

Construction Solutions Seattle Mould Investigative and Assessment Methods

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DIAGNOSTIC TECHNIQUES FOR MOULD INVESTIGATIONS

Diagnostic Techniques



- Visual Inspections
- Bulk Sampling
- Surface Sampling
- Air Sampling

Diagnostic Techniques

Visual Inspections:

- **Primary** tool for assessing mould in buildings
- Should be first step in any mould investigation
- Cut inspection holes in wall for thorough inspection
- Use boroscope, use moisture meter, pull back baseboards, inspect ceiling spaces, etc.

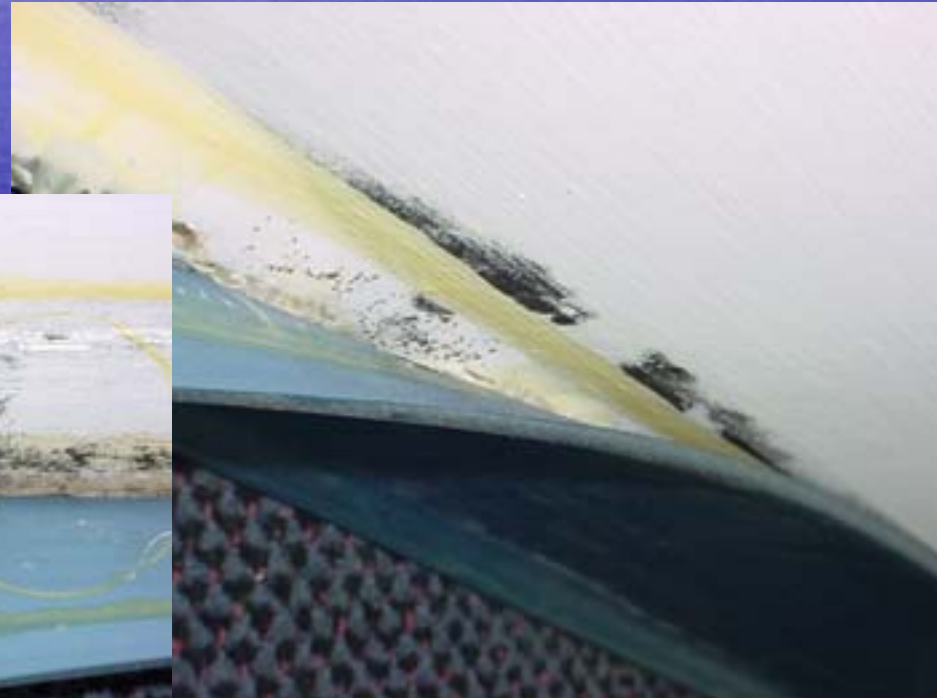
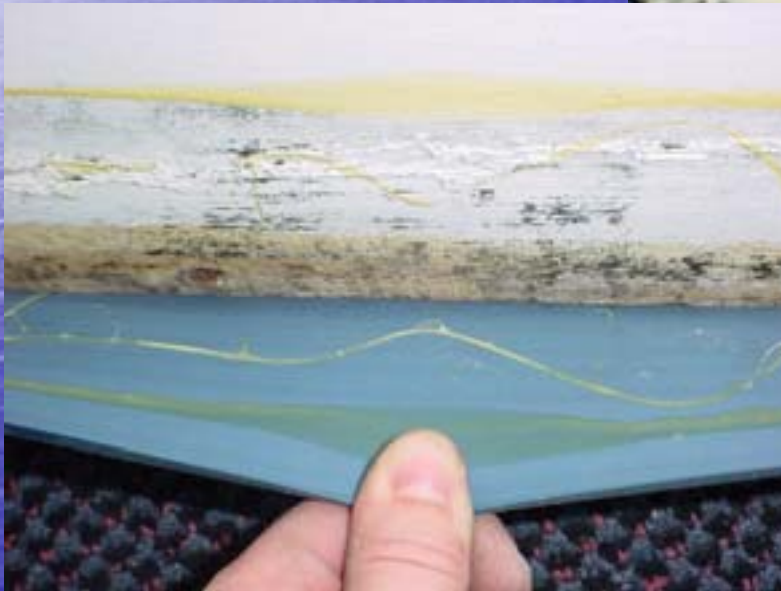


What to look for?



Visual Inspections

What to look for:



Visual Inspections

What to look for:



Diagnostic Techniques

Bulk Sampling:

- Used to determine contamination of materials such as wallboard, insulation, carpet, and wood
- Samples sent to qualified laboratory
- Results are Qualitative rather than Quantitative
- Not always required

Diagnostic Techniques

Surface Sampling:



- **Tape lifts, swab samples**
- **Useful for determination of surface contamination of building components, finishing materials and furniture**
- **Sometimes used for forensic investigation**
- **Results are generally Qualitative rather than Quantitative**

Diagnostic Techniques

Air Sampling:

- If mould is visible, air sampling not generally necessary
- This method involves collection of air samples in the occupied space of a room or in the building envelope, to evaluate type and extent of biological contamination
- Should collect before intrusive inspection
- Must sample outdoors

Diagnostic Techniques

Air Sampling:

- Viable versus spore trap?
 - Some prefer viable
 - Some prefer spore trap
- Indoor results generally compared to outdoors
 - Total mould spores
 - Taxa of mould present

Air Sampling – Total Spores

Advantages:

- Quick analysis of key indicators (Aspergillus, Penicillium, Stachybotrys)
- Quick indicator of elevated concentrations.
- Will detect 'dead' spores and mould fragments.
- No cultures required.



Air Sampling – Total Spores

Disadvantages:

- Identification to genus only.
- Cannot distinguish between *Penicillium* and *Aspergillus*.

Air Sampling – Viable Spores

Advantages:

- Identification of collected isolates to species.
- Considered by some to be industry “gold standard” for sampling of airborne mould.



Air Sampling – Viable Spores

Disadvantages:

- Longer analytical turnaround time than spore trap
- Does not detect sterile or 'dead' spores.

Case Study

Very large building – built in early 80's

- Teamed with building envelope consultant
- Building had known envelope issues
- Air sampling in representative # of rooms (19)
- Conducted intrusive inspections – cut holes, used boroscope, etc. – after air samples collected.

Case Study

- Only 1 of 19 rooms visually observed to harbour moderate to heavy mould growth on interior drywall (behind baseboard).
- This 1 room was only indoor air sample with 'elevated' levels compared to outdoors.
- Three other rooms found to support mould growth of back side of exterior drywall sheathing but air samples determined to be acceptable.

In Conclusion

- Visual inspections most useful for mould assessment
- Air sampling is a tool but should not be relied upon solely to investigate mould

Thank you!

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