



Memorandum

To: Charles O'Brien, Director of Facilities and Capital Planning
Office of Court Management, Massachusetts Trial Court

From: Ann D. Eckmann, CIH, Industrial Hygiene Group Leader
TRC, 300 Wildwood Avenue, Woburn, MA
Reviewed by: Dean Lamborn, CIH, CSP, TRC Project Manager

Subject: Results of Indoor Air Quality Screening and Mold Investigation
Roderick L. Ireland Courthouse, Springfield, Massachusetts

Date: September 7, 2021

CC: Michael Lane, Environmental, Health & Safety Manager of Facilities and
Capital Planning, Office of Court Management, Massachusetts Trial Court

TRC Project: 458085

TRC Environmental Corporation (TRC) prepared this memorandum to outline progress to date on the mold investigation and remediation efforts at the above-referenced courthouse.

Background Information

On 8/25/21, TRC confirmed the presence of mold growth of *Penicillium/Aspergillus*-like mold on surfaces in several locations, which is consistent with elevated relative humidity measured in the building on 8/25/21.

TRC returned to the site 9/2 – 9/3/21 and noted the following:

1. Since that time, U.S. Ecology, a microbial remediation firm, has been cleaning the impacted surfaces in the courtrooms and holding cells. TRC observed the following U.S. Ecology cleaning procedures:
 - U.S. Ecology supervisors first inspect each area that requires cleaning;
 - Use long-handled wall/ceiling mops to wet-wipe wall and ceiling locations, including doors and door frames with a Fiberlock Shockwave disinfectant/sanitizer solution and locations behind movable furnishings and wall hangings;
 - Where loose dust, debris or visible suspect mold spores are noted, use high efficiency particulate air (HEPA)-filtered vacuums to clean surfaces before and/or after wet-wiping;
 - Wet-wipe and/or HEPA vacuum all upholstered chairs, couches, papers, desk and table tops, benches and books, remove each book from shelving, hand-wipe the surfaces of each book and wet-wipe shelving prior to replacing the books;
 - Final cleaning of floors by HEPA vacuum methods for carpeting and wet-cleaning for hard surfaces; and
 - Post-cleaning inspection by U.S. Ecology supervisors.
2. Building management installed temporary dehumidification equipment, adjusted air handling equipment to promote removal of excess moisture from the air and scheduled an engineering study to evaluate the ability of the building's existing mechanical systems to control relative humidity. On 9/2/21, TRC's relative humidity measurements in the same locations tested the previous week showed improvement (56% to 62% on 9/2 vs. 62% to 82% the previous week).
3. TRC conducted the following:
 - Visual inspections of the four major air handling units servicing the Courtrooms (AHU-1) and those servicing adjacent areas (AHU-2, AHU-3 and AHU-4).
 - Visual inspections and representative tape lift sampling throughout the cleaned occupant areas.
 - Collected representative air samples in the cleaned occupant areas to include each ventilation zone on September 3 and September 6, 2021.

Note that a plausible reason for mold developing on building surfaces is due to increased outdoor air flow through the air handling equipment to manage COVID-19 risks; the increased outdoor air flow may have exceeded the mechanical capacity of the air handling equipment to extract moisture from incoming outdoor air during recent wet and humid outdoor conditions, particularly during mid-August, 2021.

Findings

Microbial air and surface tape lift samples were submitted to EMSL Analytical, Inc., Woburn, Massachusetts for determination of airborne mold spores and/or mold growth structures on surfaces. Tables summarizing the analytical results of microbial air sampling and tape lift sampling conducted by TRC are included on pages 3 - 5 of this memorandum.

Visual Inspections and Tape Lift Sampling Results

No visible suspect mold growth was observed in the interior compartments of the air handling units. Air filtration systems appeared intact.

The courtroom and accessible associated areas and ground floor holding cells passed visual inspection and tape lift results were considered to be acceptable. TRC requested that two areas be inspected and/or cleaned/re-cleaned on 9/7/21 based on the visual inspections on 9/6/21, including a ceiling tile area in the corridor between the ground floor holding cells and slot vents on the west wall of the 2nd floor Commissioner's Conference Room.

In some courtroom areas, there is a very minor amount of suspect mold in the grooves between wood panels. There is also possible lint in the grooves from the cleaning materials used to clean the walls. We do not feel that this poses a significant health risk to occupants and that it can be addressed by a long-term plan to systematically clean the grooves in the wood paneling.

Air Sampling Results

The microbial air sampling results are summarized below. All results are acceptable, except for three locations including:

1. Ground level mailroom;
2. 3rd floor Superior Courtroom 3; and
3. 3rd floor Records Room (listed on floor plan as 3rd floor Superior Courtroom 1 Conference Room A).

Surfaces and contents of these three locations should be cleaned again from top to bottom to include the following:

- Ensure that any cleaning media (e.g., cleaning cloths, etc.) are changed out frequently to minimize the potential for re-introducing mold spores during the cleaning process..
- Thoroughly vacuum any carpeting in the affected areas using vacuums equipped with High Efficiency Particulate Air (HEPA) filters as the last step in cleaning.
- Conduct air scrubbing by continuously operating HEPA-filtered air filtration devices in these areas during cleaning and after cleaning, for a minimum of overnight to 24 hours after cleaning.
- Collect air samples after cleaning and HEPA-air scrubbing, and prior to occupancy of these rooms.

With the understanding that the bulleted actions listed above have been completed, TRC will collect air samples in the above-listed rooms on September 8, 2021 and results are expected during the mid- to late-afternoon on September 8, 2021. With acceptable air sampling results, these rooms may be opened.

Recommended Follow-up

TRC understands that building management is working with the Division of Capital Asset Management and Maintenance to conduct an engineering review of the building and mechanical ventilation equipment to address the ability of the air handling units to remove moisture from the building air during hot, humid weather.

TRC recommends periodic evaluations to consist of visual inspections, and microbial air and/or surface sampling, as well as conducting temperature and relative humidity measurements, to confirm environmental conditions. Note that it is anticipated that excess relative humidity should not be a concern during the heating season.

Results Summaries

Results of Post-Cleaning Sampling for Airborne Mold Spores Roderick L. Ireland Courthouse, Springfield, Massachusetts September 3 – 6, 2021			
Sample ID	Date of Collection	Location	Result (s/m ³ = spores per cubic meter of air)
Note that indoor sampling results are evaluated by comparing with outdoor sampling results – indoor concentrations should be lower than outdoor concentrations and should have a similar population mix of spores.			
32975900	9/3/21	4 th floor, Probate Court 2	Good/Acceptable
32975876	9/3/21	4 th floor, Probate Court 3 Conf Room A	Good/Acceptable
32975839	9/3/21	Plaza, District Court 2	Good/Acceptable
32975880	9/3/21	Plaza, Main Lobby	Good/Acceptable
32975886, 32975898	9/3/21	Outdoors, ground level at parking ramp	1,100+ to 3,190+ (no pen/asp spore types detected on either sample)
32975906	9/6/21	G Cellblock hall	Good/Acceptable
32975842	9/6/21	G mail room	670 (pen-asp spore types, no pen/asp spore types detected outdoors, just cleaned this room same day)
32975996	9/6/21	3 rd floor, Superior Courtroom 6	Good/Acceptable
32975480	9/6/21	3 rd floor, Judge's Lobby	Good/Acceptable
32975999	9/6/21	3 rd floor, Superior Courtroom 1	Good/Acceptable
32973838	9/6/21	3 rd floor, Superior Courtroom 3	8,100 (pen-asp spore types, no pen/asp spore types detected outdoors)
32975481	9/6/21	3 rd floor, Superior Courtroom 1 Records Room Conference Room A, converted into Records Storage Room	10,600 s/m ³ (pen-asp spore types, no pen/asp spore types detected outdoors)
32975995	9/6/21	2 nd floor, Superior Courtroom 7	Good/Acceptable
32973836	9/6/21	2 nd floor, District Courtroom 9	Good/Acceptable
32975987	9/6/21	2 nd floor, Commissioner's Conference Room	Good/Acceptable
32976016	9/6/21	2 nd floor, District Courtroom 6	Good/Acceptable
32975885	9/6/21	2 nd floor, District Courtroom 4	Good/Acceptable
32976017, 32975991	9/6/21	Outdoors, near roof OAI and near ground level OAIs	4,900+ (no pen-asp spore types reported on either outdoor sample)

Results of Post-Cleaning Surface Tape Lift Sampling for Mold Roderick L. Ireland Courthouse, Springfield, Massachusetts September 3, 4 and 6, 2021			
Sample ID	Date of Collection	Location	Results
Note that indoor sampling results are evaluating by comparing with outdoor sampling results – indoor concentrations should be lower than outdoor concentrations and should have a similar population mix of spores.			
PC2-A	9/3/21	4 th floor, Probate Court 2 behind handrail	Good/Acceptable
PC2-B	9/3/21	4 th floor, Probate Court 2 under armchair	Good/Acceptable
PC3-A	9/3/21	4 th floor, Probate Court 3 wall behind benches	Good/Acceptable
PC3-B	9/3/21	4 th floor, Probate Court 3 book	Good/Acceptable
PC1-A	9/3/21	4 th floor, Probate Court 1 wall behind chair rail	Good/Acceptable
PC1-B	9/3/21	4 th floor, Probate Court 1 armchair	Good/Acceptable
PC4-A	9/3/21	4 th floor, Probate Court 4 book	Good/Acceptable
PC4-B	9/3/21	4 th floor, Probate Court 4 Judge's desk top	Good/Acceptable
DC2-A	9/3/21	Plaza level, District Courtroom 2, wall behind rail	Good/Acceptable
DC2-B	9/3/21	Plaza level, District Courtroom 2, underside of book shelves	Good/Acceptable
09043FLC1-1	9/4/21	3 rd floor, Superior Courtroom 1, wall below clock	Good/Acceptable
09043FLC1-2	9/4/21	3 rd floor, Superior Courtroom 1, under gallery bench	Good/Acceptable
09043FLC2-1	9/4/21	3 rd floor, Superior Courtroom 2, book	Good/Acceptable
09043FLC2-2	9/4/21	3 rd floor, Superior Courtroom 2, Counsel's desk	Good/Acceptable
09043FLC3-1	9/4/21	3 rd floor, Superior Courtroom 3, wall behind rail	Good/Acceptable
09043FLC3-2	9/4/21	3 rd floor, Superior Courtroom 3, wall, groove between wood panels	Acceptable
09043FLC3-3	9/4/21	3 rd floor, Superior Courtroom 3, rear door	Good/Acceptable
09043FLC4-1	9/4/21	3 rd floor, Superior Courtroom 4, Jury rail	Good/Acceptable
09043FLC4-2	9/4/21	3 rd floor, Superior Courtroom 4, book	Good/Acceptable
09043FLC5-1	9/4/21	3 rd floor, Superior Courtroom 5, hung painting in jury area	Good/Acceptable
09043FLC5-2	9/4/21	3 rd floor, Superior Courtroom 5, Judge's desk top	Good/Acceptable
09043FLC5-3	9/4/21	3 rd floor, Superior Courtroom 5, wall behind rail in Jury area	Good/Acceptable
09043FLC6-1	9/4/21	3 rd floor, Superior Courtroom 6, wall near Jury area	Good/Acceptable
09043FLC6-2	9/4/21	3 rd floor, Superior Courtroom 6, Court Officer's desk	Good/Acceptable
09043FLCon-1	9/4/21	3 rd floor, Lawyer's lounge, table	Good/Acceptable
09062FLC11-1	9/6/21	2 nd floor, District Courtroom 11, wall under clock	Good/Acceptable
09062FLC11-2	9/6/21	2 nd floor, District Courtroom 11, table	Good/Acceptable
09062FLC3-1	9/6/21	2 nd floor, District Courtroom 3, book	Good/Acceptable
09062FLC3-2	9/6/21	2 nd floor, District Courtroom 3, gallery bench	Good/Acceptable
09062FLC4-1	9/6/21	2 nd floor, District Courtroom 4, Judge's desk	Good/Acceptable
09062FLC4-2	9/6/21	2 nd floor, District Courtroom 4, wall behind gallery	Good/Acceptable

**Results of Post-Cleaning Surface Tape Lift Sampling for Mold
Roderick L. Ireland Courthouse, Springfield, Massachusetts
September 3, 4 and 6, 2021**

Sample ID	Date of Collection	Location	Results
09062FLC5-1	9/6/21	2 nd floor, District Courtroom 5, book shelf	Good/Acceptable
09062FLC5-2	9/6/21	2 nd floor, District Courtroom 5, wall near flag	Good/Acceptable
09062FLC6-1	9/6/21	2 nd floor, District Courtroom 6, book	Good/Acceptable
09062FLC6-2	9/6/21	2 nd floor, District Courtroom 6, Counsel's desk	Good/Acceptable
09062FLC7-1	9/6/21	2 nd floor, District Courtroom 7, Counsel's desk	Good/Acceptable
09062FLC7-2	9/6/21	2 nd floor, District Courtroom 7, Counsel's desk	Good/Acceptable
09062FLC8-1	9/6/21	2 nd floor, District Courtroom 8, Counsel's desk	Good/Acceptable
09062FLC8-2	9/6/21	2 nd floor, District Courtroom 8, Counsel's desk	Good/Acceptable
09062FLC9-1	9/6/21	2 nd floor, District Courtroom 9, Counsel's desk	Good/Acceptable
09062FLC9-2	9/6/21	2 nd floor, District Courtroom 9, Counsel's desk	Good/Acceptable
09062FLC10-1	9/6/21	2 nd floor, District Courtroom 10, Counsel's desk	Good/Acceptable
09062FLC10-1	9/6/21	2 nd floor, District Courtroom 10, portrait frame	Good/Acceptable
0906GFMR-1	9/6/21	Ground floor, Mail Room, table	Good/Acceptable
0906GFCB-1	9/6/21	Ground floor, holding cell area, vent	Good/Acceptable
0906GFCB-3	9/6/21	Ground floor, holding cell area, Cell #4 bars	Good/Acceptable
0906GFCB-4	9/6/21	Ground floor, holding cell area, Cell #11 bars	Good/Acceptable
0906GFCB-5	9/6/21	Ground floor, holding cell area, Cell #7 bars	Good/Acceptable
0906GFJC-1	9/6/21	Ground floor, Room G02, door	Good/Acceptable