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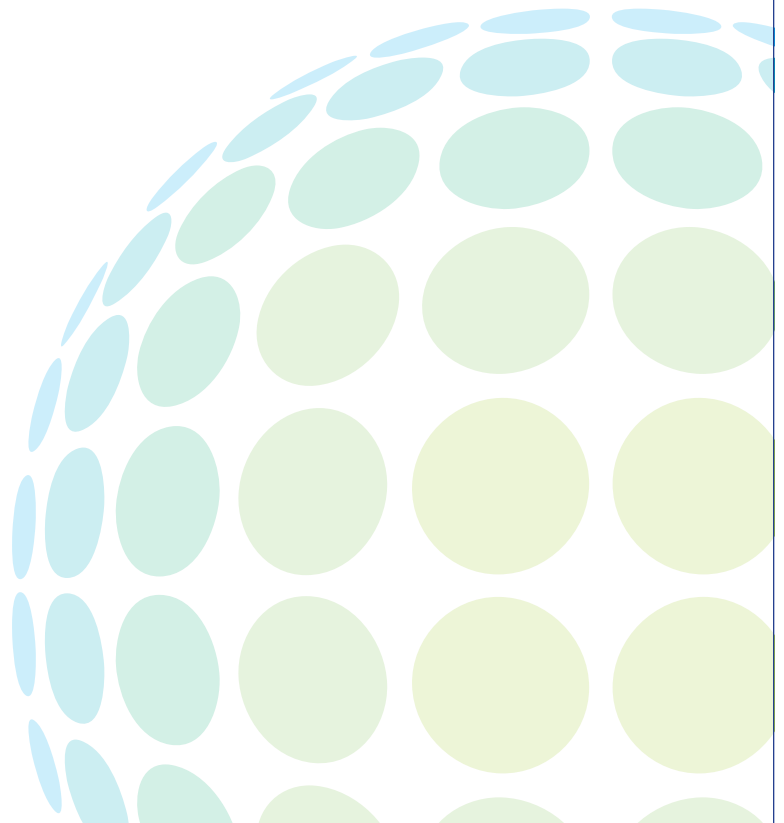
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REFERENCE GUIDE FOR PROFESSIONAL MOLD REMEDIATION

Third Edition



IICRC
Institute of Inspection Cleaning
and Restoration Certification



IICRC R520
Reference Guide
for Professional Mold Remediation

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Disclaimer

The Institute of Inspection, Cleaning and Restoration Certification R520 Reference Guide for Professional Mold Remediation (referred to as the "Reference Guide") is intended to provide information about the remediation of mold-contaminated structures, systems, 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 should stay updated and informed about developments in the field of mold remediation, implement changes in technology and procedures as appropriate, as well as follow applicable federal, state, provincial, and local laws and regulations. Since every mold remediation project is unique, in certain circumstances, common sense, experience, and professional judgment may justify a deviation from this Reference Guide. Furthermore, this Reference Guide is not intended to be either exhaustive or inclusive of all pertinent requirements, methods, or procedures that might be appropriate on a particular mold remediation project. The information upon which this Reference Guide is based is subject to change, which may invalidate any or all of the information contained herein.

This 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 policies, procedures, and guidelines 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 Reference Guide.

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Foreword

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 fast-track construction techniques, failure of occupants to manage moisture intrusion and humidity properly, and an increased reliance on mechanical Heating, Ventilating, and Air Conditioning (HVAC) systems for comfort control. In addition, significant media focus and litigation have fueled increased consumer concern.

Response by public and private organizations to mold concerns 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. The IICRC S520 Mold Remediation Consensus Body Committee has reviewed and considered those existing documents; e.g., New York City Department of Health (NYCDOH) guidelines, Environmental Protection Agency (EPA) guidelines, and National Institute of Environmental Health Sciences (NIEHS) in the development of this revised Reference Guide.

In 1994, the Institute of Inspection, Cleaning and Restoration Certification (IICRC) first published the *Standard and Reference Guide for Professional Water Damage Restoration* (S500, revised 1999, 2006, 2015), which describes procedures for water damage restoration of structures, systems and contents. While the ANSI/IICRC S500 was a significant step forward in the water damage restoration industry and it recognized the problem of microbial growth associated with water damage, it was not intended to provide specific guidance on the subject of mold remediation. The IICRC R520 *Reference Guide for Professional Mold Remediation* attempts to combine essential scientific principles with practical procedures for remediators facing mold remediation challenges.

The IICRC R520 is a procedural Reference Guide. It is based on reliable remediation principles, review of available scientific and industry literature and information, and practical experience. In addition, there has been extensive consultation with, and information obtained from, numerous other sources. These sources include but are not necessarily limited to: microbiologists and other scientists; government and public health professionals; industrial hygienists; international, national, and regional trade associations serving the professional mold remediation industry; chemical formulators and equipment manufacturers; cleaning and remediation training schools; remediation firms; the insurance industry; allied trades persons and others with specialized experience. The Third Edition of the R520 Reference Guide has been updated and rewritten. This document is subject to further revision as developments occur in technology and procedures.

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 or assess mold complaints, prepare remediation specifications, protocols or procedures, and manage remediation projects, (e.g., indoor environmental professionals (IEPs), other specialized experts) and finally, for other potential materially interested parties (e.g., consumers and occupants, property owners and managers, insurance company representatives, government and regulatory bodies). The IICRC S520 is a voluntary Reference Guide. Although attempts have been made to ensure that this 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 should stay updated and informed about 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 Reference Guide. It is the responsibility of the remediator to verify on a case-by-case basis that application of this Reference Guide is appropriate. When in doubt, apply caution and seek additional professional opinions. Users of this document assume all risks and liability resulting from use of and reliance upon this Reference Guide.

The ANSI/IICRC S520 Standard summarizes most of the significant and important procedures and methodologies of a mold remediation project, while the IICRC S520 Reference Guide restates 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 provides the principles and foundation for understanding proper remediation practices. The S520 is not a substitute for remediation training and certification programs that are necessary to attain competence in the field of mold remediation and properly apply this Reference Guide.

The 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 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 S520 Mold Remediation Consensus Body 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 it does not take into consideration hidden, concealed (not readily visible) mold growth, and it does not take into consideration contamination resulting from settled spores (not visible) that were dispersed from areas of actual growth.

Thus, S520 represents a philosophical shift away from using “size” of visible mold growth to determine the remediation response. Instead, it establishes mold contamination definitions, (Conditions 1, 2, and 3) and guidance, which, when properly applied, can assist remediators and others in determining remediation response or confirm remediation success.

The terms “indoor environmental professional” and “IEP” are used in this document and in the remediation industry to generically describe individuals having advanced technical competency in a wide range of subjects related to mold in the built environment, that qualify them to perform assessments and related professional services typically provided by an IEP, as defined in this document. Because there is such a broad array of skills encompassed within the description of an IEP, it is impossible to develop a single, meaningful course of study that would adequately address the advanced levels of knowledge an IEP should possess within this area of specialization. Therefore, the terms “indoor environmental professional” and “IEP” are used in this document and in the remediation

industry as a description, and not as a title, designation, certification, trademark, or service mark. Consequently, there is no single license, designation, or certification that qualifies an IEP. The qualifications required for an IEP are often gained through years of formal study at the university level, specific training related to mold and the indoor environment, and years of on-the-job work experience, or a combination of these factors. Therefore, the IICRC does not offer or recognize a professional certification or designation for an IEP, and prohibits the exclusive use or co-option of the terms “indoor environmental professional” and “IEP” in association with any one individual, entity, or organization, as such use would be contrary to the intent of this document. However, use of the terms “indoor environmental professional” and “IEP” as a generic description is permitted. Remediators and others who engage an indoor environmental professional are advised to consider the individual’s knowledge, skill, education, training, and experience to best judge their ability, qualifications, and competence, as further explained in this document.

This Reference Guide does not specifically address the protocols and procedures for remediation when potentially hazardous, regulated materials are present or likely to be present in mold-contaminated structures, systems, and contents. Such potentially hazardous, regulated materials include but are not limited to: asbestos, lead, arsenic, mercury, polychlorinated biphenyls (PCBs), pesticides, fuels, solvents, radiological residues, and other chemical and biological contaminants. This Reference Guide also does not address water damage restoration; please reference the ANSI/IICRC S500 *Standard and Reference Guide for Professional Water Damage Restoration* for information directly related to water damage restoration.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The IICRC is not responsible for identifying any or all such patent rights.

The IICRC 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 IICRC S520 will be reviewed, evaluated and validated through application in the field, and thereafter revised and improved. This process and further professional and public review allows the industry to develop a body of mold remediation science and achieve the overall IICRC goal of improving the environments in which people live and work.

Some of the elements of this document may be the subject of patent rights. The IICRC is not responsible for identifying any or all such patent rights.

Introduction

The information contained in this IICRC S520 Reference Guide is not part of the ANSI/IICRC S520 American National Standard (ANS) and has not been processed in accordance with ANSI's Requirements for ANS. As such, this Reference Guide may contain material that has not been subjected to public review or a consensus process. In addition, this Reference Guide contains information that is not necessary for conformance to the ANSI/IICRC S520 standard.

IICRC S520 is a supplementary reference guide intended for use by those involved in the mold remediation industry. Although material contained within 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.

For the most part, ANSI/IICRC S520 Standard is extracted from the material in the IICRC S520 Reference Guide. This means that, while the Reference Guide is a supplement to and explanation of the ANSI/IICRC S520 Standard, its primary purpose is to clarify and explain the procedural points made in the Standard. Therefore, while much of the S520 Reference Guide lists many of the same points included in the Standard, the Reference Guide is more detailed in defining and expanding information to the point that the volume of information would be inappropriate for a procedural Standard. Moreover, the S520 Reference Guide contains science-based research and information that assists the user of the document in understanding the definitions, concepts, and principles upon which the Standard is based.

Each chapter of the IICRC S520 Reference Guide was written by members of chapter committees who are experts in their respective fields. The chapter committees brought together expertise and scientific and industry literature, and information designed to reflect industry consensus on the subject matter assigned. Each chapter of the Reference Guide was examined by the entire IICRC S520 Consensus Body, and edited for consistency between Standard sections and Reference Guide chapters.

The Important Definitions set forth at the front of the Standard section and the glossary of terms at the back, define and clarify terminology used in the Reference Guide. The appendices provide supporting documentation for the information contained in the Reference Guide. An Index is provided to assist readers in locating and cross-referencing pertinent subjects throughout the document.