

Posted on: 05/19/2004

IICRC S520 Mold Remediation Standard: Separating Fact from Fiction (Part 4)

By Jeff Bishop



Photos courtesy of Indoor Air Management

For almost four years now, the Institute of Inspection, Cleaning and Restoration Certification has been collecting information, reviewing the scientific literature, debating technique and writing its long-awaited Standard and Reference Guide for Professional Mold Remediation, IICRC S520.

The industry has long demanded a document that is more comprehensive and definitive than the present NYC or EPA guidelines for mold remediation; producing a quality document with far-ranging implications, however, takes research, time and diligent work on the part of many volunteers.

In the last article on IICRC S520, I discussed the S520 Reference Guide Chapters 1 (Fungal Ecology) and 2 (Health Effects). This article will cover the remaining chapters. Keep in mind that these are only brief excerpts from the new standard.

IICRC S520 Reference Guide

Chapter 1 - Fungal Ecology

Chapter 2 - Health Effects from Indoor Mold Contamination

Chapter 3 - Principles of Mold Remediation

Chapter 4 - Administrative Procedures and Insurance

Remediation project administration typically includes, but is not necessarily limited to:

- Use of written contracts;
- Good communication with all involved parties;
- Thorough project documentation and recordkeeping;
- Appropriate insurance;
- Responsiveness;

- An ability to understand and coordinate multiple tasks, disciplines and materially interested parties; and
- A professional and ethical attitude and business orientation.

It is recommended that remediators establish, implement and consistently follow methods and procedures for project administration, including but not limited to, business systems and operational plans and protocols. Competent project administration promotes the delivery of high-quality remediation services and increases the likelihood of having satisfied customers.

Chapter 5- Limitations, Complexities, Complications and Conflicts

Mold remediation contractors and workers may be faced with many project conditions that present challenges. These challenges may produce limitations, complexities, complications or conflicts. It is highly recommended that remediators have a thorough understanding of these issues and communicate them to appropriate parties.

Limitation means the act of limiting or the state of being limited, constrained or restricted. For purposes of this Standard and Reference Guide, a “limitation” is a restriction that is placed upon the remediator that results in a limit on the scope of work, the remediation activities or the outcomes that can be expected.

Complexity means involved or intricate. For purposes of this Standard and Reference Guide, a “complexity” is any condition that causes the job to become more difficult or detailed, but does not prevent the remediation work from being performed adequately.

Complication means the act of becoming complex, intricate or perplexing. For purposes of this Standard and Reference Guide, a “complication” is generally any condition that arises after the start of work that causes or necessitates a change in the scope of remediation work activities.

Conflict means a state of disharmony between persons, ideas or interests. For purposes of this Standard and Reference Guide, a “conflict” is a limitation, complexity or complication that results in a disagreement between the parties involved about how the remediation project is to be performed.

Prior to beginning non-emergency work, it is highly recommended that a clear understanding of the known or anticipated limitations, complexities and their consequences be discussed and approved in writing by the owner or owner’s agent.



Chapter 6 - Inspection and Preliminary Determination

...Inspections for moisture problems that may have resulted in mold growth can begin in many ways and be initiated by any number of parties for a variety of reasons. An initial contact with a concerned individual is a starting point that can determine the path that a potential mold inspection and subsequent remediation will follow. The path each project follows will be strongly influenced by the training, awareness, expertise, perspective and ethics of the professional being contacted.

If the initial contact for a potential problem is received by a restorer, for example, the customer likely will receive contractor specific recommendations following a pathway most familiar to the restorer. A very different set of responses, pathways and results may develop from a duct cleaner, a mold remediator, an industrial hygienist, a public health official or an IEP.

If someone other than a remediator receives the initial contact, control of the project by another party may have already been established. This may present ethical and legal challenges to the remediator, which are addressed in Chapter 5 on Limitations, Complexities, Complications and Conflicts.

The IICRC S520 has been written to provide methods and procedures for the mold remediator, whose primary goal is to safely restore Condition 2 or Condition 3 structures, contents or systems to Condition 1 status.

Whether or not remediators are trained to make the determination of Condition 1, 2 and 3, to do so may create a conflict of interest. Ethical considerations may make such a determination inappropriate and legislation may make it illegal. It is highly recommended that mold remediation contractors not act as their own IEP or become a substitute for an independent IEP.

Although remediators, even if qualified, should not act as an IEP on projects in which they provide remediation services, they do need to conduct an initial inspection and preliminary determination of the potential moisture problem that might have resulted in mold growth. Included in that preliminary determination is the decision of if and when an IEP is required...

...If the preliminary determination is that there is a small, isolated area of mold growth on a surface layer of condensation on painted walls or non-porous surfaces, and mold growth has not resulted in concealed areas, then the use of an IEP is generally not necessary and the mold can usually be removed as part of a regular maintenance program. However, if health issues are discovered or apparent that seem to be related to the visible mold, then it is highly recommended that an IEP or other appropriate professional be engaged by the client.

If the preliminary determination is that there is a limited amount of visible mold confined to a specific area, (e.g., moldy ceiling tile; small area of a wall, ceiling or floor surface; small concealed area; or small area of a mechanical system that is not in the path of the major air circulation system of the structure), the use of an IEP may or may not be necessary. It is highly recommended that the restorer or remediator exercise professional judgment in making appropriate recommendations. However, if health issues are discovered or apparent that seem to be related to the actual or suspected mold contamination, it is highly recommended that an IEP or other appropriate professional be engaged by the client.

If the preliminary determination is that there is extensive visible, hidden or suspected mold growth as a result of a chronic or lingering moisture problem, it is highly recommended that the extent or Condition (1-3) to which areas of the structure and contents are mold-contaminated be determined by an independent IEP, with no business affiliation to the remediator, before starting remediation. Where an entire building or system is fully involved as a result of Condition 3 contamination, or when the scope of work can be determined without sampling, testing or independent IEP inspection, then engagement of an IEP may not be necessary. Furthermore, some loss mitigation services may be initiated before or during assessment of conditions and/or performance of remediation processes. However, if health issues are discovered or apparent that seem to be related to the actual or suspected mold contamination, it is highly recommended that an IEP or other appropriate professional

be engaged by the client.

There may be other situations in which an IEP is either unnecessary, not reasonably available, or cannot be included in the process. In such situations, it is highly recommended that remediators not offer advice or provide services that are outside their level of training and experience...

Chapter 7 - Structural Remediation

Before beginning a mold remediation project, it is highly recommended that a clear objective and goal be established, outlined and understood by all involved parties. The mold remediation procedures outlined in this document are based on general indoor environmental hygiene practices, and safety and health principles. These procedures describe safeguards and controls that assist in achieving the goals of a remediation project...



[Note: This is one of the longest chapters in the S520 Reference Guide, and it answers remediator's questions about general procedures for mold remediation. It was written by a group of highly qualified and experienced remediators under the leadership of IICRC-approved AMRT instructor Peter Sierck.]

Chapter 8 – HVAC

HVAC systems have a major impact on controlling the conditions that lead to condensation films. The design, installation, operation and maintenance of HVAC systems are important factors in mold control. In addition, mold growth from other causes can be carried to the interior of HVAC system components where it accumulates and degrades the operation of the system. When operation is affected this may result in poor environmental control that allows more widespread condensation films to form. This condition can lead to the spread of contamination by the system and increase the scope of the mold problem by dispersing contaminants throughout a building.

Types of HVAC systems include residential, commercial and industrial. In a typical system, the fan or blower pulls air from the occupied space through the return grills and ducting, then through the filter, heating and/or cooling coils and supply ducting into the occupied space. The mechanical components of the system may be located in various areas of the occupied space, outdoors or in other locations. Residential systems are different from one part of North America to another; however, within each region of North America the systems are generally similar...

[Note: This is an outstanding chapter on HVAC remediation written by highly qualified experts from IAQA and NADCA.]

Chapter 9 - Contents Remediation

Effective remediation of contents from a mold-contaminated environment includes the following tasks:

- Categorize contents items by their likely restorability, which includes:
- Extrapolating the extent of mold contamination and water damage of the structure to the probable condition of the contents in different areas;
- Performing visual inspection for evidence of mold contamination, and possibly correlating the inspection with the results of a microscopic assessment of the contents performed by an IEP, in order to determine the Condition (1, 2 or 3) of the contents;



- Determining the basic composition of content materials. Contents composition and condition determine their cleanability. General categories of content material composition are defined as follows:

Porous: Organic materials that quickly absorb water and provide an excellent food source for molds (e.g., clothing and other textiles, padded or upholstered items, leather, taxidermy, paper goods, many types of fine art);

Semi-porous: Organic materials that absorb water slowly, but, still provide a possible food source for molds (unfinished wood, masonry); and

Non-porous: Organic materials, which have been altered to not absorb moisture easily; inorganic or synthetic materials, which do not absorb significant amounts of moisture and/or do not provide a food source for molds (e.g., finished wood, glass, metal, plastic).

- Providing options as to the relative cost of cleaning versus the cost of replacement;
- Determining cleaning requirements in order to decide whether to clean contents on-site or in-plant;
- Determining those contents requiring remediation by specialty cleaning professionals (e.g., fine art, electronics, rare books, priceless keepsakes); and
- Communicating with an IEP, if involved in the project, regarding issues of sampling, analysis, and verification testing...

Chapter 10 - Tools and Equipment

Before professional mold remediation work can begin, it is highly recommended that remediation workers be familiar with and have access to certain equipment and tools required to accomplish their work. This chapter covers several categories of tools, equipment and materials (including chemicals), that apply to mold remediation.

This chapter is not designed to be a definitive equipment training manual. The objective of this chapter is to discuss some of the more common equipment and its application to mold remediation projects. Each employer is responsible for the safe condition of tools and equipment used by employees, including tools and equipment that may be furnished by employees or by subcontractors (29 CFR Part 1910.242 and international equivalents). It is highly recommended that remediation workers have specialized training in the use of tools and equipment they use and operate in the course of mold remediation work. Remediators must follow equipment manufacturer instructions and label directions for the safe and proper use of tools and equipment. It is highly recommended that equipment, tools and materials be stored in a way that will not result in cross contamination and not be stored in portions of the building that may be occupied by the public or unprotected workers...

...Studies prove that ozone cannot be generated in sufficient concentration to kill or even suppress microbials on most structural materials, including wood and drywall...

...UV light is not practical for several reasons, including lack of intensity and insufficient dwell time.

...Antimicrobial pesticides are substances or mixtures of substances used to destroy (biocides) or suppress (growth inhibitors/static agents) the growth of harmful microorganisms whether bacteria, viruses, or fungi on inanimate objects, surfaces, and materials...

...Antimicrobial pesticide activity varies widely, and effectiveness against specific microbial groups is designated by label claims which can include bactericide, fungicide, virucide, tuberculocide, and sporicide. Some products may have special use claims against specific microbes, such as *Legionella pneumophila*, *Mycobacterium tuberculosis*, *Aspergillus*

fumigatus, or the hepatitis or human immunodeficiency viruses.

The use of antimicrobial pesticides has a number of limitations. One limitation can be a lack of clear, detailed label application directions and adequate information on hazards and risks. If used, such products must be used with full knowledge of their limitations and capabilities, in strict accordance with manufacturer's directions and all regulatory requirements, and only with client informed consent...The IICRC endorses those principles of antimicrobial pesticide product use as formulated by the American Conference of Governmental Industrial Hygiene (ACGIH) and contained in . . . its publication, *Bioaerosols: Assessment and Control*, 1999...

[Note the position statements that the IICRC is taking on the use of ozone, ultraviolet light and biocides in this chapter. The S520 committee reviewed the position of ACGIH in "Bioaerosols: Assessment and Control" on the use of biocides and adopted the same position. Note that biocides still are used as part of the remediation process in Category 3 (grossly unsanitary) water damage restoration.]

Chapter 11 - Safety and Health

Although few specific state and/or federal safety and health regulations related to mold and microbiological remediation exist, there are safety and health regulations that are applicable to businesses that perform such work. Each employer is responsible for complying with these safety and health regulatory requirements.



Safety and Health regulations that may impact a remediation firm's employees include, but are not limited to, the following OSHA Standards:

- 29 CFR (Code of Federal Regulations) 1910 – General Industry Standards
- 29 CFR 1926 – Construction Industry Standards

Remediation firms must comply with OSHA General Industry Standards when working in their shops and Construction Industry Standards when working at their job sites in the field...

[Obviously, compliance with federal regulations is mandatory.]

Chapter 12 - Indoor Environmental Professionals

The IICRC S520 defines an "IEP" as an individual who is qualified by knowledge, skill, education, training and/or experience to perform an assessment of the fungal ecology of property, systems, and contents at the job site, create a sampling strategy, sample the indoor environment, interpret laboratory data and determine Condition 1, 2 and 3 for the purpose of establishing a scope of work and verifying the return of the fungal ecology to a Condition 1 status.

The determination of conditions by the IEP provides for the establishment of a general scope of work. The Indoor Environmental Professional may or may not be engaged to develop a set of detailed protocols and technical specifications. Using the IICRC S520, an experienced mold remediation project manager may be able to develop an internal work specification that can be used on a mold remediation project.

There is no single designation, license, or certification that qualifies an IEP. Remediation firms and others who hire Indoor Environmental Professionals should consider the individual's knowledge, skill, education, training and experience to best judge their ability

and qualifications...

...Mold remediators often rely on an IEP to determine the scope of work and other essential tasks. However, reliance on the training, experience, reputation and/or credentials of an IEP may not absolve the remediator of legal risk or other responsibilities.

There may be circumstances when a remediator's normal activities overlap or conflict with those of an IEP. In those cases, regardless of the specific process chosen by the remediator from the time of the initial contact through the preliminary determination, the remediator will inevitably reach the point where a decision is made whether to continue the inspection – and not conduct the remediation – or to transfer the responsibility for further inspection and assessment to an IEP. Factors that influence the decision of whether and when to involve an IEP are addressed in Chapter 6, Inspection and Preliminary Determination, the Preface and Section 15 of the Standard...

This concludes our look at the S520. As you can see, this is an extremely important document for every cleaner/restorer/remediator to have on his or her bookshelf. For more information on the IICRC S520 Standard and Reference Guide for Professional Mold Remediation, go to www.iicrc.org or call the IICRC at (360) 693-5675.

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