NEW YORK COMMITTEE FOR OCCUPATIONAL SAFETY AND HEALTH
P: (212) 227-6440 | F: (212) 227-9854 | 61 Broadway, Suite 1710, New York, New York 10006

Methods for Evaluation of Indoor Mold Growth

Visual Inspection

The extent of any water damage and mold growth should be visually assessed. A visual inspection is the most important initial step in identifying a possible contamination problem. Remediation of visually identified fungal contamination should proceed without further evaluation.

- NYC Department of Health and Mental Hygiene

Routine sampling for mold is not recommended. Sampling may help locate the source of mold contamination, identify some of the species present, and differentiate between mold and soot or dirt. In most cases, if visible mold is present, sampling is unnecessary. After finding mold, the goal is to clean it up and fix the underlying water problem.

- US Environmental Protection Agency (EPA)

In most cases, if visible mold growth is present, sampling is unnecessary. Air sampling for mold may not be part of a routine assessment because decisions about appropriate remediation strategies can often be made on the basis of a visual inspection. Testing for mold is expensive and there should be a clear reason for doing so. There are no standards for "acceptable" levels of mold in buildings and the lack of a definitive correlation between exposure levels and health effects makes interpreting the data difficult if not impossible.

-US Occupational Safety and Health Administration (OSHA)

Bioaerosol (Air) Sampling*

- Identifies:
  - types of fungal species present
  - number of fungal colonies present per each identified species
  - percentage of each type of species in total of all microbial species found.
- Unit of measurement: colony forming units (cfu) per volume of air sampled
- Interpretation of results:

<250 cfu/m^3 (less than 250 identified colonies per cubic meter of air sampled)	low/normal mold growth
250-1,000 cfu/m^3	moderate mold growth
>1,000 cfu/m^3 (greater than 1,000 identified colonies per cubic meter of air sampled)	active mold growth
>5,000 cfu/m^3	very active growth

Rankings should not be used to define "safe or unsafe" concentrations.

Assessment should be based on relative comparison of indoor and outdoor types and concentrations.

Spore Trap (Air) Sampling*

- does not identify fungal species
- unit of measurement: total number of viable (living) and non-viable fungal structures (s/m^3) or colonies (c/m^3) per cubic meter of air sampled
- no guidelines or consensus on interpreting numerical results
- indoor types and concentrations should reflect outdoor types and concentrations.

Micro-Vac Sampling*

- unit of measurement: spores/gram (g) **OR** cfu/gram (g)
- Interpretation of results:

<100,000 spores/gram	low/normal growth	<50,000 cfu/gram
100,000 - 1,000,000 s/g	moderate growth	50,000 - 500,000 cfu/g
1,000,000 - 10,000,000 s/g	moderate to heavy growth / active growth	500,000 - 1,000,000 cfu/gram
>10,000,000 s/g	very active growth	>1,000,000 cfu/g

Surface Wipe Sampling*

- unit of measurement: colony forming units (cfu) per gram (g)
- Interpretation of results:

5,000 -10,000 cfu/g	elevated level of contamination
>10,000 cfu/g	significantly elevated level of contamination

Surface Swab Sampling*

- unit of measurement: colony forming units (cfu) per square inch ($cfu/inch^2$) **OR** per square centimeter (cfu/cm^2)
- Interpretation of results:

<10,000 $cfu/inch^2$	background level	<1,500 cfu/cm^2
>10,000 $cfu/inch^2$	probable contamination	>1,500 cfu/cm^2

Tape Lift Sampling*

- unit of measurement: percentage (%)
- Interpretation of results:

1 - 5%	no significant fungal material
5 - 25%	possible contamination
25 - 100%	probable contamination

In the Absence of Standards, How Do We Interpret Mold Sampling Results?

1. **Comparison by amount** - outdoor vs. indoor, problem areas vs. non-problem areas
2. **Comparison by type** - outdoor vs. indoor, problem areas vs. non-problem areas
3. **Comparison by rank order** - dominant outdoor microbials vs. dominant indoor microbials
4. **Presence of atypical fungi** - The elevated presence of certain pathenogenic (disease-causing) or toxin-producing (poisonous) micro-organisms is considered unacceptable. Examples include:

stachybotrys chartarum	fusarium moniliforme
aspergillus fumigatus	aspergillus versicolor
various penicillium species	

*Disclaimer: Tables are adapted from benchmarks used by environmental consultants in the NYC metropolitan area and are presented here for general guidance only. At the current time there is neither a regulatory standard nor a scientific consensus for assessing mold measurements. Consult an industrial hygienist or environmental vendor for site-specific guidance.