 26 through 27, 2018. We did not inspect interstitial spaces, such as above dropped

³ U.S. EPA. 2009. Indoor Air Quality Tools for Schools Reference Guide. EPA 402/K-07/008. January.

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ceilings, inside all walls, and crawl spaces, and do not offer any opinions on the conditions of those spaces not inspected. The surface and air sampling reflected the conditions that existed at the time of this evaluation, and such conditions may be different at other times. If the district is aware of building materials or contents not specified within this report that are suspected of containing fungal growth, those materials should be evaluated as appropriate.

Exponent investigated specific issues relevant to the evaluation as provided by the client. Therefore, the scope of services performed during this assessment may not adequately address the needs of others, and any re-use of or reliance on this report or the findings, conclusions, or recommendations presented herein is at the sole risk of the user. If any errors in this report are discovered, please notify us so that we can respond to any concerns.

This completes our focused evaluation of Bridgeport Elementary School in Valencia, California. If you have any questions or require any additional information, please contact me via phone at 510-268-5077.

Sincerely,



Michael Posson, CIH
Managing Scientist



Attachment A: Photographs

Attachment B: Aemtek Report Dated May 29, 2018

Table

Table 1. Summary Observations, Bridgeport Elementary School

Room Number or Area	Odor in Room	Location where Base Coving and Wallpaper were Lifted	Locations of Core Drill Into Wall Cavity	Visible Staining/Water-Observed Under One or More Carpet Tiles in Room	Ambient Temperature in Center of Room (°F)	Relative Humidity in Center of Room (%)	Photo Number(s) (See Attachment A)
A1	Slight Air Freshener Odor	1. Below 1st Window to the Right of Exterior Door 2. Southeast Corner	1. Below 1st Window to the Right of Exterior Door 2. Southeast Corner	Yes	73.3	40.1	A1-1 to A1-2
A4	Slight Sweet Odor	1. Left of Exterior Entry Door 2. North Wall (Teacher Identified)	1. Left of Exterior Entry Door 2. North Wall (Teacher Identified)	Yes	76.8	41.4	A4-1 to A4-2
A5	None	1. Window Left of the Exterior Door (Teacher Identified) 2. Right of Exterior Door Below Window (Teacher Identified) 3. Northwest Corner of Room	1. Window Left of the Exterior Door (Teacher Identified) 2. Right of Exterior Door Below Window (Teacher Identified)	Possible Staining At Seams Near Teacher's Desk	72.5	42.3	A5-1 to A5-4
A6	None	1. Below 2nd Window Right of the Exterior Door 2. Northwest Corner of Room, Exterior Wall	1. 2nd Window Right of the Exterior Door 2. Northwest Corner of Room, Exterior Wall	Yes	72.4	41.8	A6-1 to A6.2
A8	Slight Musty Odor	1. Below Exterior Window	1. Below Exterior Window	Yes	72.0	44.1	A8-1
A9	None	1. Below Exterior Window Left of Exterior Door 2. Wall Backing Hallway Sink	1. Below Exterior Window Left of Exterior Door 2. Wall Backing Hallway Sink (Inaccessible)	No	72.6	42.6	A9-1 to A9-4
A11	None	1. Left of Exterior Entry Door 2. Right of Main Containment Area, Southwest Wall	1. Left of Exterior Entry Door, Northwest Wall 2. Exterior Wall, Southwest Corner	Yes	69.2	46.7	A11-1 to A11-3
A13	Sweet	1. Below 2nd Window to Right of the Exterior Door 2. Exterior Wall, Northwest Corner	1. Below 2nd Window to Right of the Exterior Door 2. Exterior Wall, Northwest Corner	No	73.1	41.7	A13-1 to A13-2
A17	Mild Mist/Spring Odor	1. Below Window to Right of the Exterior Door	1. Below Window to Right of the Exterior Door 2. Below Sink in Room	Yes	73.1	41.1	A17-1 to A17-2
A31 (Teachers staff room)	None	1. Left of Exterior Entry Door 2. Right of Main Containment Area, Southwest Wall	1. Left of Exterior Entry Door	Not Applicable, Carpet Tiles Removed	Not Collected; HVAC vents covered		A31-1 to A31-2
A70	None	1. Right of Exterior Door 2. Below 2nd Window to the left of Exterior Door	1. Right of Exterior Door 2. Below 2nd Window to the left of Exterior Door	Yes	74.3	43.4	A70-1 to A70-2
A79	None	1. Interior Wall Near Peeling Wallpaper 2. Below Window Near Exterior Door	1. Interior Wall Near Peeling Wallpaper 2. Below Window Near Exterior Door	Yes	72.8	46.8	A79-1 to A79-2
A42 Front office/Health Office	None	1. Wall Facing Office Under Internal Window (Staff ID).	None	Not Applicable. Vinyl Tile Flooring.	Not Collected.		A42-1
C1	None	1. Southwest Corner, Interior and Exterior Walls 2. Northeast Corner, Interior and Exterior Walls	1. Southwest Corner, Interior and Exterior Walls 2. Northeast Corner, Interior and Exterior Walls	Yes	71.5	47.4	C1-1 to C1-2

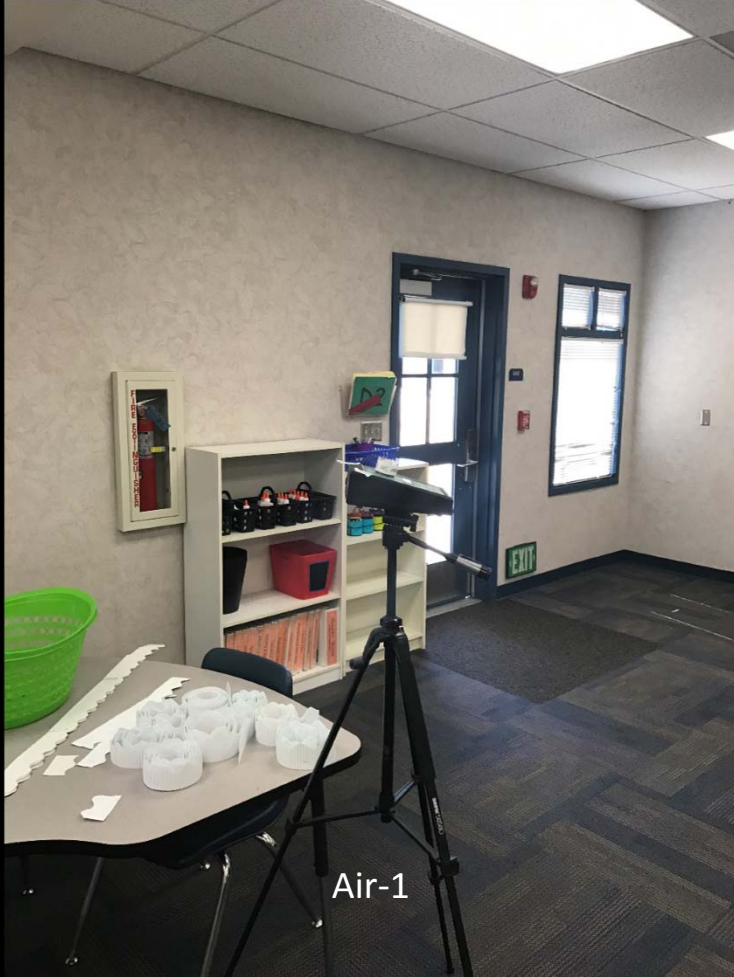
Table 1. Summary Observations, Bridgeport Elementary School

Room Number or Area	Odor in Room	Location where Base Covings and Wallpaper were Lifted	Locations of Core Drill Into Wall Cavity	Visible Staining/Water-Observed Under One or More Carpet Tiles in Room	Ambient Temperature in Center of Room (°F)	Relative Humidity in Center of Room (%)	Photo Number(s) (See Attachment A)
D1	None	1. Under 1st Window From Left on West Wall. 2. Southwest Corner (Teacher ID)	1. Under 1st Window From Left on West Wall. 2. Southwest Corner (Teacher ID)	Possible (Faint)	69.2	51.2	D1-1 to D1-3
D2	Slight Fragrance	1. Southeast Corner (Teacher Identified) 2. South Wall Near Peeling Wallpaper 3. West Wall, Center of Wall, (Teacher Identified) 4. East Wall, Center of Wall (Teacher Identified)	1. Southeast Corner (Teacher Identified) 2. West Wall, Center of Wall, (Teacher Identified) 3. East Wall, Center of Wall (Teacher Identified)	Yes	68.4	52.4	D2-1 to D2-7
E2	None	1. Below Exterior Window (Teacher Identified) 2. Nook in Southwest Corner 3. Left of Exterior Entry Door 4. Below 2nd Window from Left of Entry Door	1. Below Exterior Window (Teacher Identified) 2. Nook in Southwest Corner 3. Left of Exterior Entry Door	Yes	74.4	39.9	E2-1 to E2-1
E3	None	1. Below Exterior Window to Far Left on South Wall (Teacher Identified) 2. Southeast Corner behind Teacher's Desk 3. Southwest Corner Near West Entry Door	1. Below Exterior Window to Far Left on South Wall (Teacher Identified) 2. Southeast Corner behind Teacher's Desk 3. Southwest Corner Near West Entry Door	Yes	75.2	41.8	E3-1 to E3-6
E4	Slight Fragrance	1. Left of Entry Door 2. Northwest Corner of Room 3. Below Window on South Wall 4. Below 2nd Window on South Wall 5. Below 3rd Window on South Wall	1. Below Window on South Wall 2. Below 2nd Window on South Wall 3. Below 3rd Window on South Wall	Yes	73.5	42.4	E4-1 to E4-5
Sinks in Hallways of A Building	None	None (Visual inspection only)	None (Visual inspection only)	Not Applicable.	Not Applicable.		

Notes:
 Bold entries signify areas where staining was observed beneath wallpaper. Surface samples were collected and tested for the presence of fungal growth. Air testing for fungal spore contamination was also conducted within the room after cleaning of the area where building materials were removed and repaired.

Attachment A

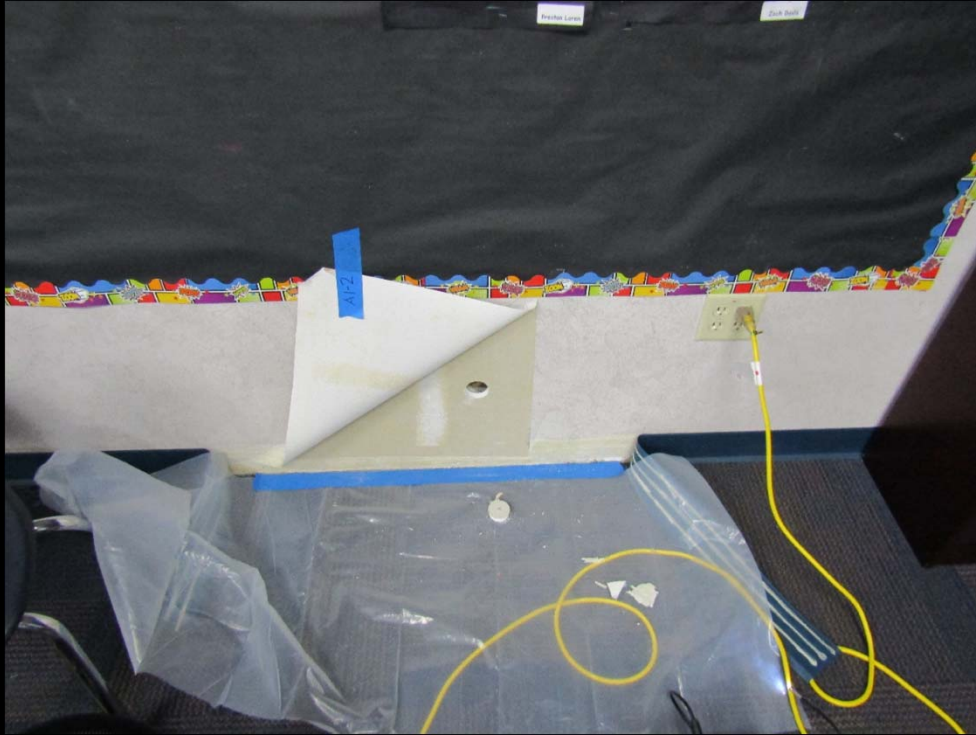
Photographs



Air-1



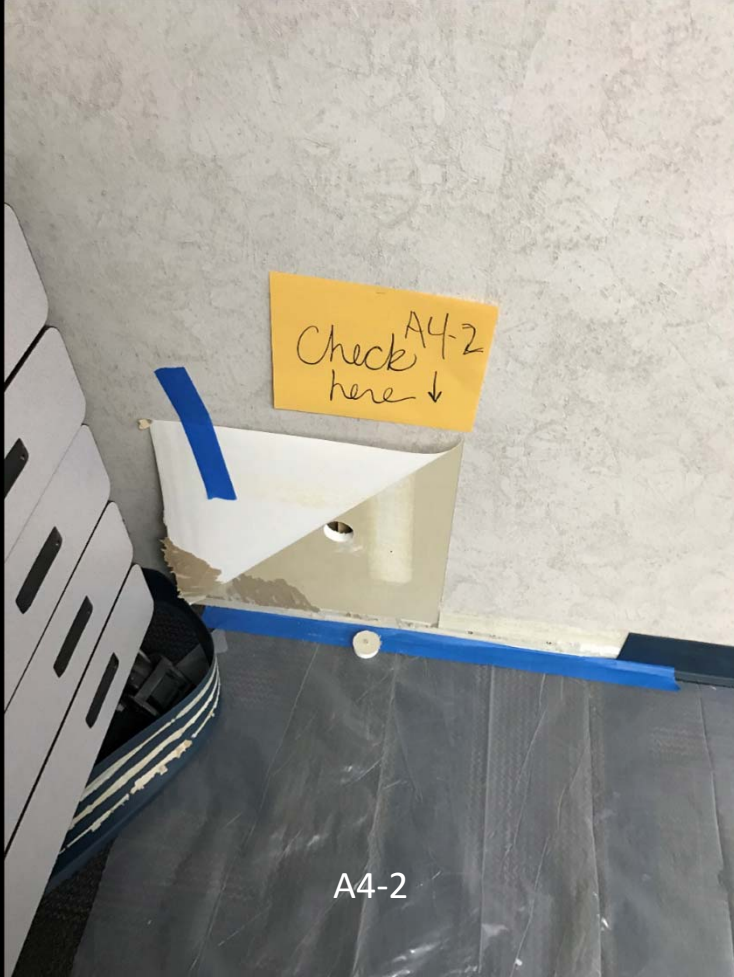
A1-1



A1-2



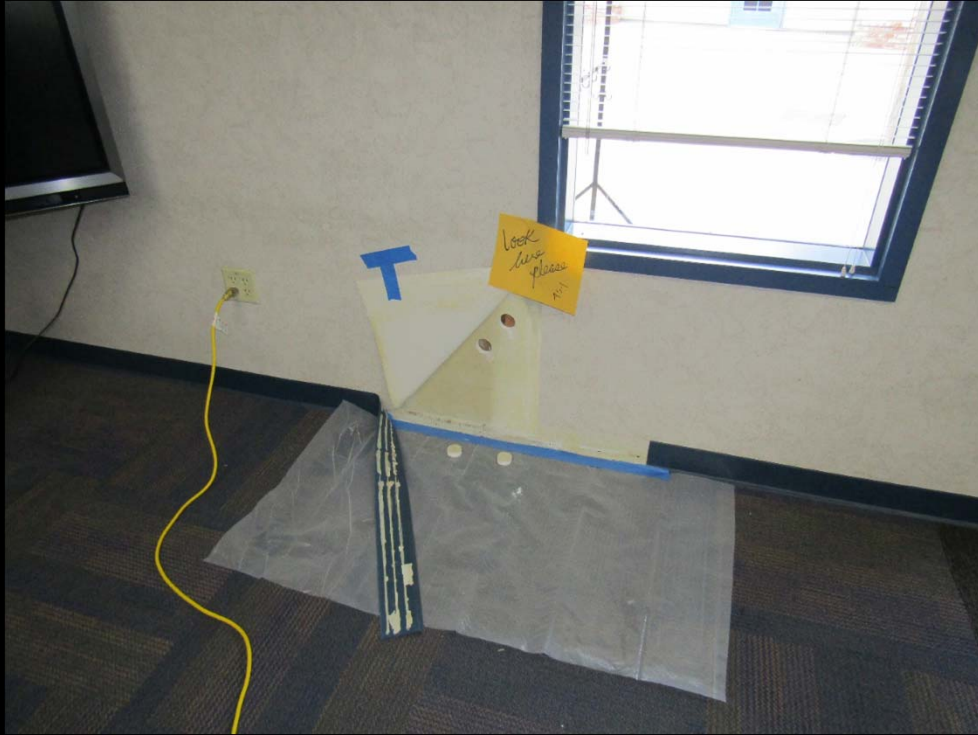
A4-1



A4-2



A5-1



A5-2



A5-3



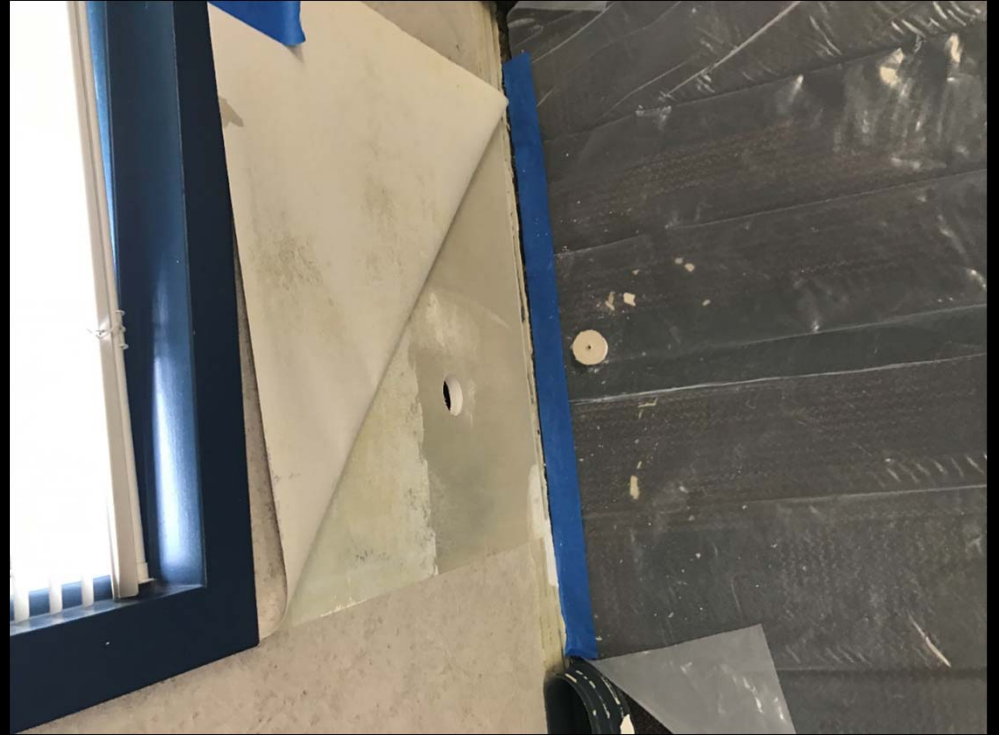
A5-4



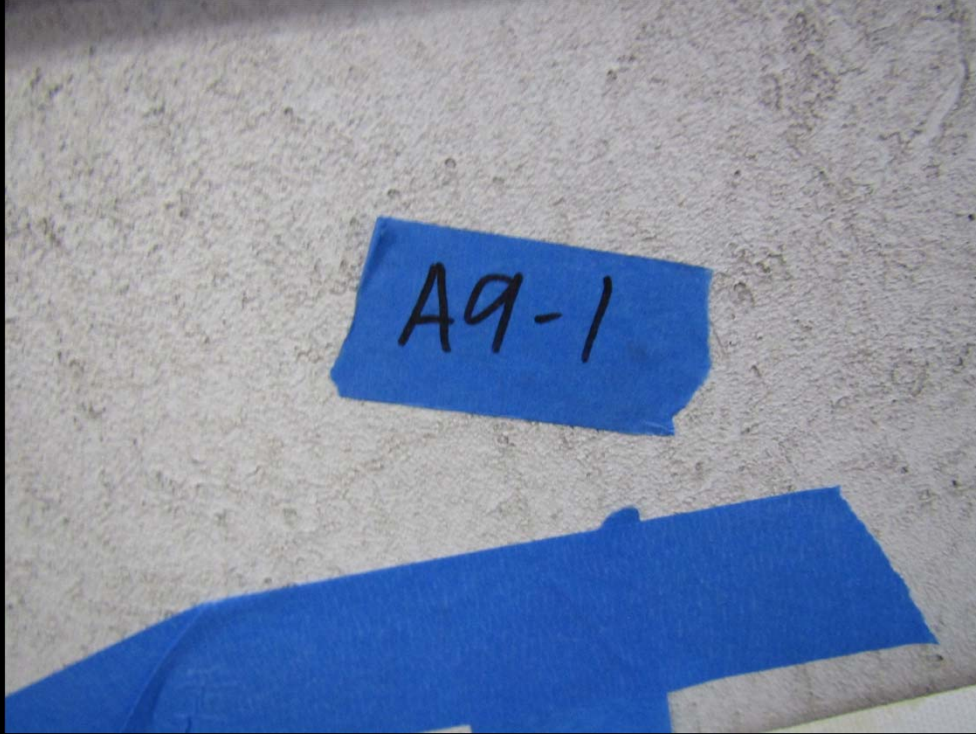
A6-1



A6-2



A8-1



A9-1



A9-2



A9-3



A9-4



A11-1



A11-2



A11-3



A13-1



A13-2



A17-1



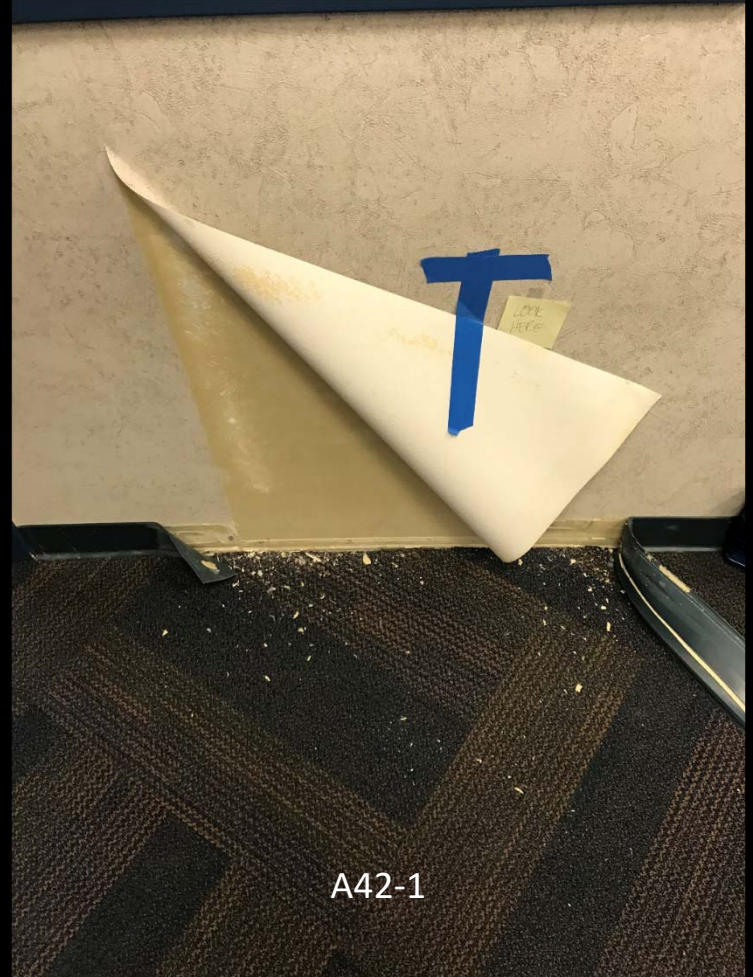
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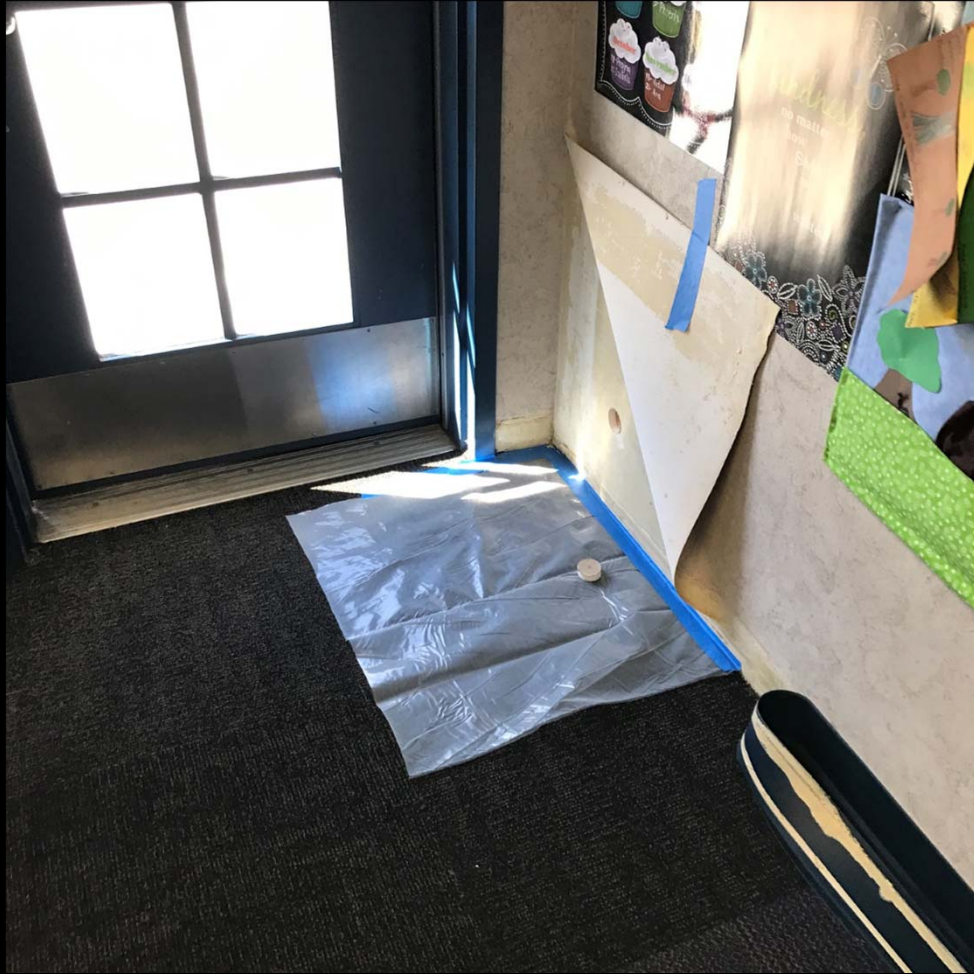
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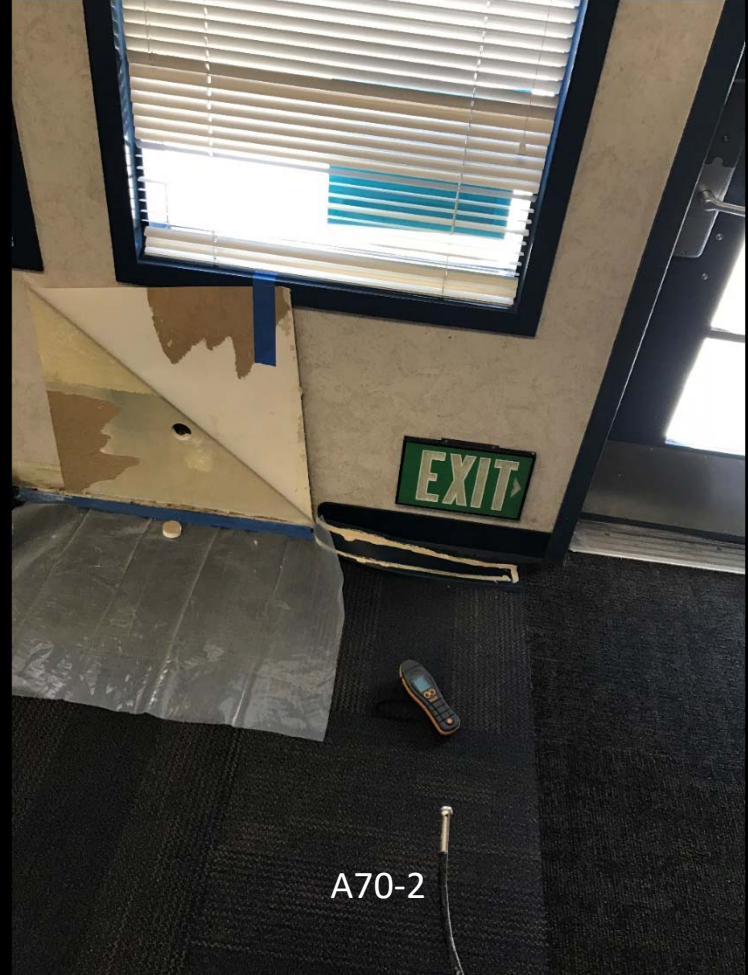
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A42-1



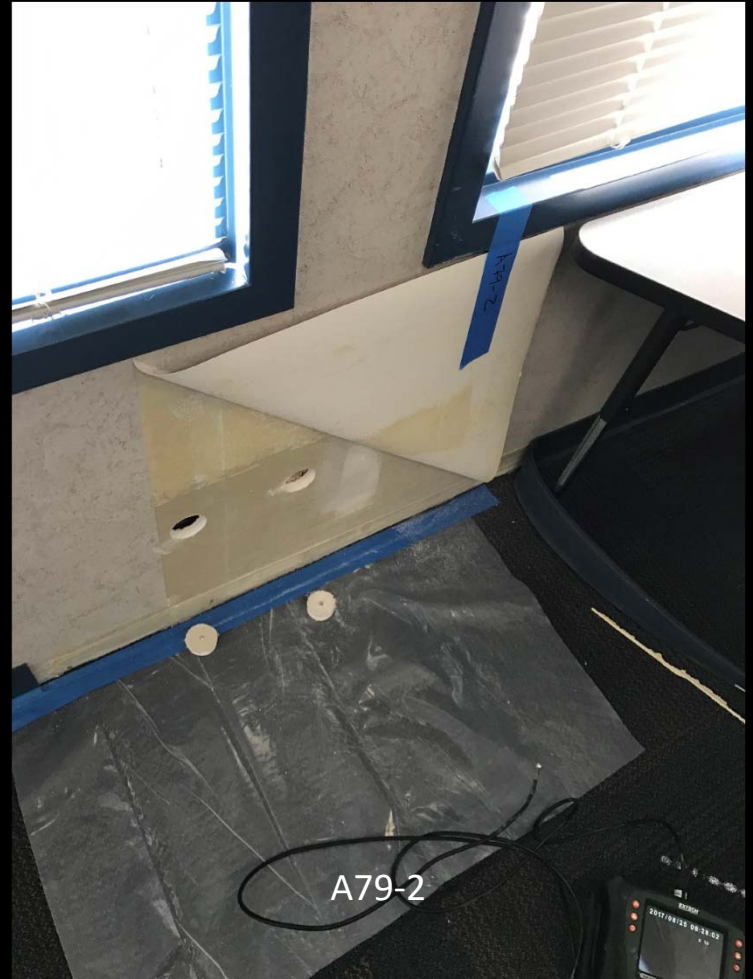
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A70-2



A79-1



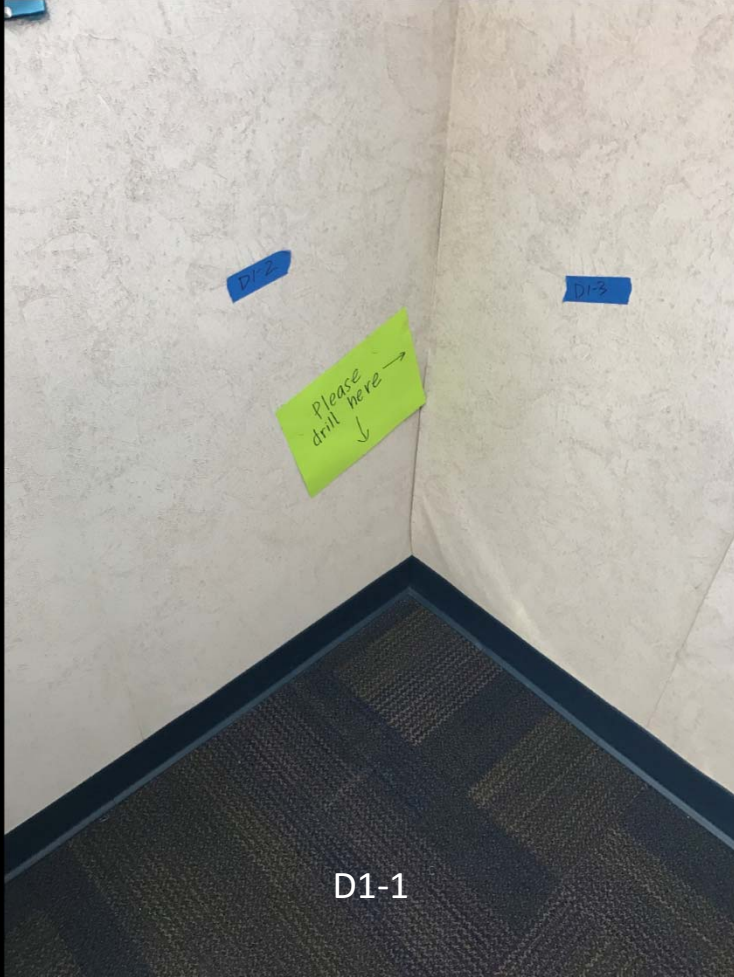
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C1-1



C1-2



D1-1



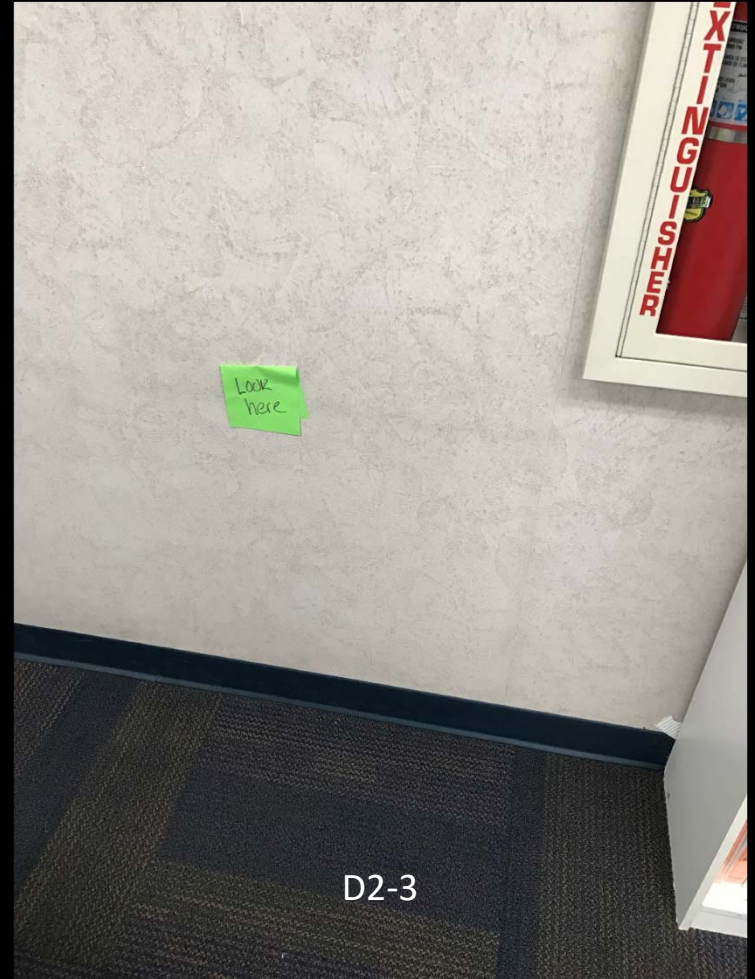
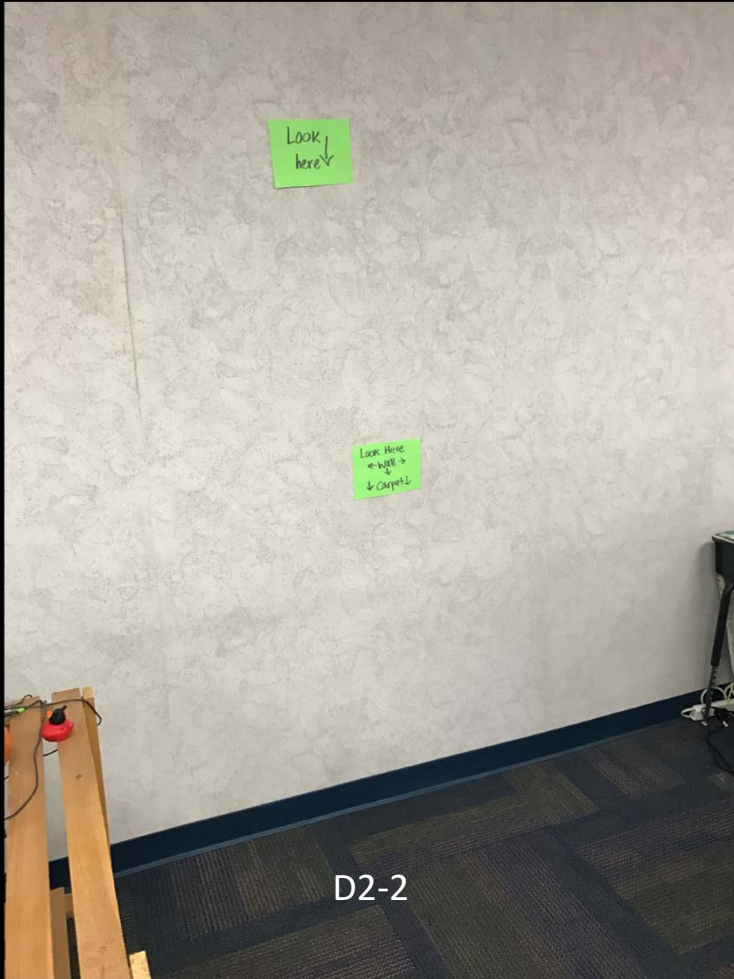
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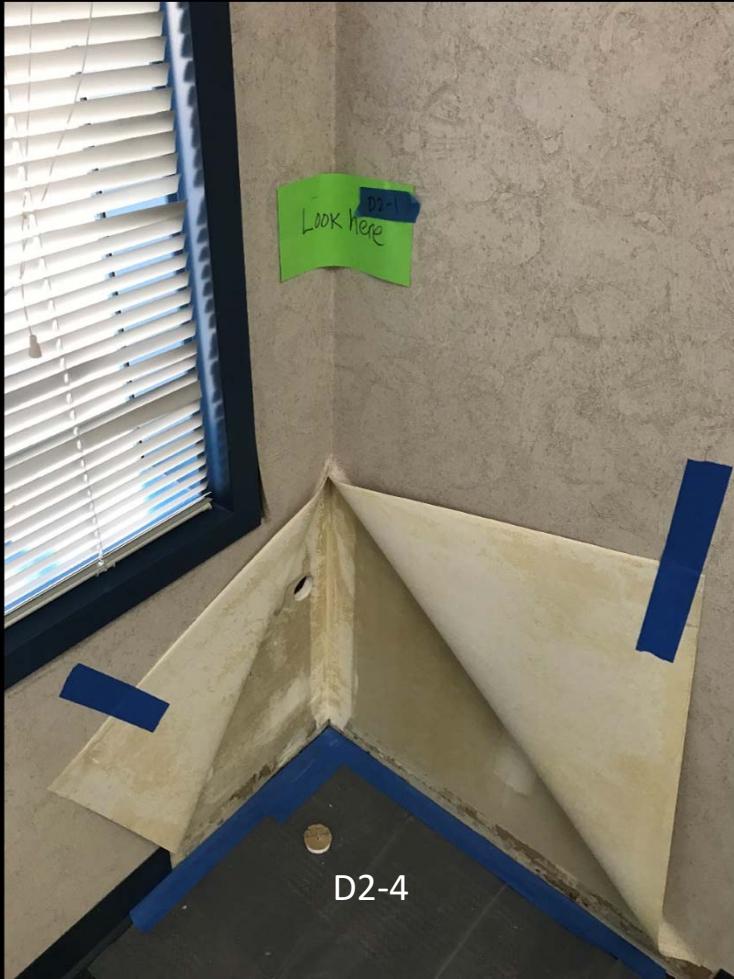


D1-3



D2-1





D2-4



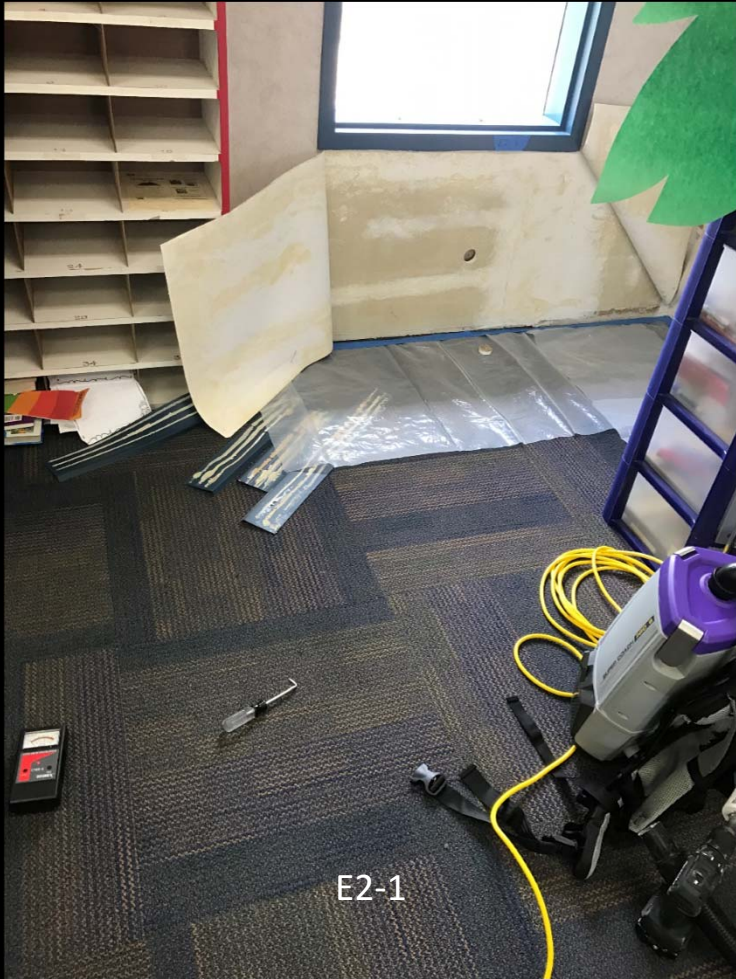
D2-5



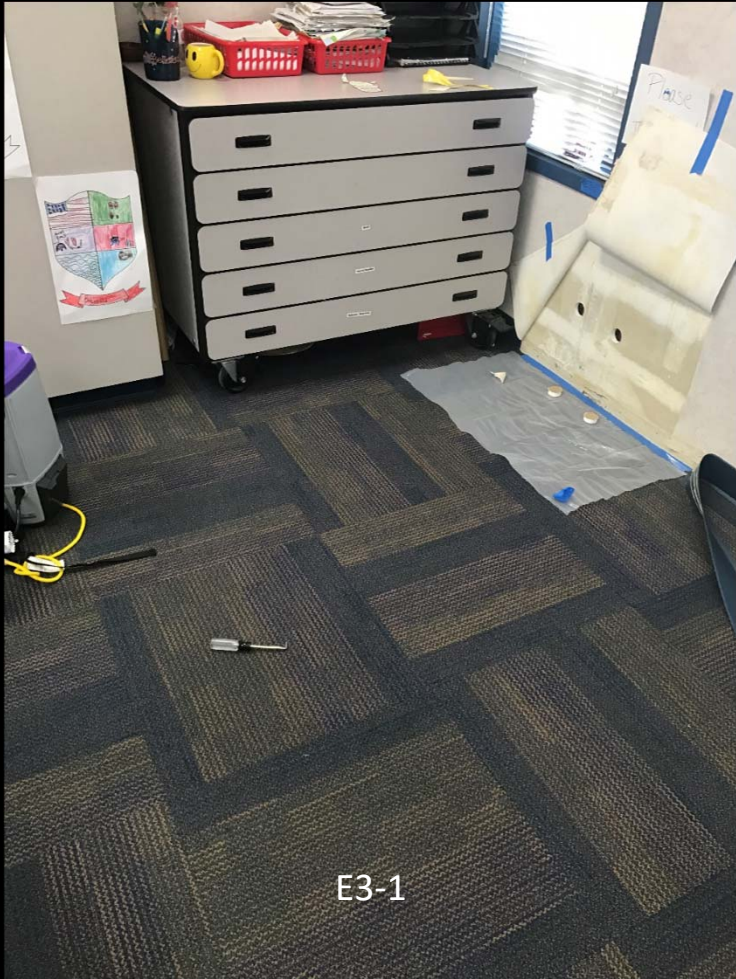
D2-6



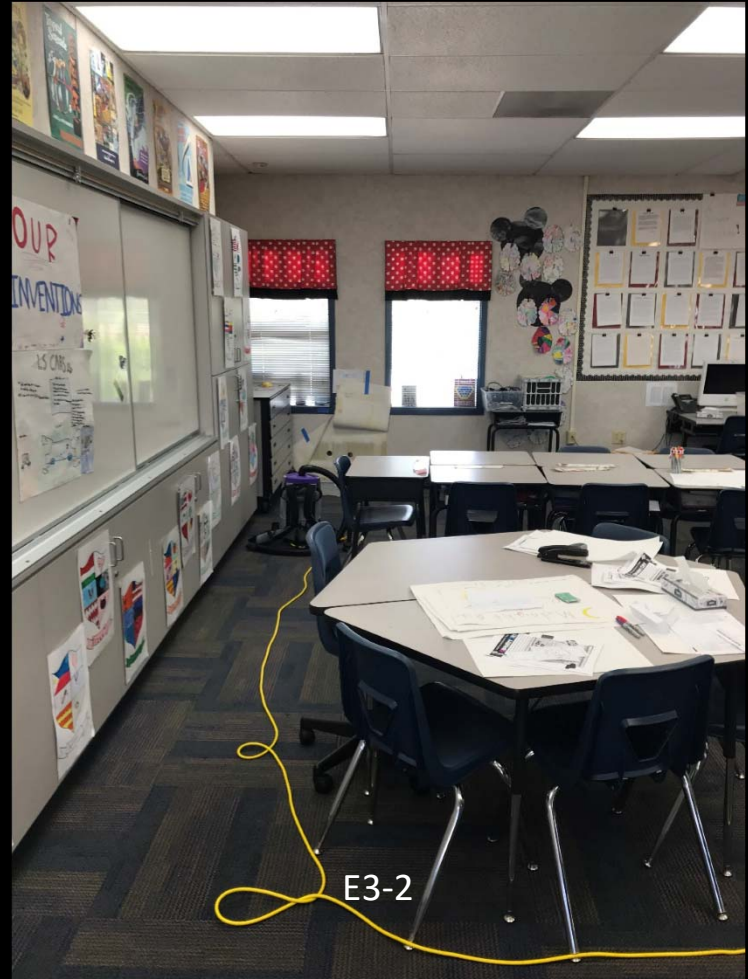
D2-7





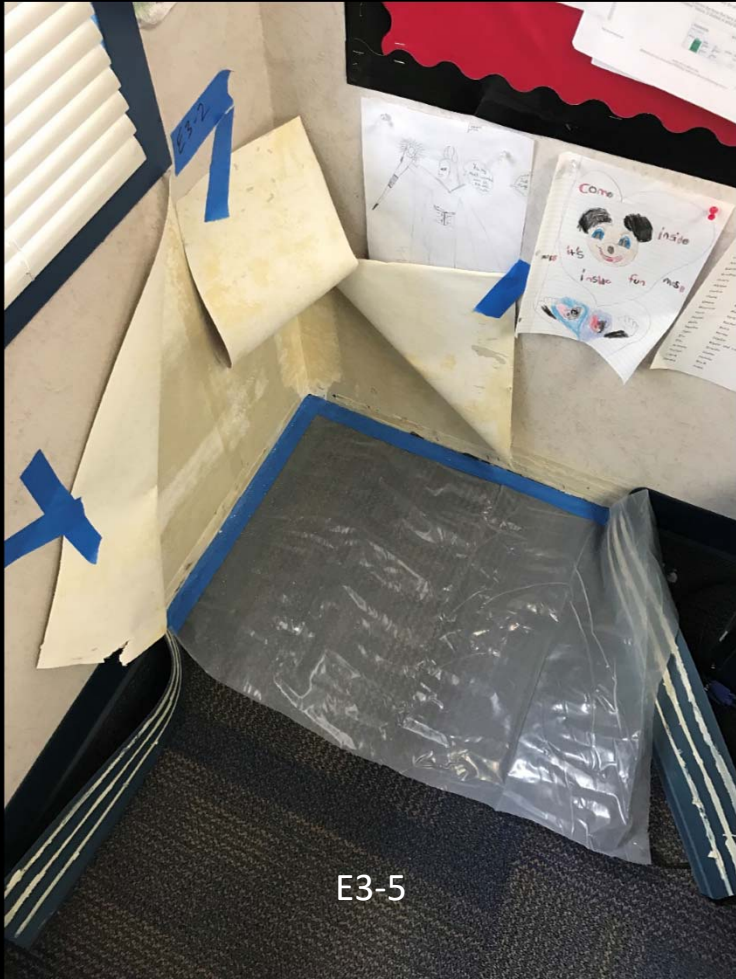


E3-1

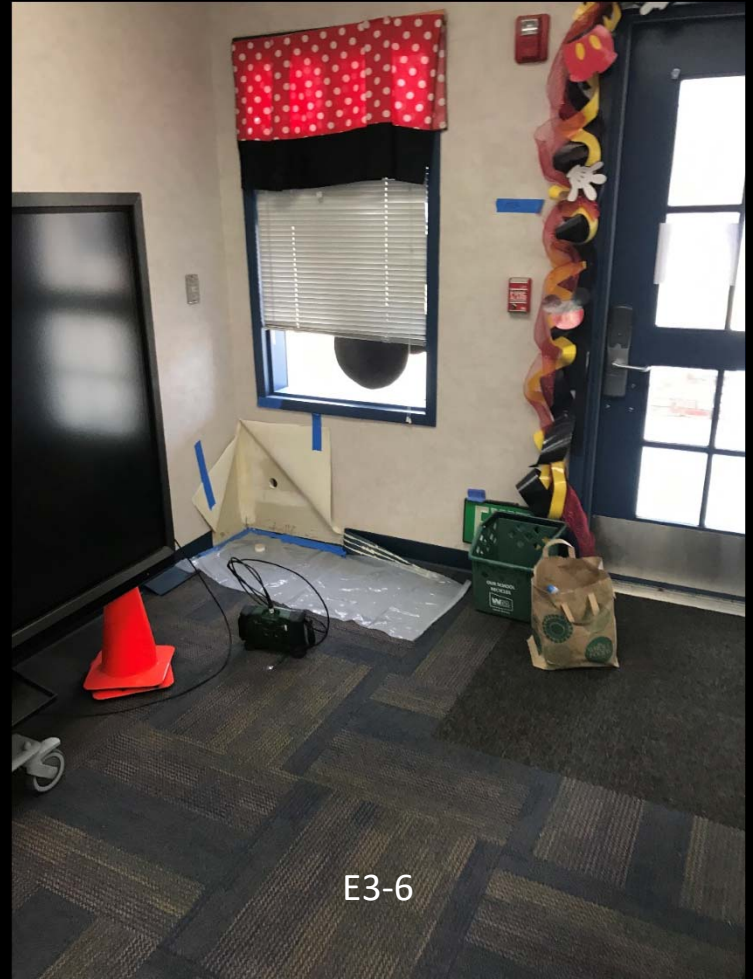


E3-2

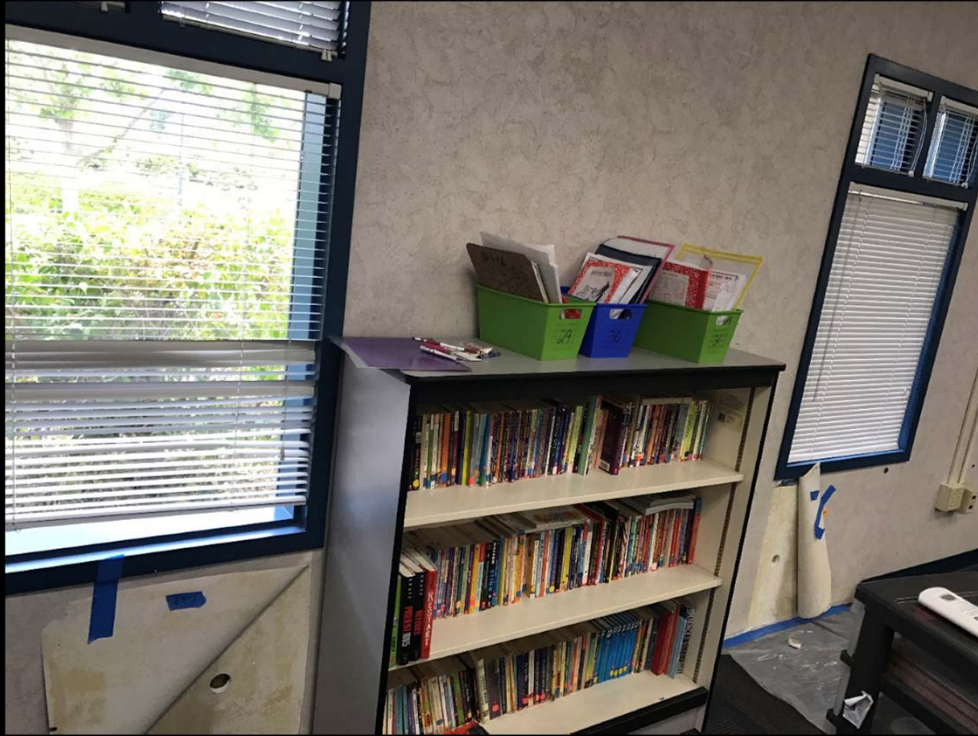




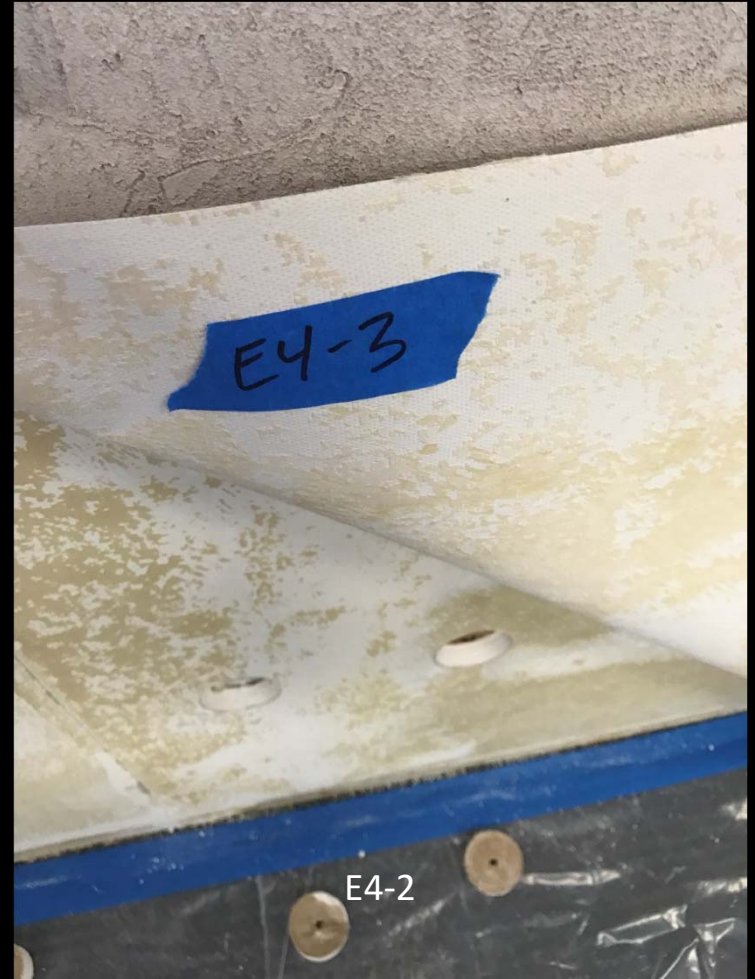
E3-5



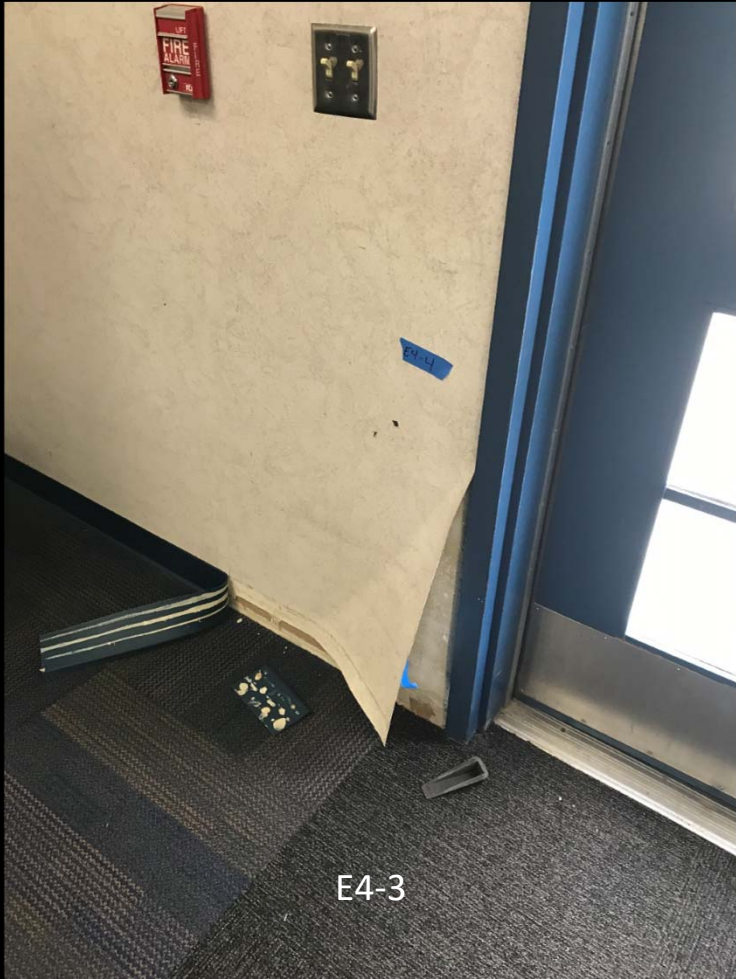
E3-6



E4-1



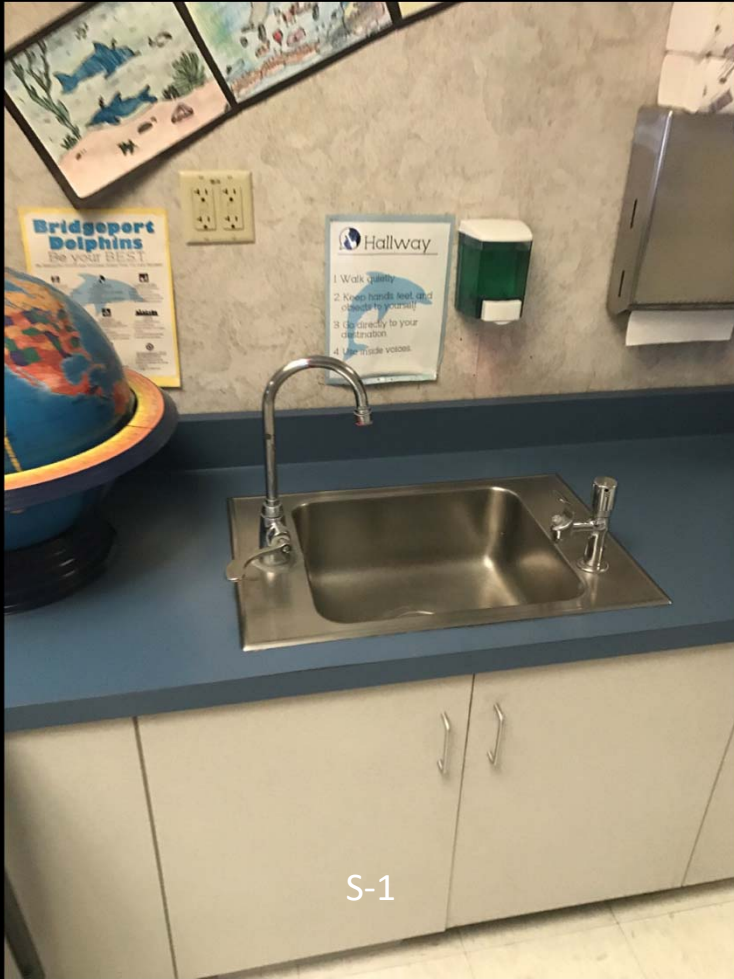
E4-2



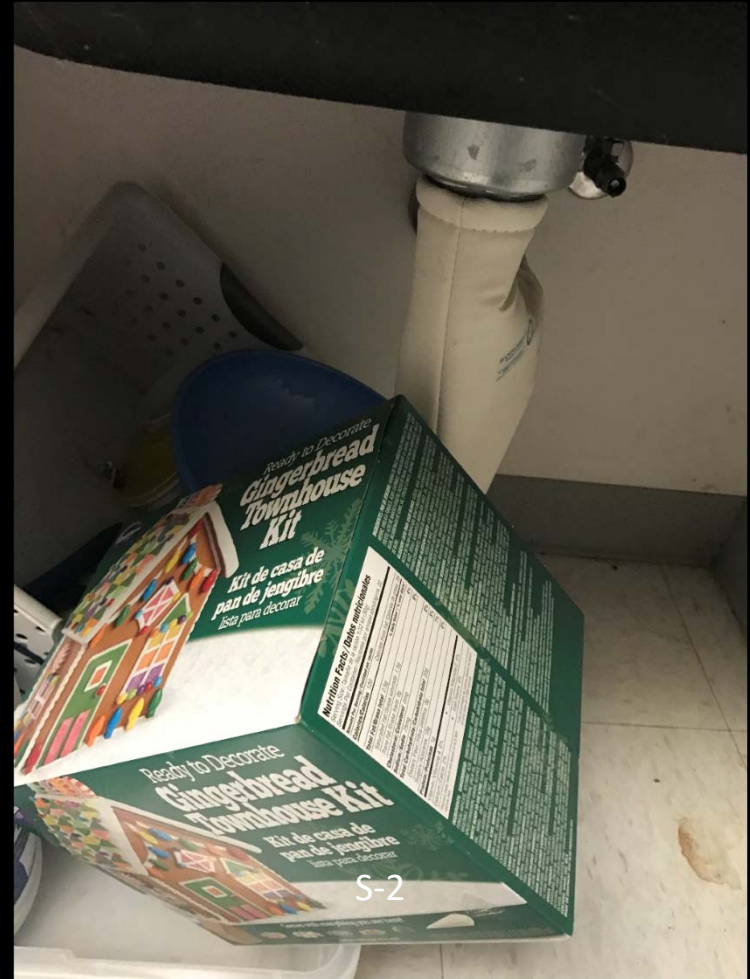
E4-3



E4-5



S-1



S-2



BS-1



BS-2



BS-3



BS-4



BS-5

Attachment B

AEMTEK, Inc. Analytical Report

466 Kato Terrace
Fremont, CA 94539
Phone: (510) 979-1979 Fax: (510) 668-1980
www.aemtek.com labreports@aemtek.com

Submitted to: **Exponent, Inc**
475 14th Street, Suite 400
Oakland, CA 94612
Attn: **Michael Posson**

Purpose: The purpose of this report is to present laboratory results obtained by analyzing the samples submitted to Aemtek, Inc. The report includes this cover and the data sheet(s).

Limitation: The test results presented in this report are only related to the samples supplied by the client and analyzed by Aemtek. This report shall not be reproduced, except in full, without written authorization of Aemtek. Aemtek shall have no liability to anyone with respect to any interpretations or uses of the laboratory report, decisions made or actions taken as a result of or based on the data reported. In no event shall Aemtek's liability with respect to the reported test results exceed the amount paid for the project by the client to Aemtek.

Sample Information: Sample identification, location, volume, weight, and area are from the client's Chain of custody. Unless specifically noted, the samples were received in acceptable condition.

Significant Figures: Because of the nature of the biological samples and analytical methods, the number of significant figures should generally be one of two, although the actual calculation results are reported.

Sample Custody: Samples accepted by Aemtek shall remain the property of client while in the custody of Aemtek. Aemtek shall retain preparation of samples for 7 days following the date of issuing this report. After the retention period, the samples shall be sterilized and discarded, unless otherwise requested by the client.

Confidentiality: Aemtek shall not provide analytical results or client's project information to any party other than the client, unless requested by the client, in writing, or by law.

About Aemtek: Aemtek, Inc. is an environmental microbiology laboratory providing reliable, fast, and expert laboratory services for the detection, identification, and analysis of microorganisms. We are committed to excellence in quality, service, and technology. All analysts are experienced Ph.D. specialists. The laboratory is accredited by the American Industrial Hygiene Association (AIHA) in the Environmental Microbiology liability with respect to the reported test results exceed the Laboratory Accreditation Program (EMLAP Lab #167620).

Project ID: 1703766.000

Location: 1703766.000

Sampling Date: 05-26-2018

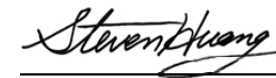
Sample Received: 05-29-2018

Data Reported: 05-29-2018

Approved By:



Dr. Florence Wu
Principal Mycologist



Dr. Steven Huang
Laboratory Director



Aemtek Laboratory Report, Page 1 of 4

Laboratory Analysis Report

Data Sheet

 466 Kato Terrace
 Fremont, CA 94539
 Phone: 510-979-1979
 Fax: 510-668-1980

 Project ID: 1703766.000
 Project Location: 1703766.000
 Analysis Performed: Fungal Direct Examination (FDE)
 Sample Type: Air

 Submitted to:
 Exponent, Inc
 Oakland, CA 94612

Sample ID	0527-OA1			0527-OA2			0527-OA3			0527-D2-1			0527-D2-2		
Location	0527-OA1			0527-OA2			0527-OA3			0527-D2-1			0527-D2-2		
Air Volume (L)	75			75			75			75			75		
Fungal Identification	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%
<i>Alternaria</i>	-	-	-	8	104	2	2	26	1	2	26	3	1	13	3
Ascospores	-	-	-	21	273	6	5	65	2	-	-	-	-	-	-
<i>Aspergillus/Penicillium</i> -like	-	-	-	38	494	11	59	767	21	18	234	29	8	104	24
Basidiospores	-	-	-	10	130	3	16	208	6	1	13	2	1	13	3
<i>Bipolaris/Dreschlera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Botrytis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cercospora</i>	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Chaetomium</i>	-	O	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cladosporium</i>	-	N	-	106	1378	31	119	1547	43	26	338	42	7	91	21
<i>Curvularia</i>	-	E	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Epicoccum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ganoderma</i>	-	D	-	1	13	-	-	-	-	-	-	-	-	-	-
<i>Myxomycetes/Periconia/Rust/Smut</i>	-	E	-	113	1469	34	35	455	13	5	65	8	7	91	21
<i>Nigrospora</i>	-	T	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Oidium</i>	-	E	-	2	26	1	2	26	1	-	-	-	-	-	-
<i>Petriella</i>	-	C	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pithomyces</i>	-	T	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stachybotrys</i>	-	E	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stemphylium</i>	-	D	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Torula</i>	-	-	-	4	52	1	2	26	1	-	-	-	1	13	3
<i>Trichoderma</i> -like	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other hyaline spores	-	-	-	17	221	5	14	182	5	-	-	-	1	13	3
Other colored spores	-	-	-	-	-	-	-	-	-	1	13	2	-	-	-
Hyphal fragments	-	-	-	17	221	5	22	286	8	9	117	15	7	91	21
Total	-	-	-	337	4381	100	276	3588	100	62	806	100	33	429	100
Pollen/m ³	-			156			91			-			-		
Insect or dust mite parts/m ³	-			-			-			-			-		
Detection Limit (spores/m ³)	13			13			13			13			13		
General Density	BLANK			51-75%			51-75%			51-75%			26-50%		
% of Trace Analyzed	100%			100%			100%			100%			100%		

Method ID: Aemtek SOP AF101

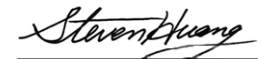
Sampling Date: 05-26-2018

Analysis Performed By: Thomas Giang & Dr. Brook Liu

Date of Analysis: 05-29-2018

Direct microscopy detection limit: One spore or one hyphal Fragment per sample.

Reviewed By:





Laboratory Analysis Report

Aemtek No. 18051420

Data Sheet

466 Kato Terrace
 Fremont, CA 94539
 Phone: 510-979-1979
 Fax: 510-668-1980

Project ID: 1703766.000
 Project Location: 1703766.000
 Analysis Performed: Fungal Direct Examination (FDE)
 Sample Type: Air

Submitted to:
 Exponent, Inc
 Oakland, CA 94612

Sample ID	0527-E3-1			0527-E3-2			0527-OA4			0527-OA5					
Location	0527-E3-1			0527-E3-2			0527-OA4			0527-OA5					
Air Volume (L)	75			75			75			75					
Fungal Identification	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%	Count	Spores/m ³	%
<i>Alternaria</i>	-	-	-	1	13	1	2	26	1	3	39	1	-	-	-
Ascospores	-	-	-	1	13	1	1	13	-	2	26	1	-	-	-
<i>Aspergillus/Penicillium</i> -like	24	312	51	59	767	56	100	1300	40	128	1664	42	-	-	-
Basidiospores	1	13	2	11	143	10	15	195	6	15	195	5	-	-	-
<i>Bipolaris/Dreschlera</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Botrytis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cercospora</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Chaetomium</i>	-	-	-	-	-	-	1	13	-	1	13	-	-	-	-
<i>Cladosporium</i>	13	169	28	12	156	11	59	767	24	65	845	21	-	-	-
<i>Curvularia</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Epicoccum</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ganoderma</i>	-	-	-	-	-	-	-	-	-	2	26	1	-	-	-
Myxomycetes/ <i>Periconia</i> /Rust/Smut	2	26	4	3	39	3	37	481	15	57	741	19	-	-	-
<i>Nigrospora</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Oidium</i>	-	-	-	-	-	-	1	13	-	-	-	-	-	-	-
<i>Petriella</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pithomyces</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stachybotrys</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Stemphylium</i>	-	-	-	-	-	-	-	-	-	1	13	-	-	-	-
<i>Torula</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Trichoderma</i> -like	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other hyaline spores	3	39	6	7	91	7	15	195	6	25	325	8	-	-	-
Other colored spores	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hyphal fragments	4	52	9	12	156	11	16	208	6	9	117	3	-	-	-
Total	47	611	100	106	1378	100	247	3211	100	308	4004	100	-	-	-
Pollen/m ³	13			-			91			52			-		
Insect or dust mite parts/m ³	-			-			-			-			-		
Detection Limit (spores/m ³)	13			13			13			13			-		
General Density	26-50%			26-50%			26-50%			26-50%			-		
% of Trace Analyzed	100%			100%			100%			100%			-		

Method ID: Aemtek SOP AF101
 Sampling Date: 05-26-2018
 Analysis Performed By: Thomas Giang & Dr. Brook Liu
 Date of Analysis: 05-29-2018

Direct microscopy detection limit: One spore or one hyphal Fragment per sample.

Reviewed By:

Data Sheet

 466 Kato Terrace
 Fremont, CA 94539
 Phone: 510-979-1979
 Fax: 510-668-1980

 Project ID: 1703766.000
 Project Location: 1703766.000
 Analysis Performed: Fungal Direct Examination (FDE)
 Sample Type: Tape-lift

 Submitted to:
 Exponent, Inc
 Oakland, CA 94612

Sample ID	D2-T1	E3-T1	E3-T2					
Location	D2-T1	E3-T1	E3-T2					
Sample Type	Tape-lift	Tape-lift	Tape-lift					
Fungal Identification	Characterization	Characterization	Characterization					
<i>Acremonium</i>	-	-	-	-	-	-	-	-
<i>Alternaria</i>	-	-	-	-	-	-	-	-
Ascospores	-	-	-	-	-	-	-	-
<i>Aspergillus</i>	Colony	-	-	-	-	-	-	-
<i>Aspergillus/Penicillium-like</i>	TNTC	TNTC	-	-	-	-	-	-
<i>Aureobasidium</i>	-	-	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-	-	-
<i>Bipolaris/Dreschlera</i>	-	-	-	-	-	-	-	-
<i>Botrytis</i>	-	-	N	-	-	-	-	-
<i>Ceratocystis/Ophiostoma</i>	-	-	O	-	-	-	-	-
<i>Chaetomium</i>	-	-	N	-	-	-	-	-
<i>Cladosporium</i>	-	-	E	-	-	-	-	-
<i>Curvularia</i>	-	-	-	-	-	-	-	-
<i>Epicoccum</i>	-	-	D	-	-	-	-	-
<i>Mucor</i>	-	Colony	E	-	-	-	-	-
Myxomycetes/ <i>Periconia</i> /Rust/Smut	-	-	T	-	-	-	-	-
<i>Nigrospora</i>	-	-	E	-	-	-	-	-
<i>Penicillium</i>	-	Colony	C	-	-	-	-	-
<i>Petriella</i>	-	-	T	-	-	-	-	-
<i>Pithomyces</i>	-	-	E	-	-	-	-	-
<i>Stachybotrys</i>	-	-	D	-	-	-	-	-
<i>Stemphylium</i>	-	-	-	-	-	-	-	-
<i>Torula</i>	-	-	-	-	-	-	-	-
<i>Triadelphia</i>	-	-	-	-	-	-	-	-
<i>Trichoderma-like</i>	-	-	-	-	-	-	-	-
<i>Ulocladium</i>	-	-	-	-	-	-	-	-
Other hyaline spores	-	-	-	-	-	-	-	-
Other colored spores	-	-	-	-	-	-	-	-
Hyphal fragments	TNTC	TNTC	-	-	-	-	-	-

Data Interpretation Guideline:

Rare 1 to 10 spores observed on sample preparation
Some 11 to 30 spores observed on sample preparation
Common 31-60 spores observed per sample preparation
Many 61 to 100 spores observed per sample preparation
Abundant More than 100 spores observed per sample preparation
TNTC Too numerous to count, but no fruiting structure observed
Colony Abundant or numerous spores and associated fruiting structures observed
***** Spores associated with hyphae and/or fruiting structures
None Detected No spore or hyphal fragment observed per sample preparation

Method ID: Aemtek SOP AF102
 Direct microscopy detection limit: one spore/hyphal fragment per sample.
 Analysis performed by: Thomas Giang & Dr. Brook Liu
 Sampling Date: 05-26-2018
 Date of Analysis: 05-29-2018

 Reviewed by: 

CHAIN OF CUSTODY RECORD/SAMPLE ANALYSIS REQUEST FORM

Project Name / Number: <u>1703766.000</u>			Sampling Date: <u>5/26 + 5/27/18</u>						
Ship To: <u>AEMTEK</u>			SAMPLERS: <u>M. Posson</u>						
Lab Contact: <u>Sharon Spencer</u>			Exponent Contact: <u>M. Posson</u>						
Phone: <u>(510) 979-1979</u>			Direct Phone: <u>(510)-268-5077</u>						
E-mail: _____			Email: <u>mposson@exponent.com</u>						
			Office Location:						
			<input type="checkbox"/> Farmington Hills, MI (248) 324-9100 <input type="checkbox"/> Menlo Park, CA (650) 326-9400 <input checked="" type="checkbox"/> Oakland, CA (510) 268-5000 <input type="checkbox"/> Other: _____						
			Remarks / Sample Location						
Sample No.	Time	Vol(L)	Fungi: Spore Trap Analysis	Fungi: Direct Microscopic Exam	Culturable Fungi: Std. Quant. Analysis	Fungi: w/Pen. and Asp. Speciation	Matrix	Area	Remarks / Sample Location
<u>0527-0A1</u>	<u>0910</u>	<u>7.5</u>	<u>X</u>				<u>ST</u>	<u>N/A</u>	<u>collected 5/27</u>
<u>-0A2</u>	<u>0926</u>								
<u>-0A3</u>	<u>0927</u>								
<u>-D2-1</u>	<u>0934</u>								
<u>-D2-2</u>	<u>0940</u>								
<u>-E3-1</u>	<u>0947</u>								
<u>-E3-2</u>	<u>0953</u>								
<u>-0A4</u>	<u>0959</u>								
<u>-0A5</u>	<u>1005</u>								
<u>D2-T1</u>	<u>N/A</u>	<u>N/A</u>		<u>X</u>			<u>T</u>		<u>collected 5/26</u>
<u>E3-T1</u>									
<u>E3-T2</u>									
MATRIX CODE: BC = Biocassette ST = Spore Trap B = Bulk T = Tape D = Dust SW = Swab OTHER: please identify code: _____			PRIORITY: <input type="checkbox"/> Standard <input type="checkbox"/> Rush <input type="checkbox"/> Next Day <input type="checkbox"/> 2-Day <input checked="" type="checkbox"/> Same Day (Extra Fee) Due Date: <u>5/29/18 C.C.O.B.</u>						
Shipped Via: <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> Courier <input checked="" type="checkbox"/> Hand <input type="checkbox"/> Other: _____			Condition of Samples Upon Receipt: _____				Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None		

Relinquished by: Michael Posson / MR Date/Time: 5/29/18 10:20 Received by: [Signature] Date/Time: 5/29/18 10:20

Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____