

1 **BSR/IICRC S530**  
2 **Standard for Indoor Environmental**  
3 **Assessment of Suspected Mold**  
4 **Contaminated Structures**

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## Important Definitions

Throughout this document, the terms "*shall*," "*should*," and "recommend" are used to compare and contrast the different levels of importance attached to certain practices and procedures. It is impractical to prescribe procedures that apply to every mold assessment situation. In certain circumstances, deviation from portions of this Standard may be appropriate. Carelessness is unacceptable and common sense, and professional judgment are to be exercised in all cases.

***Shall*:** when the term *shall* is used in this document, it means that the practice or procedure is mandatory due to natural law or regulatory requirement, including occupational, public health, and other relevant laws, rules, or regulations, and is therefore a component of the accepted "standard of care" to be followed. **To further indicate when this term is used in this document, that it carries this specific definition, it has been italicized.**

***Should*:** when the term *should* is used in this document, it means that the practice or procedure is a component of the accepted "standard of care" to be followed, while not mandatory by regulatory requirements. **To further indicate when this term is used in this document, that it carries this specific definition, it has been italicized.**

**recommend(ed):** when the term *recommend(ed)* is used in this document, it means that the practice or procedure is advised or suggested but is not a component of the accepted "standard of care" to be followed. In addition, the terms "may" and "can" are also available to describe referenced practices or procedures, and are defined as follows:

**may:** when the term *may* is used in this document, it signifies permission expressed by the document, and means that a referenced practice or procedure is permissible within the limits of this document, but is not a component of the accepted "standard of care" to be followed.

**can:** when the term *can* is used in this document, it signifies an ability or possibility open to a user of the document, and it means that a referenced practice or procedure is possible or capable of application, but is not a component of the accepted "standard of care" to be followed.

For the practical purposes of this document, it was deemed appropriate to highlight and distinguish the critical remediation methods and procedures from the less critical, by characterizing the former as the perceived and recommended "standard of care." The BSR/IICRC S530 consensus body interprets the "standard of care" to be: practices that are common to reasonably prudent members of the trade who are recognized in the industry as qualified and competent. Notwithstanding the foregoing, this Standard is not intended to be either exhaustive or inclusive of all pertinent requirements, methods or procedures that might be appropriate on a particular mold assessment project. Ultimately, it is the responsibility of the mold assessor to verify on a case-by-case basis that the application of this Standard is appropriate.

## **A Scope, Purpose, and Application**

### **A1 Scope**

This Standard establishes a proper methodology and procedure for the assessment of a structure that is known or suspected to have visible mold growth (Condition 3). This Standard represents the standard of care for all mold assessment activities, including the site assessment, the assessment report, the remediation protocol, and the Post Remediation Verification (PRV).

This Standard does not prescribe procedures for every situation. In certain circumstances, deviation from portions of this standard may be appropriate. However, the mold assessor *should* provide the client with the justification for the deviation and all deviations *should* be documented in the assessment report. The mold assessor *should* use professional judgment, transparency, and scientific methods during the mold assessment.

### **A2 Purpose**

The purpose of this Standard is to describe the criteria and information needed to perform a mold assessment in a suspected mold contaminated structure. This Standard emphasizes the need to perform a thorough inspection to determine the origin and extent of the visible mold growth (i.e., Condition 3) instead of reliance solely on mold sampling, analysis, or analytical data reports.

The information collected during the mold assessment *should* be used to identify an appropriate solution to eliminate the moisture source that caused the visible mold growth (i.e., Condition 3) and *should* be used to establish site specific mold remediation procedures. Refer to the latest edition of *ANSI/IICRC S520 Standard for Professional Mold Remediation* for more information.

### **A3 Application**

This Standard is for mold assessors who provide mold assessments, prepare mold remediation protocols, provide quality control of the remediation process, and PRV. The Standard is also intended for other stakeholders who need to understand the assessment process which includes, but is not limited to:

- restoration companies and workers;
- indoor environmental professionals (IEPs);
- consumers and occupants;
- property owners and managers;
- insurance company representatives;
- government and regulatory bodies;
- industrial hygienists; and
- building engineers.

This standard recognizes that preventing excess water and moisture in a building is a determining factor in avoiding mold growth. The latest editions of the *ANSI/IICRC S500 Standard for Professional Water Damage Restoration* and *ANSI/IICRC S520 Standard for Professional Mold Remediation* *should* be used in conjunction with this standard.

## B Definitions

**Actual mold growth:** molds that have colonized a substrate, formed fungal mycelia, growth structures, and spores; are active or dormant, visible, or hidden.

**Body of knowledge:** comprehensive set of principles, practice, concepts, skills, and knowledge used by competent professionals in the mold assessment industry.

**Complaint area:** is a structure or area within the structure where one or more persons have expressed concern due to the observed or believed presence of mold growth.

**Condensation:** the change of water vapor into the liquid phase when water vapor contacts a surface that is below the dew point temperature of the water vapor.

**Condition 1:** (normal fungal ecology): an indoor environment that may have settled or airborne mold spores or fragments, or traces of actual mold growth and mold biomass that are reflective of a visibly clean, no malodor, and a dry indoor environment.

**Condition 2:** an indoor environment including surfaces and air, which is contaminated with residual mold biomass from a known Condition 3 source in that same indoor environment. The mold assessor may assume the presence of Condition 2 with full disclosure to the client and reference to the Limitations, Complexities, Complications, and Conflicts (LCCC) section. Rationale for assumption may include the knowledge, skill, training and experience of the mold assessor, precautionary principle, or technical justifications.

**Condition 3:** (actual mold growth): an indoor environment contaminated with the presence of mold growth that is active, dormant, dead, non-viable, visible, or hidden.

**Contamination/contaminant (noun):** a substance that negatively alters, changes, or damages the aesthetics and/or utility of the structure or contents, and/or negatively impacts (or could impact) the health of occupants. See also, Health Issues.

For the purposes of this Standard, contamination is mold biomass which may be found on, in, or separate from other materials.

For the purposes of this Standard, construction debris (e.g., drywall dust, pieces of cut wood framing, etc.) created by remediation activities can be considered contamination if the debris is also considered to contain or be mixed with mold biomass (i.e., Condition 2 or 3). See also cross-contamination.

**Cross-contamination/cross-contaminate (noun/verb):** the spread of contamination/contaminant, such as in the form of visible dirt, dust, or debris from an area with known Condition 3 (mold growth) to an uncontaminated area. Cross-contamination with mold can be the result of one or more of the following:

- restoration activity (e.g., use of air movers);
- accident or negligence such as breach of containment or critical barrier;
- improper engineering controls (e.g., insufficient containment, lack of decontamination procedures, positive pressurization);
- insufficient removal of debris (e.g., poor internal quality controls); and
- disturbance by building maintenance, owner, or occupant activities (e.g., disregard for containment and work area barriers; simultaneous non-remediation work).

**Data:** information such as measurements and observations that are used for analysis, opinions and decision making.

**Dew point temperature:** the temperature at which air must be cooled at constant pressure in order for it to become saturated (i.e., relative humidity is 100%) and for the water vapor in the air to condense.

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2 **Differential pressure:** for the purposes of this standard, differential pressure refers to the difference in air  
3 pressure between two adjoining areas in the interior or exterior of a building.  
4

5 **Evidence-based conclusion:** a conclusion that is substantiated by background information, observational  
6 data, measurable data, or other information collected by the mold assessor during the mold assessment.  
7

8 **Floor plan:** is a visual representation detailing specific information or data obtained during the assessment  
9 including the location of visible mold growth (i.e., Condition 3), the origin of moisture and sampling locations  
10 if applicable.  
11

12 **Fungus/fungi:** microorganisms that usually develop a diffuse, branched, tubular body (that is, a network  
13 of hyphae) and usually reproduce by means of spores. The terms 'mold' and 'mildew' are frequently used  
14 when referring to fungal colonization. For the purposes of this standard, fungi and mold are interchangeable  
15 terms.  
16

17 **Hazard:** an activity, circumstance or condition that has the potential to cause harm and adverse  
18 consequences.  
19

20 **Hazard awareness:** the ability to anticipate and identify potential hazards and unsafe conditions and  
21 respond proactively.  
22

23 **Health issues:** for the purpose of this standard, health issues are a reported concern or complaint  
24 associated with exposure to mold.  
25

26 **Humidity:** content of water in air.  
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28 **Hypothesis:** supposition or proposed explanation made on the basis of limited evidence as the starting  
29 point for further investigation.  
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31 **Inspection:** for the purpose of this Standard, the inspection refers to the process where direct observations,  
32 direct measurements and other relevant information is being collected during the mold assessment.  
33

34 **Inspection area:** the location or locations within a structure where the mold assessment is being  
35 performed.  
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37 **Jobsite:** for the purpose of this Standard, the jobsite refers to the property where the mold assessment is  
38 being performed.  
39

40 **Materially Interested Parties (MIPs):** a stakeholder associated with the planning, execution, or funding of  
41 the mold assessment.  
42

43 **Measurable data:** data collected using devices and scientific instruments.  
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45 **Microbial Volatile Organic Compounds (MVOCs):** are created by mold growth and bacteria during their  
46 metabolic processes and can provide evidence of an adverse moisture or mold condition within the  
47 structure.  
48

49 **Moisture:** with regard to conditions favorable to mold growth, moisture is described in several ways,  
50 including humidity, water activity, and moisture content.  
51

52 **Moisture Content:** the measurement of the amount of water contained in a material, expressed as a  
53 percentage of the weight of the oven-dry material. In regard to measurements, it is only recommended that  
54 the term "moisture content" be used when such measurements are taken using instruments calibrated for  
55 the given material and material temperature.  
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1 **Mold assessment:** a process performed by an mold assessor that includes the collection and evaluation  
2 of data to determine the location, source, and extent of visible mold growth (i.e., Condition 3).  
3

4 **Mold assessor:** an individual who is qualified by education, training, certification, experience, knowledge,  
5 and the skills to perform a mold assessment in a structure; create a site-specific mold remediation protocol  
6 and conduct a post-remediation verification (PRV). A mold assessor is considered an indoor environmental  
7 professional (IEP) as described in the ANSI/IICRC S520 Standard for Professional Mold Remediation.  
8

9 **Mold biomass:** mold biomass represents the total amount of fungal material present in a specific area or  
10 collected in a sample. Biomass can include both living and dead fungal material (i.e., spores, hyphae,  
11 fragments) and contain compounds such as enzymes, polysaccharides, proteins, and mycotoxins.  
12

13 **Mold sampling:** refers to collection of samples from air, surface or bulk material in accordance with a  
14 sampling plan and to be used for analysis to identify or quantify mold.  
15

16 **Mold:** refer to the definition of fungus  
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18 **Observational data:** data collected using the senses.  
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20 **Olfactory sense:** the sense through which odors are recognized.  
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22 **Personal Protective Equipment (PPE):** safety items designed to reduce exposure to potential hazards  
23 (e.g., respirators, gloves, goggles, protective clothing and boots).  
24

25 **Post Remediation Verification (PRV):** an assessment performed by an mold assessor after a remediation  
26 project which is based upon criteria established by the mold assessor and agreed upon by the materially  
27 interested parties prior to beginning mold remediation to verify that the structure, system, or content have  
28 been returned to Condition 1.  
29

30 **Psychrometry:** for the purposes of this standard, psychrometry refers to the physical and thermal  
31 properties of moist air.  
32

33 **Relative humidity (RH):** the amount of moisture contained in a sample of air as compared to the maximum  
34 amount the sample could contain at that temperature. This definition is accurate in concept; but strictly  
35 speaking, relative humidity is the ratio of the partial pressure of water vapor in a sample of air to the water  
36 vapor pressure at saturation of that air, at a given temperature and barometric pressure.  
37

38 **Remediation:** the process of removing visible mold growth (i.e., Condition 3) and associated debris  
39 consistent with the *ANSI/IICRC S520 Standard for Professional Mold Remediation*.  
40

41 **Remediation protocol:** identifies the site-specific areas affected by visible mold growth (i.e., Condition 3),  
42 with the use of a floor plan and the procedures to be followed by the remediator to achieve a successful  
43 mold remediation.  
44

45 **Sampling plan:** a section in the assessment report that states the assessor's hypothesis that justifies the  
46 need for sampling, collection methods, instruments, locations, number of samples, and method of analysis.  
47

48 **Scientific method:** refers to the process of systematic observation, measurement and experimentation to  
49 formulate, test, and modify a hypothesis. The scientific method is not rigid; it can be adapted based on the  
50 specific requirements of different scientific fields and the nature of the inquiry.  
51

52 **Site assessment:** the part of the mold assessment that takes place at the jobsite.  
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54 **Site specific:** information, data, opinions and recommendations specific to a jobsite.  
55

1 **Stakeholder:** someone that has an interest in the mold assessment and can either effect or be affected by  
2 the outcome.

3  
4 **Visible mold growth (Condition 3):** mold growth that can be identified with the naked eye, without the use  
5 of microscopy or sampling.

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7 **Water:** for the purpose of this Standard, will be defined as water in the liquid state (e.g., flood, rain, plumbing  
8 leak).

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10 **Water Vapor:** water in the gaseous state that is readily condensable.

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# 1 Principles of Mold Assessment

## 1.1 Introduction

A principle is defined as a basic comprehension or fundamental doctrine or assumption that is accepted as true and that can be used as a basis for reasoning, process, or conduct. There are six general principles that form the basis of a mold assessment. Applying these principles may require a multi-disciplinary approach involving professionals from several fields of expertise. Timely response to the water intrusion *should* be undertaken for any of these principles to be applied effectively.

## 1.2 Principles

For the purpose of this Standard, the mold assessment *should* follow the following principles:

1. Ensure the safety of the mold assessor;
2. Identify the extent of visible mold growth (i.e., Condition 3);
3. Identify the moisture source that caused the visible mold growth (i.e., Condition 3);
4. Document observations, findings, and report;
5. Develop remediation protocol; and
6. Establish and justify Post Remediation Verification (PRV) criteria.

### 1.2.1 Safety and Health of Mold Assessor

Appropriate safety procedures and Personal Protective Equipment (PPE) *shall* be used to protect the mold assessor. A reasonable effort *should* be made to inform the client of any identified health and safety issues.

### 1.2.2 Identify Extent of Visible Mold Growth

The mold assessor *should* identify and document the extent of visible mold growth (i.e., Condition 3). The mold assessor *should* describe the area of visible mold growth (i.e., Condition 3), document the affected materials and contents, and create a floor plan of the inspection area.

### 1.2.3 Moisture Source and Area Affected

The mold assessor *should* determine the source of the moisture that is causing the visible mold growth. If the moisture source cannot be determined, the mold assessor *should* document and explain the reason they cannot identify the moisture source in the report. Refer to *Section 5 Limitations, Complexities, Complications and Conflicts* and *Section 8 Identification of Moisture Sources* for additional information.

### 1.2.4 Documentation and Reporting

The mold assessor *should* document the observations, data, and findings from the assessment. The mold assessor *should* prepare a report that is clear, concise, objective, and provides evidence-based conclusions.

### 1.2.5 Remediation Protocol

If the mold assessment identifies areas of visible mold growth (i.e., Condition 3) that require professional mold remediation, and if requested by the client, the mold assessor *should* develop a site-specific remediation protocol based on the findings of the mold assessment and the latest edition of the *ANSI/IICRC S520 Standard for Professional Mold Remediation*. The remediation protocol *should* include a floor plan that illustrates the areas affected by mold and moisture as well as areas to be contained and materials to be cleaned or removed.

### 1.2.6 Post Remediation Verification (PRV)



1 The mold assessor *should* establish the criteria for a successful PRV to verify the return of the structure,  
2 systems, or contents to Condition 1. The criteria *should* be agreed upon by all Materially Interested Parties  
3 (MIPs) and included in the written report.  
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## 2 Mold Assessor

The mold assessor is an individual who *should* be qualified by a relevant combination of knowledge, skill, education, training, certification, and experience to perform a mold assessment, design and conduct a mold sampling plan, evaluate and interpret analytical data, create a site-specific mold remediation protocol, and conduct Post Remediation Verification (PRV).

### 2.1 Education, Training, and Certification

The mold assessor *should* have a minimum of a high school diploma (or equivalent). It is recommended the mold assessor have an undergraduate degree in a relevant science (e.g., the natural sciences, occupational/environmental health, industrial hygiene, engineering).

The mold assessor *should* have relevant training and certification for performing a mold assessment by a nationally or internationally recognized accreditation body.

The mold assessor *should* be able to provide documentation of annual continuing education that demonstrates an ongoing pursuit of technical competency necessary to perform a mold assessment.

### 2.2 Body of Knowledge

The mold assessor *shall* be knowledgeable of all applicable governmental regulations.

A mold assessor *should* demonstrate an understanding of how to properly use and implement the scientific method and hypothesis testing when conducting a mold assessment.

The mold assessor *should* have an understanding of the following subjects including, but not limited to:

- building science;
- construction;
- building materials;
- plumbing;
- heating, ventilation, and air conditioning (HVAC) systems;
- psychrometrics;
- measurable data interpretation;
- microbiology;
- sampling plan design and limitations;
- sampling data interpretation; and
- mold remediation.

The mold assessor *should* be knowledgeable of the latest versions of current published industry standards and guidelines, including the latest editions of *ANSI/IICRC S500 Standard for Professional Water Damage Restoration*, the *ANSI/IICRC S520 Standard for Professional Mold Remediation*, and the *ASTM D7338-14 Standard Guide for Assessment of Fungal Growth in Buildings*.

### 2.3 Experience

The mold assessor *should* have documented job experience performing, but not limited to:

- assessing mold;
- assessing moisture;
- designing and conducting a sampling plan;
- analyzing and interpreting sampling data;
- preparing site-specific remediation protocols; and
- performing Post Remediation Verifications (PRV).

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## 2.4 Skills

The mold assessor *should* have the skills to do the following, including, but not limited to:

- identify the presence of visible mold growth (i.e., Condition 3);
- identify the moisture source;
- define the area affected by moisture and visible mold growth (i.e., Condition 3);
- collect and interpret moisture measurements;
- collect and interpret psychrometric measurements;
- design and conduct a mold sampling plan;
- evaluate and interpret sampling data; and
- provide a written report with site specific observations, findings, and recommendations.

### 3 Jobsite Hazard Anticipation, Recognition, and Management

The mold assessor may encounter hazards during the site assessment that could cause injury to themselves or to others. The mold assessor *should* incorporate hazard anticipation, recognition, and management into their site assessment to prevent exposure to and injury from potential hazards. The mold assessor *should* ensure that hazards are not created or introduced during the mold assessment.

Hazard awareness *should* be a continuous process that starts during the planning of the mold assessment, upon arrival at the jobsite, and continues throughout the site assessment.

#### 3.1 Hazard Anticipation

Hazard anticipation includes knowledge regarding the evaluation of different types of buildings, the processes and activities occurring within, the types of building materials that may be present, and any potential hazards associated with each. Determination of potential hazards *should* be accomplished through the following activities which include, but are not limited to:

- hazard awareness training;
- review of site plans; and
- interviews with Materially Interested Parties (MIPs).

Hazard awareness training *should* include, but is not necessarily limited to:

- physical, chemical, microbial hazards;
- building-related regulated materials substance (e.g., asbestos, lead) awareness;
- engineering controls; and
- selection and use of PPE.

#### 3.2 Hazard Recognition

The mold assessor *should* perform a walk-through inspection of the building or the area of mold assessment to collect information and identify any potential hazards. Information gathered during the walk-through inspection may include:

- condition of the building (e.g., collapsed flooring, damage structural elements);
- presence of confined and or restricted spaces;
- thermal stressors;
- malodors;
- faulty or damaged electrical;
- presence of animals;
- cleanliness;
- visible mold growth (Condition 3);
- processes and activities being performed; and
- reported health issues.

#### 3.3 Hazard Management

Once a potential hazard has been identified, the mold assessor *should* take the following steps in order to avoid injury:

- eliminate the potential hazard, if possible;
- avoid the potential hazard; and
- use PPE to protect against potential hazards.

1 If a potential hazard cannot be avoided in the area of the assessment, the mold assessor *should* develop  
2 a hazard control plan that reduces any potential exposure and provides a route of escape, if necessary.  
3

4 The mold assessor *should* exercise hazard prevention, to ensure hazards are not introduced into the  
5 assessment area as a result of the mold assessment process.  
6

### 7 **3.4 Safety and Health**

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9 This Standard has not been written to address work related safety and health practices associated with  
10 performing a mold assessment. The mold assessor *shall* understand and comply to all applicable safety  
11 and health regulations related to the country or locale in which they work (e.g., US OSHA, CAN OH&S,  
12 CNESST, EU OSHA, SafeWork Australia, UK Health and Safety Executive).  
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1 **4 Project Documentation and Recordkeeping**

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3 The mold assessor *shall* maintain documents required by applicable laws, rules and regulations  
4 promulgated by federal, state, provincial and local government authorities. In the absence of federal, state,  
5 provincial or local government laws, rules or regulations, the mold assessor *should* establish and maintain  
6 a document retention program. In the absence of regulation, it is recommended to keep all records for a  
7 minimum of five years.  
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1 **5 Property Background and History**

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3 During the initial contact with Materially Interested Parties (MIPs), the mold assessor *should* obtain  
4 information about the building and the purpose of the mold assessment.

5  
6 The mold assessor *should* gather and review relevant background information prior to arriving at the site.  
7 This information may include, but is not limited to:

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  - 10 ▪ occupancy and building usage;
  - 11 ▪ occupants complaints;
  - 12 ▪ building history;
  - 13 ▪ water damage history;
  - 14 ▪ restorative drying reports;
  - 15 ▪ mold assessment reports;
  - 16 ▪ mold remediation protocol;
  - 17 ▪ contractor reports;
  - 18 ▪ engineering reports;
  - 19 ▪ building plans; and
  - 20 ▪ site limitations (Refer to *Section 12: Limitations, Complexities, Complications, and Conflicts* for more  
21 information).

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1 **6 Site Assessment**

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3 **6.1 Introduction**

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5 This Section provides a mold assessor with the steps necessary to assess a structure for visible mold  
6 growth (i.e., Condition 3), the source of mold growth, the extent of mold growth, and to gather information  
7 necessary to provide appropriate remediation recommendations.

8  
9 The site assessment *should* include, but is not limited to the following:

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  - 12 ▪ interview(s);
  - 13 ▪ initial walk-through.
  - 14 ▪ create or obtain a floor plan.
  - 15 ▪ photo documentation of visual observations;
  - 16 ▪ source and extent of the moisture supporting visible mold growth (i.e., Condition 3);
  - 17 ▪ extent of the visible mold growth (i.e., Condition 3); and
  - 18 ▪ site data collection.

19 Each assessment may differ depending on the unique circumstances each structure and those inhabiting  
20 the structure can create.

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22 **6.2 Interviews**

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24 The mold assessor *should* identify and interview individual(s) with knowledge and information on the  
25 following that may aid the assessment, including, but not limited to:

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  - 28 ▪ building construction, materials, and function;
  - 29 ▪ history of water damage and repairs in the structure;
  - 30 ▪ reports and complaints of visible mold growth (i.e., Condition 3);
  - 31 ▪ reports and complaints of malodors; and
  - 32 ▪ reports of any health issues.

33 **6.3 Initial Walk-Through**

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35 The mold assessor *should* conduct an initial walk-through to familiarize themselves with the following:

- 36  
37
  - 38 ▪ layout, design, and occupancy of building;
  - 39 ▪ types of building materials;
  - 40 ▪ complaint area(s);
  - 41 ▪ evidence of past or present water damage;
  - 42 ▪ moisture source(s); and
  - 43 ▪ visible mold growth (i.e., Condition 3).

44 **6.4 Inspection Area**

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46 The mold assessor *should* establish an inspection area that includes, but is not limited to:

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  - 49 ▪ complaint areas;
  - 50 ▪ areas adjacent to complaint;
  - 51 ▪ non-complaint areas;
  - 52 ▪ moisture source(s);
  - 53 ▪ visible water damage;
  - 54 ▪ visible mold growth (i.e., Condition 3); and
  - 55 ▪ malodors.



1 The mold assessor *should* have knowledge of building systems that include, but are not limited to:

- 2
- 3     ▪ building envelope;
- 4     ▪ plumbing;
- 5     ▪ HVAC and other mechanical systems; and
- 6     ▪ interior non-occupied spaces such as:
  - 7         ○ crawl spaces;
  - 8         ○ attics;
  - 9         ○ ceiling plenums;
  - 10        ○ chases; and
  - 11        ○ elevator shafts and pits.
- 12

## 13 **6.5 Floor Plan**

14

15 The mold assessor *should* create a floor plan of the inspection area. The floor plan *should* provide sufficient  
16 detail so that visible mold growth (i.e., Condition 3) and the origin of moisture can be located and identified  
17 on the floor plan.

18

19 The floor plan *should* be clearly labeled and indicate at least one compass point. The floor plan *should*  
20 identify each area of interest in the assessment (e.g., moisture mapping, intrusive investigations, sampling).

21

22 The floor plan *should* be included in the assessment report. Refer to *Section 9 Assessment Report*, for  
23 more information.

## 24 **6.6 Visual Assessment**

25

26

27 A key step in conducting a site assessment is collecting observational data. The approach *should* be  
28 systematic, informed, and based upon testing a hypothesis or set of hypotheses.

29

30 The mold assessor *should* locate, identify, quantify, and document common conditions associated with  
31 mold contaminated or water-damaged building materials, and contents. The mold assessor *should* describe  
32 the types of building materials affected by visible mold growth (i.e., Condition 3) or water damage (e.g.,  
33 drywall, plaster, concrete block, wood frame, metal frame).

34

35 Common indicators of water damage can include, but are not limited to:

- 36
- 37     ▪ water stains;
- 38     ▪ efflorescence;
- 39     ▪ discolorations;
- 40     ▪ wood decay;
- 41     ▪ swelling of wooden building materials;
- 42     ▪ corrosion of metal building materials; and
- 43     ▪ degradation or sagging of wallboard.
- 44

45 The source of moisture, the extent of visible mold growth (i.e., Condition 3), and related water damage  
46 *should* be documented with clear and representative photographs so the location of the visible mold growth  
47 (i.e., Condition 3) and related water damage can easily be identified.

48

49 Mold assessors should determine the extent of visible mold growth (i.e., Condition 3) present in an HVAC  
50 system. Cleanliness criteria are set forth in NADCA ACR. Refer to the latest edition of the *ANSI/IICRC S590*  
51 *Standard for Assessing HVAC Systems Following a Water, Fire, or Mold Damage Event*, for more  
52 information.

## 53 **6.7 Olfactory Senses**

1 Olfactory senses can identify musty or damp-like odors that are commonly associated with Microbial Volatile  
2 Organic Compounds (MVOCs). The location of odors *should* be documented.

### 3 4 **6.8 Equipment, Instruments, and Tools**

5  
6 The mold assessor *should* understand how the equipment, instruments, and tools are used and calibrated  
7 to collect measurable data and the limitations of the instrument. The mold assessor *shall* comply with all  
8 applicable governmental regulations, manufacturer's recommendations, industry standards, and safety  
9 requirements.

### 10 11 **6.9 Measurable Data Collection**

12  
13 The mold assessor *should* collect, document, and analyze measurable data in support of the mold  
14 assessor's hypothesis. The following data collection practices are recommended during a mold  
15 assessment; this is not considered to be an exhaustive list of the various methods available.

#### 16 17 **6.9.1 Psychrometry**

18  
19 The mold assessor *should* be familiar with the various psychrometric properties, how each is measured,  
20 and what information each property will provide to the mold assessor's assessment. A wide range of  
21 psychrometric properties exist that may be useful to the mold assessor and can include, but are not limited  
22 to:

- 23
- 24     ▪ dry-bulb temperature;
- 25     ▪ wet-bulb temperature;
- 26     ▪ dew point temperature;
- 27     ▪ relative humidity; and
- 28     ▪ surface temperatures.

29  
30 Measurements can be collected in numerous locations, including occupied spaces, unoccupied spaces,  
31 and outdoors.

32  
33 The operation and condition of the HVAC system (i.e., thermostat set point, fan setting, filtration, return  
34 plenums, outside air intakes, and other mechanical systems) *should* be considered while collecting data.

#### 35 36 **6.9.2 Infrared Thermography (IRT)**

37  
38 Infrared Thermography (IRT) is a non-destructive tool for conducting a quick scan for thermal anomalies  
39 that could indicate the presence of elevated moisture content that *should* be confirmed with a moisture  
40 meter.

#### 41 42 **6.9.3 Moisture Measurements**

43  
44 Moisture measurements are routinely collected in building materials with hand-held moisture meters. The  
45 mold assessor *should* understand how to operate the moisture meter and its limitations, including, but not  
46 limited to:

- 47
- 48     ▪ the accuracy of the meter(s) being used;
- 49     ▪ depth at which the meter will measure;
- 50     ▪ interference associated with building materials such as metals; and
- 51     ▪ the different types of building materials being measured.

52  
53 The mold assessor *should* establish a "dry standard" by measuring the same or a similar type of building  
54 materials in an area known to be dry. Several moisture measurements *should* be taken in support of the  
55 hypothesis or characterize a specific condition such as, if the affected area is wet or dry.

1  
2 **6.9.4 Differential Pressure/Airflow**  
3

4 Differential pressure is measured with a manometer and airflow is measured with an anemometer. Both  
5 can be observed with smoke. These measurements can be used for the following, but are not limited to:  
6

- 7
  - 8▪ identify areas of air infiltration and exfiltration;
  - 9▪ identify sources of water vapor;
  - 10▪ locate condensing surfaces; and
  - 11▪ help to establish areas of potential cross contamination.

12 **6.10 Sampling**  
13

14 The observational and measurable data *should* be collected before a sampling plan is considered. If  
15 samples are collected, a site-specific sampling strategy *should* be based upon the data collected during the  
16 site assessment.

17 Refer to *Section 8 Sampling*, for more information.

18 **6.11 Hidden Mold Growth**  
19

20 Visible mold growth (i.e., Condition 3) can be hidden from direct view, such as in wall cavities, behind  
21 baseboards, under carpet, behind insulation, in HVAC ducting. Where hidden mold growth is suspected,  
22 building materials may be removed to visually inspect for visible mold growth (i.e., Condition 3). Prior to  
23 the removal of any building materials, the mold assessor *should* obtain permission from the MIPs. During  
24 building material removal, cross contamination and appropriate engineering controls *should* be considered.  
25 Safety precautions *should* be taken in accordance with *Section 3 Jobsite Hazard, Anticipation, Recognition*  
26 *and Management*.  
27  
28  
29

30 **6.12 Content Evaluation**  
31

32 A visual assessment provides the most effective means for documenting the condition of contents and can  
33 help to determine if contents are salvageable or need to be discarded. It is recommended that contents be  
34 evaluated in accordance with the latest edition of the *ANSI/IICRC S520 Standard for Professional Mold*  
35 *Remediation*. Documentation *should* include photographs of the contents being evaluated. Approval to  
36 discard contents *should* be provided in writing from the owner of the contents.  
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## 7 Identification of Moisture Sources

The mold assessor *should* determine the source of moisture that resulted in visible mold growth (i.e., Condition 3). This determination *should* be evidence based and substantiated by background information, observational data, and measurable data collected before or during the site visit. Based upon these findings, the mold assessor can provide appropriate recommendations for site-specific mold remediation as well as guidance for the necessary trades to perform corrective measures, as needed. If there is a deviation from the Standard and the determination of the moisture source is outside the assessment scope, the mold assessor *should* justify and document the deviation in the report. Refer to *Section 12 Limitations, Complexities, Complications and Conflicts* for more information.

Determination of a moisture source can be a simple or complex process and may include multiple steps depending upon the level of detail required for the assessment. The mold assessor may need to seek expertise from other experts or disciplines that are more knowledgeable and have more experience.

## 8 Mold Sampling

Any sampling *should* be performed after observational and measurable data has been collected as part of the mold assessment and a hypothesis(es) has been created. Based upon the hypothesis(es), the mold assessor *should* develop a sampling plan that considers, but is not limited to, the following:

- suspect reservoirs and locations of mold growth;
- sampling method to be used;
- operational parameters of the sampling devices;
- type of analysis for each sample;
- location of the samples; and
- criteria for interpretation of sampling data.

A variety of sampling methods are available to the mold assessor to aid in the detection of mold biomass in the indoor environment. Traditional sampling methods can include source sampling (e.g., tape, swab, bulk, and filtration) and air sampling (e.g., spore trap, culture plate, and filtration).

The mold assessor *should* understand the limitations and variables associated with traditional sampling methods which can include, but are not limited to:

- thoroughness of different sample media to lift or retain fungal structures;
- amount of biomass on the surface;
- variability of the surfaces sampled;
- limited sample repeatability;
- efficiency of the sampling media;
- length of sampling time;
- sample volume or area;
- number of samples collected;
- indoor and outdoor conditions;
- location;
- time of the day; and
- occupant activity.

Samples are commonly analyzed by culture, direct microscopy, or Polymerase Chain Reaction (PCR) for identification of spore types. Biochemical analytical methods are also used and can include the identification of enzyme activities, luminescence, bio-fluorescence, or other surrogate markers that measure quantitative loads of fungal biomass (e.g.,  $\beta$ -glucan, ergosterol).

The mold assessor *should* understand the limitations associated with the various analytical methods used with the sampling being performed. The mold assessor *should* have knowledge, skill, and experience with the following, but not limited to:

- differences between various sampling and analytical methods;
- method limitations and biases;
- sampling device operational limitations;
- sampling device calibration;
- chain of custody; and
- data interpretation.

Mold sampling can be useful in confirming the presence of mold biomass. It *should* be noted that there are no Permissible Exposure Levels (PELs) or Threshold Limit Values (TLVs) established by a federal, state, provincial or local governmental authority for acceptable levels of airborne or settled mold biomass in the indoor environment.

Data interpretation by any entity other than the mold assessor cannot replace the visual confirmation and documentation of the extent of visible mold growth (i.e., Condition 3).

## 9 Assessment Report

The mold assessor *should* present the results of the mold assessment in a report detailing the following:

- activities performed;
- a summary of the observational and measurable data collected;
- the rationale behind the interpretation of the data collected; and
- evidenced based conclusions.

If recommendations or a mold remediation protocol are prepared as part of the report, they *should* be site specific and based upon the information gathered during the assessment. The report *should* include, but not be limited to, the following sections:

- introduction;
- methodology;
- background;
- observations;
- measurements;
- mold sampling;
- floor plan;
- discussion;
- conclusions; and
- recommendations.

### 9.1 Introduction

The assessment report introduction *should* include, but may not be limited to:

- identification of the client;
- purpose and scope of the mold assessment;
- areas evaluated as part of the mold assessment;
- date the mold assessment was performed; and
- brief description of what will be included in the report.

### 9.2 Methodology

The assessment report methodology *should* follow the scientific method and include, but may not be limited to:

- type of data collected;
- methods used to collect data;
- type of instruments used;
- purpose for collecting data; and
- location where data was collected.

### 9.3 Background

Assessment report background information *should* include but is not limited to:

- information obtained from interview(s) with MIPs;
- site limitations (Refer to *Section 13: Limitations, Complexities, Complications, and Conflicts*);
- occupancy and building usage;
- building plans; and
- building history;

1 Additional background information may include but not be limited to:

- 2
- 3     ▪ mold assessment report(s);
- 4     ▪ mold remediation protocol(s);
- 5     ▪ restorative drying report(s);
- 6     ▪ contractor report(s); and
- 7     ▪ engineering report(s).
- 8

#### 9 **9.4 Observations**

10 Observations documented in the mold assessment report *should* include, but is not limited to:

- 11
- 12
- 13     ▪ area, description, and size of the visible mold growth (i.e., Condition 3);
- 14     ▪ affected building materials;
- 15     ▪ photographs of the affected materials;
- 16     ▪ moisture source and extent; and
- 17     ▪ location and description of malodors.
- 18

#### 19 **9.5 Measurable Data**

20 Measurable data *should* be presented in an orderly format (e.g., tabulated) that describes:

- 21
- 22
- 23     ▪ type of measurement collected;
- 24     ▪ location of the measurement;
- 25     ▪ result of the measurement;
- 26     ▪ criteria for interpretation of the data; and
- 27     ▪ interpretation of the data.
- 28

#### 29 **9.6 Mold Sampling**

30 The mold sampling section *should* include, but may not be limited to:

- 31
- 32
- 33     ▪ purpose of sampling;
- 34     ▪ type of sample collected;
- 35     ▪ pump flow rate, duration, and calibration;
- 36     ▪ area of surface sampled;
- 37     ▪ sample location indicated on floor plan and photographs;
- 38     ▪ sample identification number;
- 39     ▪ name and accreditation number of the laboratory performing any analysis;
- 40     ▪ type of analysis performed;
- 41     ▪ criteria for the interpretation of the data; and
- 42     ▪ interpretation of the data.
- 43

44 The entire laboratory report *should* be included as an appendix. The chain of custody may also be attached  
45 as an appendix.

#### 46 **9.7 Floor Plan**

47 The report *should* include a floor plan illustrating the following, that includes but is not limited to:

- 48
- 49
- 50
- 51     ▪ locations of visible mold growth (i.e., Condition 3);
- 52     ▪ location of moisture source;
- 53     ▪ location moisture damage;
- 54     ▪ sampling locations; and
- 55     ▪ cardinal direction (e.g. north).

1 **9.8 Discussion**

2  
3 The discussion *should* be the mold assessor’s interpretation of the background information, observational  
4 data, measurable data and findings that support the conclusions regarding the origin and extent of visible  
5 mold growth (i.e., Condition 3) and the need for mold remediation.  
6

7 **9.9 Conclusion**

8  
9 The assessment report conclusion *should* include, but not be limited to:

- 10
- 11     ▪ origin of the visible mold growth (i.e., Condition 3);
- 12     ▪ location and extent of visible mold growth (i.e., Condition 3); and
- 13     ▪ need for mold remediation.
- 14

15 **9.10 Recommendations**

16  
17 The source of moisture supporting the visible mold growth (i.e., Condition 3) *should* be corrected prior to  
18 mold remediation. Refer to *Section 7 Identification of Moisture Sources*, for more information.  
19

20 When the need for mold remediation has been determined, the mold assessor *should* create a mold  
21 remediation protocol with site specific recommendations to restore the areas affected to Condition 1. Refer  
22 to *Section 10 Remediation Protocol*, for more information.  
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## 10 Remediation Protocol

The goal of remediation is to return the structure and contents to Condition 1. The primary means of mold remediation is physical removal. Refer to the latest editions of the *ANSI/IICRC S500 Standard for Professional Water Damage Restoration* and *ANSI/IICRC S520 Standards for Professional Mold Remediation*.

The remediation protocol is the work plan developed to address the affected building materials in the structure. The remediation protocol *should* be developed by the mold assessor that performed the mold assessment. The tasks set forth in the remediation protocol *should* be site specific and detailed.

The remediation protocol *should* include, but not be limited to, the following:

- moisture source correction;
- floor plan that identifies the areas affected, containment location, and equipment placement;
- engineering controls to prevent cross contamination;
- restoration or removal of materials and contents supporting visible mold growth (i.e., Condition 3); and
- establish the area to be cleaned.

Regulated and hazardous materials including, but not limited to asbestos, silica dust, lead, arsenic, mercury, polychlorinated biphenyls (PCBs), pesticides, fuels, solvents, radiological residues, and other chemical and biological contaminants, require specific protocols and licenses. Addressing regulated or hazardous material *shall* precede mold remediation in accordance with federal, state, provincial, and local laws and regulations.

### 10.1 Moisture Source Correction

The mold assessor *should* state that the moisture source causing the visible mold growth (i.e., Condition 3) is corrected before the mold remediation can begin.

### 10.2 Floor Plan

The floor plan *should* include, but not be limited to:

- materials to be removed;
- containment location; and
- equipment placement.

### 10.3 Engineering Controls

Engineering controls *shall* be used during mold remediation such as isolation techniques, plastic containment barriers, depressurization chambers and dust suppression including HEPA -filtered Air Filtration Devices (AFDs) used as Negative Air Machines (NAMs). The types and extent of engineering controls utilized *should* be based upon the mold assessor's assessment of the structure and the extent of visible mold growth (Condition 3). Refer to the latest edition of the *ANSI/IICRC S520 Standard for Professional Mold Remediation*, for more information.

### 10.4 Removal of Visible Mold Growth (i.e., Condition 3)

The mold assessor *should* provide site specific recommendations for restoration or removal of the affected materials and contents.

### 10.5 Cleaning

1 The mold assessor *should* specify that the containment area be cleaned prior to removal of the containment  
2 barriers.  
3

#### 4 **10.6 HVAC System**

5

6 For more information regarding HVAC Systems, refer to the *NADCA Assessment, Cleaning and Restoration*  
7 *of HVAC Systems* and the latest editions of the *ANSI/IICRC S520 Standard for Professional Mold*  
8 *Remediation* and *ANSI/IICRC S590 Standard for Assessing HVAC Systems Following a Water, Fire, or*  
9 *Mold Damage Event*.

#### 10 **10.7 Post Remediation Verification (PRV)**

11

12 The criteria and process used in the PRV *should* be established in the remediation protocol prepared by  
13 the mold assessor. Refer to *Section 11 Post Remediation Verification (PRV)*. If a prior assessment was not  
14 performed and criteria for the PRV are not available, the mold assessor *should* provide criteria in writing  
15 that are agreed upon by all MIPs, prior to conducting the PRV.  
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1 **11 Post Remediation Verification (PRV)**

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3 The mold assessor performing the PRV *should* be an independent third party (i.e., not the remediation  
4 contractor, a separate company owned or controlled by the remediation contractor or hired by the  
5 remediation contractor). If the mold assessor is not independent of the remediator, they *should* disclose in  
6 writing to the Materially Interested Parties (MIPs) that they are deviating from the Standard.  
7

8 The criteria and process used in the PRV *should* be established in the remediation protocol. If a prior  
9 assessment was not performed and criteria for the PRV are not available, the mold assessor performing  
10 the PRV *should* provide the criteria in writing that are agreed upon by all MIPs prior to conducting the PRV.  
11

12 The criteria for a successful PRV *should* include, but is not limited to, confirmation of the following:  
13

- 14 ▪ moisture source is corrected;
- 15 ▪ containment is appropriate and remain intact;
- 16 ▪ no malodors are detected;
- 17 ▪ all visible mold growth (Condition 3) is removed;
- 18 ▪ building materials are dry; and
- 19 ▪ surfaces are free of visible dirt, dust or debris.

20  
21 Additional criteria may include analytical measurements (e.g., particle counts, temperature, relative  
22 humidity) or sampling. The criteria for any analytical measurements or sampling performed as part of the  
23 PRV *should* be established in the remediation protocol or agreed upon by the MIPs in writing if a remediation  
24 protocol is not available.  
25

26 All observations and testing data *should* be included in a written PRV report that clearly documents the  
27 remediation, work areas, materials removed, and samples if collected. The report *should* also provide a  
28 concluding statement on whether remediation was successfully completed.  
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1 **12 Limitations, Complexities, Complications, and Conflicts (LCCC)**  
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3 Mold assessors can be faced with conditions that present challenges to the mold assessment process,  
4 producing limitations, complications, complexities, or conflicts. The mold assessor *should* have a thorough  
5 understanding of these issues and communicate them to appropriate parties.  
6

7 **12.1 Limitations**  
8

9 A limitation is a restriction placed by others upon a mold assessor that results in a limit on the scope of the  
10 mold assessment or the outcomes that are expected. Before beginning the assessment, known or  
11 anticipated limitations and their consequences *should* be understood, discussed, and approved in writing  
12 by the mold assessor and the client.  
13

14 The mold assessor *should* refuse to allow anyone other than the client to impose limitations on the  
15 performance of their mold assessment. If an attempt to impose a limitation is initiated by any other MIP, the  
16 client *should* be advised and provided approval before the limitation takes effect. Limitations *should* be  
17 provided to the client in writing.  
18

19 **12.2 Complexities**  
20

21 A complexity is a condition that causes an assessment to be more difficult or detailed but does not prevent  
22 the mold assessor from performing their assessment adequately. Before beginning the assessment, known  
23 complexities and their consequences *should* be understood, discussed, and approved in writing by the mold  
24 assessor and the client.  
25

26 **12.3 Complications**  
27

28 A complication is a condition that arises after the start of the mold assessment and causes or necessitates  
29 a change in the scope because the mold assessment becomes more complex, intricate, or perplexing. The  
30 client *should* be notified in writing as soon as practical regarding complications that develop.  
31

32 **12.4 Conflicts**  
33

34 Conflicts are limitations, complexities, or complications that result in a disagreement between the parties  
35 involved about how the mold assessment is to be performed. Mutual agreements to resolve conflicts *should*  
36 be documented in writing, and it is recommended that releases, waivers, and disclaimers be reviewed by a  
37 qualified attorney.  
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## References

The IICRC S530 Consensus Body provides the following list of documents, publications, and other source materials that were considered in the preparation of this Standard. By reference herein, the S530 Consensus Body does not warrant the accuracy or applicability of these documents. Each document is listed because one or more elements of each were influential in the development of this Standard. At the time of publication, the references cited were current. All cited references are subject to revision, and those using this Standard *should* reference the most recent editions.

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