



# IICRC S520

## Standard and Reference Guide for Professional Mold Remediation



*First Edition  
December 2003*

Contributing Organization



Contributing Organization



## *Disclaimer*

This Standard and Reference Guide (S520) is intended to provide information about the remediation of mold-damaged structures and contents and to assist individuals and entities working in the mold remediation industry in establishing and maintaining their professional competence. Users of this document must keep abreast of the rapid developments in the field of mold remediation, implement changes in technology and procedures as appropriate and follow applicable federal, state, provincial and local laws and regulations. All mold remediation projects are unique and in certain circumstances, common sense, experience and professional judgment may justify a deviation from this Standard and Reference Guide.

This Standard and Reference Guide was developed through a consensus standard development process, which brought together volunteers representing varied viewpoints and interests to achieve consensus on mold remediation issues. While the Institute of Inspection, Cleaning and Restoration Certification (IICRC) administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate or verify the accuracy of any information or the soundness of any judgments contained in this Standard and Reference Guide.

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# **IICRC Standard and Reference Guide for Professional Mold Remediation S520**

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## *Table of Contents*

<b>Preface</b> .....	5
<b>Acknowledgments</b> .....	7
<b>Important Definitions</b> .....	10
<b>Standard and Reference Guide Cross-Reference Table</b> .....	11
 <b>IICRC Standard for Professional Mold Remediation (S520)</b>	
<b>Section 1 – Scope, Purpose and Application</b> .....	13
<b>Section 2 – References</b> .....	13
<b>Section 3 – Definitions</b> .....	14
<b>Section 4 – Principles of Mold Remediation</b> .....	15
<b>Section 5 – Contractor Qualifications</b> .....	16
<b>Section 6 – Safety and Health</b> .....	17
<b>Section 7 – Administrative Procedures and Insurance</b> .....	18
<b>Section 8 – Limitations, Complexities, Complications and Conflicts</b> .....	20
<b>Section 9 – Inspection and Preliminary Determination</b> .....	21
<b>Section 10 – Structural Remediation</b> .....	22
<b>Section 11 – HVAC Remediation</b> .....	26
<b>Section 12 – Contents Remediation</b> .....	27
<b>Section 13 – Post-Remediation Verification</b> .....	31
<b>Section 14 – Final Documentation</b> .....	31
<b>Section 15 – Indoor Environmental Professional</b> .....	31

# Reference Guide for Professional Mold Remediation

<b>Introduction</b> .....	35
<b>Chapter 1</b> – The Fungal Ecology of Indoor Environments .....	36
<b>Chapter 2</b> – Health Effects from Indoor Mold Contamination .....	40
<b>Chapter 3</b> – Principles of Mold Remediation .....	52
<b>Chapter 4</b> – Administrative Procedures and Insurance .....	55
<b>Chapter 5</b> – Limitations, Complexities, Complications and Conflicts.....	62
<b>Chapter 6</b> – Inspection and Preliminary Determination .....	65
<b>Chapter 7</b> – Structural Remediation .....	70
<b>Chapter 8</b> – HVAC Remediation.....	85
<b>Chapter 9</b> – Contents Remediation .....	90
<b>Chapter 10</b> – Tools, Equipment and Materials.....	104
<b>Chapter 11</b> – Safety and Health.....	121
<b>Chapter 12</b> – Indoor Environmental Professionals and Assessments .....	129
<b>Appendix A</b> – Mold Remediation Certification Authorities .....	133
<b>Appendix B</b> – Suggested Guidance for the Selection and Use of Respiratory Protection During Mold Remediation .....	134
<b>Glossary of Terms</b> .....	143
<b>Sources</b> .....	166
<b>Abbreviations</b> .....	168
<b>Industry Acronyms</b> .....	169
<b>Source Acknowledgement</b> .....	170
<b>Index</b> .....	172

## *Preface*

Awareness of mold growth in buildings has risen sharply in recent years. Several factors have contributed to this heightened awareness, including: energy conservation measures, changes in building materials, the use of rapid construction techniques, failure of occupants to manage moisture intrusion and humidity properly and an increased reliance on mechanical (HVAC) systems for comfort control. Significant media focus has fueled increased consumer concern.

Response by public and private organizations to this concern led to the publication of several documents and guidelines that address mold remediation. They were written primarily for risk managers, building managers, occupational safety and health professionals, public health officials and those making remediation decisions.

In 1994 (Second Edition, 1999), the Institute of Inspection, Cleaning and Restoration Certification (IICRC) published the *Standard and Reference Guide for Professional Water Damage Restoration* (S500), which describes procedures for correcting and preventing excessive moisture in buildings. While the S500 was a significant step forward in the water damage restoration industry and recognized the problem of microbial growth from water damage, it was not intended to provide specific guidance on the subject of mold remediation. The IICRC *Standard and Reference Guide for Professional Mold Remediation* (S520) attempts to combine essential scientific principles with practical elements of procedure for technicians facing “real-life” mold remediation challenges.

The Standard and Reference Guide is the result of three years of collaborative effort on the part of dedicated volunteers from the public, institutional and private sectors – remediation contractors, microbiologists and other scientists, government and public health professionals, industrial hygienists, representatives of remediation product manufacturers and training schools – professionals from multiple disciplines who are furthering industry knowledge in the science and practice of mold remediation. These diverse members of the IICRC Mold Remediation Standard Committee assembled with one common goal: to create a procedural standard and reference guide for mold remediation in a manner that places a high priority on the safety and health of property owners, occupants, remediation workers and other affected parties. Committee members researched and reviewed available scientific and industry literature and information on the subject of mold growth, amplification, remediation and prevention, and distilled this body of science and practice into this Standard and Reference Guide for use in remediating mold-contaminated environments.

This document is written for use by those involved in the mold remediation industry, primarily for mold remediation companies and workers, and secondarily, for others who investigate mold complaints, write remediation specifications, protocols and/or procedures and manage remediation projects. The S520 is a voluntary Standard and Reference Guide. Users of this document assume all risks and liability resulting from use of and reliance upon this Standard and Reference Guide. Although attempts have been made to ensure that this Standard and Reference Guide is technically consistent with knowledge about mold remediation at the date of its publication, there is no representation or guarantee that every issue and topic relevant to mold remediation has been thoroughly addressed. Users of this document must keep abreast of the rapid developments in the field of mold remediation, implement changes in technology and procedures as appropriate and follow applicable federal, state, provincial and local laws and regulations. All mold remediation projects are unique and in certain circumstances, common sense, experience and professional judgment may justify deviation from this Standard and Reference Guide. It is the responsibility of the remediator to verify on a case-by-case basis that application of this Standard

and Reference Guide is appropriate. When in doubt, apply caution and seek additional professional opinion.

IICRC S520 is presented in a two-part format: the procedural standard and a supplementary reference guide. The Standard is printed first within the document on colored pages, followed by the longer Reference Guide section. The Standard summarizes most of the significant and important procedures and methodologies of a mold remediation project, while the Reference Guide restates, embellishes and further explains those procedures and methodologies, and provides additional background information which supports the Standard. Although the material in the Reference Guide does not carry the official status of a standard, the two sections complement one another and should always be considered in tandem. The S520 does not attempt to teach mold remediation procedures, but rather provide the principles and foundation for understanding proper remediation practices. The S520 is not a substitute for the remediation training and certification programs that are necessary to attain competence in the field of mold remediation and properly apply this Standard.

**S520 is not intended to establish procedures or criteria for assessing mold contamination in an indoor environment. These issues are most appropriately addressed by professional organizations that represent Indoor Environmental Professionals (IEPs). Since these professional organizations have not agreed upon threshold exposure limits or levels of visible mold growth that constitute a concern for occupant and worker safety, the IICRC Mold Remediation Standard Committee decided not to establish action levels or procedures based upon the quantity or size of the area of visible mold growth.**

**Remediators and other parties to the remediation process often request specific guidance regarding quantities of mold or mold spores that trigger remediation activities or confirm remediation success. Quantifying visible levels of mold growth alone is not feasible as an action level decision criterion, because of the wide range of occupant susceptibility and the inability to precisely measure exposure, along with insufficient science to support conclusions in this area at the time of publication.**

**Thus, S520 represents a philosophical shift away from setting numerical mold contamination action levels. Instead, it establishes mold contamination definitions, conditions (1, 2, 3) and general guidance, which, when properly applied, can assist remediators and others in determining criteria that trigger remediation activities or confirm remediation success.**

S520 is a living document; subject to change as more information regarding mold contamination and remediation becomes available, and as scientific developments occur and advancements are made in remediation technology and practice. The S520 will be reviewed, evaluated and validated through application in the field. Thereafter, it is hoped that the S520 will be revised and improved, and then again reviewed, evaluated and validated through application in the field. This process and further professional and public review will allow our industry to develop a body of mold remediation science and achieve our overall goal of improving the environments in which people live and work.

The IICRC invites and encourages professional and public review and comment. Please send comments and suggestions for S520 revisions or additions to:

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## *Acknowledgments*

This publication is the result of a collaborative effort involving industry experts and trade associations, educational institutions, research institutes, professional societies, training schools and other organizations. The Institute of Inspection, Cleaning and Restoration Certification (IICRC) is the principal designer of this document, with substantial contributions by the Indoor Air Quality Association (IAQA) and the Indoor Environmental Institute (IEI).

Other organizations contributing to the creation of this document include the American Indoor Air Quality Council (AmIAQ Council), the International Society of Cleaning Technicians (ISCT) and the National Air Duct Cleaners Association (NADCA).

The publication of this document was made possible through the generous contributions of a dedicated group of volunteers. The IICRC Board of Directors and the Standards Committee genuinely appreciate the time and effort contributed by these individuals. They exhibit the true volunteer spirit that has been the driving force behind the IICRC since its inception. At the time of Standard approval, the IICRC Mold Remediation Standard Committee consisted of the following members.

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## *Important Definitions*

Throughout this document the terms “must”, “highly recommend(ed)” and “recommend(ed)” are used to compare and contrast the different levels of importance attached to certain practices and procedures. It is impractical to prescribe procedures intended to apply to every mold remediation situation. In certain circumstances, deviation from portions of this Standard and Reference Guide may be appropriate. Carelessness is never acceptable and common sense and professional judgment are to be exercised in all cases.

**must:** when the term *must* 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.

**highly recommended:** when the term *highly recommended* 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 requirement.

**recommended:** when the term *recommended* is used in this document, it means that the practice or procedure is advised or suggested.

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 IICRC S520 Mold Remediation Standard Committee 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. Ultimately, it is the responsibility of the remediator to verify on a case-by-case basis that application of this Standard and Reference Guide is appropriate.

## *Standard and Reference Guide Cross-References*

Although they are not numbered in the same sequence, several chapters of the Reference Guide correspond directly with sections of the Standard. The table below is designed to help the reader cross-reference those chapters.

<b>Section</b>	<b>Standard</b>	<b>Chapter</b>	<b>Reference Guide</b>
1	Scope, Purpose and Application	1 2	Fungal Ecology Health Effects of Indoor Mold Contamination
2	References		
3	Definitions		
4	Principles of Mold Remediation	3	Principles of Mold Remediation
5	Contractor Qualifications		
6	Safety and Health	11	Safety and Health
7	Administrative Procedures and Insurance	4	Administrative Procedures and Insurance
8	Limitations, Complications, Complexities and Conflicts	5	Limitations, Complications, Complexities and Conflicts
9	Inspection and Preliminary Determination	6	Inspection and Preliminary Determination
10	Structural Remediation	7	Structural Remediation
11	HVAC Remediation	8	HVAC Remediation
12	Contents Remediation	9	Contents Remediation
13	Post-Remediation Verification	12	Indoor Environmental Professionals
14	Final Documentation	12	Indoor Environmental Professionals
15	Indoor Environmental Professionals	12	Indoor Environmental Professionals

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## Institute of Inspection, Cleaning and Restoration Certification

# Standard for Professional Mold Remediation S520

## 1 Scope, Purpose and Application

### 1.1 Scope

This Standard describes the procedures to be followed and the precautions to be taken when performing mold remediation in residential, institutional and commercial buildings and on personal property contents of those structures.

The Standard explains mold remediation techniques, the principles of which may apply to other microbial remediation projects or services. This Standard assumes that the determination and correction of the underlying cause of mold contamination is the responsibility of the property owner and not the remediator, although the property owner may contract with the remediator or other professionals to perform these services.

### 1.2 Purpose

It is the purpose of this Standard to define criteria and methodology to be used by the remediator for inspecting and investigating abnormal moisture and mold contamination, and for establishing remediation and safety plans and procedures.

Because of the unique circumstances encountered in mold remediation projects, it is impractical to prescribe procedures that apply to every situation. In certain circumstances, deviation from portions of this Standard may be appropriate. Carelessness is never acceptable and common sense and professional judgment are to be exercised in all cases.

Among other things, S520 does not address *Histoplasma capsulatum*, *Cryptococcus neoformans*, hanta virus, animal-derived pathogens or other highly infectious agents, including those from bird and bat droppings. Refer to the Center for Disease Control (CDC) and/or the National Institute for Occupational Safety and Health (NIOSH) for appropriate decontamination procedures for these contaminants. See, for example, *Histoplasmosis, Protecting Workers At Risk*, NIOSH and NCID, U.S. Department of Health and Human Services, 1997.

### 1.3 Application

This Standard was written for use by those involved in the mold remediation industry, primarily for mold remediation companies and workers, and secondarily, for others who investigate mold

complaints, write remediation specifications, protocols, and/or procedures and manage remediation projects; e.g., property restorers, indoor environmental professionals (IEPs), environmental consultants, industrial hygienists, building engineers, insurance company representatives, property owners/managers and other interested parties.

## 2 References

Portions of the following documents are referenced herein and thereby constitute provisions of this Standard and Reference Guide. All standards and publications are subject to revision, and those using this Standard are directed to investigate and apply the most recent editions of the regulations, standards and publications indicated below.

*29 CFR 1910, Occupational Safety and Health Standards for General Industry*, U.S. Department of Labor

*29 CFR 1926, Occupational Safety and Health Standards for the Construction Industry*, U.S. Department of Labor

*40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP)*, U.S. Environmental Protection Agency

*ACR 2002, Assessment, Cleaning and Restoration of HVAC Systems*, National Air Duct Cleaners Association, 2002.

*Bioaerosols: Assessment and Control*, American Conference of Governmental Industrial Hygienists, 1999.

*Field Guide for Determination of Biological Contaminants in Environmental Samples*, American Industrial Hygiene Association, 1996.

*A Guide for Mold Remediation in Schools and Commercial Buildings*, US Environmental Protection Agency, 2001.

*Protecting the Built Environment: Cleaning for Health*, Michael A. Berry Ph.D., 1993.

*Standard and Reference Guide for Professional Water Damage Restoration*, Institute of Inspection, Cleaning and Restoration Certification, (S500) Second Edition, 1999.