



Microbial Remediation Supervisor Course Syllabus

The IAQ Training Institute, LLC offers this Indoor Air Quality Association (IAQA) approved program for individuals who supervise microbial remediation projects in residential or commercial buildings. The Microbial Remediation Supervisor course is a three day course which includes instruction on mold and other microbial issues supervisors will encounter when remediating water damaged buildings. Water damaged buildings commonly have a soup of microbial contamination that includes in addition to fungi (mold), bacteria, actinomycetes and other microbial components.

This course includes classroom instruction on background information, health effects, equipment & techniques, personal protective equipment and other safety hazards associated with microbial remediation projects. In addition to the information covered for mold remediation technicians supervisors learn about bacteria and other microorganisms in water damaged buildings, building science, microbial remediation standards and guidelines, supervision of indoor environmental contracting projects, water damage restoration, HVAC cleaning, microbial assessment and sampling techniques and working with Indoor Environmental Professionals (IEP's).

The first day of both the technician and supervisor have the same information and can be taught together or stand alone. The second day of the Supervisor class is different than and separate from the technician training. In addition to instruction on applicable industry guidelines, standards and regulations, supervisors are shown how to write a scope of work, test and inspect equipment, supervise workers and develop a preliminary determination for a project. When the technician and supervisor courses are run during the same time-frame, (two instructors) supervisors' help develop the scope of work and inspect the work of technicians setting up engineering controls and containments. There is also significant time spent on preparing for certification exams and a practice exam is part of the curriculum. Upon completion supervisors receive a certificate of completion from IAQA and the IAQ Training Institute, LLC.

This course also helps prepare attendees for the ACAC CMR (Council – Certified Microbial Remediator) & CMRS (Council – Certified Microbial Remediator Supervisor) exam.

DAY ONE

Chapter 1 - Background Information

In this chapter we will discuss the fact that mold has been written about since the earliest days of written history and continues to be an issue in indoor environments'. We then discuss some basic microbiology and Fungi's place in the Kingdoms of Life. After reviewing basic microbiology we will get into more detail about reproductions of fungi and the factors that produce mold growth. We will finish by discussing the term particulate and describing the types of particulate found on microbial remediation projects. Upon completion of chapter one students should be able to do the following:

- Define Microbiology
- Discuss the Kingdoms of Life
- Recognize how mold grows
- Recognize factors that produce mold
- Describe particulate
- Explain High Efficiency Particulate Air
- Point out different atmospheric relationships

Chapter 2 - Health Effects

In this chapter we will introduce the terminology used when discussing the potential health effects for those living or working in damp buildings and buildings with fungal growth. We will also review the categories of health effects, routes of exposure and tips for avoiding health problems while performing microbial remediation. Upon completion of chapter two students should be able to do the following:

- Recognize health effects related to dampness and mold
- Name the routes of exposure
- Separate categories of health effects
- Use tips for technicians to avoid exposure and illness

Chapter 3 - Remediation Equipment & Procedures

In this chapter we discuss the process of performing a microbial remediation project. We start by reviewing the history of microbial remediation and microbial remediation guidelines. We continue by going through an overview of state regulations on microbial remediation and reviewing the key definitions that are used when describing the equipment and processes that are part of microbial remediation. We continue by going through an overview of a microbial remediation project and then by breaking down the various phases of a project as follows. We finish chapter three with a discussion of post remediation evaluation/verification and project closure. Upon completion of chapter three students should be able to do the following:

- Discuss important definitions
- Recognize US microbial remediation guidelines/standards and laws
- Outline phases of a microbial remediation project
- Discuss important microbial remediation equipment
- Contrast containment types and construction

- Recognize purpose and form of different decontamination chambers and procedures
- Explain methods for contents handling and remediation
- Summarize contamination removal methods
- Discuss biocides & antimicrobials agents
- Use appropriate cleaning tips and techniques
- Summarize the final cleaning process
- Discuss disposal issues and methods
- Identify proper HVAC system cleaning & restoration procedures
- Outline common clearance criteria/project closure protocols

DAY TWO

Chapter 4 - Personal Protective Equipment

In this chapter we discuss the head to toe PPE recommendations for microbial remediation projects. We start with a discussion of OSHA PPE regulations and introduction to PPE. We then get into detail about respiratory protection, protective clothing, gloves, footwear and eye protection on microbial remediation projects. During the respiratory protection component of this chapter we will discuss the categories of respirators, seal checks, fit tests, medical evaluation, care and cleaning and respiratory protection programs. Upon completion of chapter four students should be able to do the following:

- Differentiate between engineering controls and Personal Protective Equipment
- Define Protection Factor (PF) and differentiate between the categories of respiratory protection
- Identify the difference between Respirator Seal Checks and , Fit Tests
- Evaluate other types of Personnel Protective Equipment (PPE)

HANDS ON MODULE 1

- Evaluate the different types of tape (including painters, double back, vinyl, duct and specialty tapes) and fasteners (suspended ceiling hangers, alligator clips, staplers)
- Discuss the types of polyethylene 4 mil, 6 mil, 10 mil, black, clear, fire retardant, re-enforced and when to use them
- Determine portions of the project that should be complications, complexities,
- Determine how an area should be set up prior to remediation
- Develop a scope of work

HANDS ON MODULE 2

- Conduct a Tailgate Safety Meeting
- Complete an equipment checklist for Microbial Remediation Projects
- Use Thermo-hygrometers and Moisture Meters
- Evaluate Containment area Prep and conduct an owner meeting
- Test an air filtrations devices
- Smoke test a containment systems
- Monitor containment pressure (using a pressure differential monitor)

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Chapter 5 - Building Science and Moisture

In chapter five we define building science and review the elements of airflow, mechanisms of moisture transfer and mechanisms of heat transfer. After discussing these basic concepts we go into more detail on the building envelope, building materials and how they interact with HVAC systems. We will also review air, vapor, weather and thermal barriers in construction. Upon completion of chapter five students should be able to do the following:

- Discuss the mechanisms of moisture transfer
- Summarize the origins of air flow
- Recognize the mechanism's of heat transfer
- Describe the building enclosure
- List the categories of building materials

Chapter 6 - Other Safety and Health Issues

In this chapter we discuss safety hazards on microbial remediation projects such as asbestos and lead paint issues, heat stress, hazard communication and insects, rodents and other animals. Each of these subjects is discussed with a focus on microbial remediation and how for instance electric hazards are increased when cutting out drywall. Upon completion of chapter six students should be able to do the following:

- Recognize, prevent and respond to heat related issues
- Discuss potential electrical hazards on microbial projects
- Discuss how asbestos and lead-based paint affect microbial projects
- Recognize potential issues with insects, rodents and other animals on microbial projects
- Summarize the key points about the Hazard Communication law
- Discuss other health and safety issues on microbial projects

Day Three

Chapter 7 - Indoor Environmental Quality & IEQ Investigations for Indoor Environmental Contractors

Microbial remediation supervisors are provided with an overview of general IEQ issues that affect indoor environments. We go through the types of membership organizations, standard setting bodies and certifications are most common in the indoor environmental quality arena with a focus on their relationship to microbial remediation projects. It is important for supervisors to understand that not every indoor environmental quality issue is a mold issue and that by doing microbial remediation it does not guarantee that the indoor environment is healthy.

In chapter seven we also go over what a proper indoor environmental investigation and/or mold inspection assessment entails. Since microbial remediation supervisors and water damage

restoration companies are often times the first people called or on site it is important to understand the correct investigation techniques and process when performing this service. It is also important for microbial remediation supervisors to understand the basics of sampling and moisture evaluation even when a third party inspector or consultant is overseeing the project. Understanding how issues are evaluated and how indoor environmental professionals clear projects is an important part of a microbial remediation supervisor's knowledge base. The breakdown of the chapter is as follows:

- Discuss the history of Indoor Air Quality (IAQ)
- Understand the Evolving Mold Industry
- Discuss the industries related Associations and Agencies
- Define Bioaerosols
- Recognize the key concepts behind performing IEQ Investigations
- Differentiate between Industrial vs. Commercial/Residential IEQ Investigations
- Recognize some common causes of IEQ Problems & Complaints
- Discuss evaluating moisture Issues in Buildings
- Understand how microbial investigations are conducted
- Recognize various microbial sampling types
- Discuss Final clearance/Post Remediation Verification Issues

Chapter 8 - Water Damage Restoration and HVAC Cleaning Overview

Chapter eight is an overview of water damage restoration and HVAC cleaning guidelines, definitions and concepts. Anyone performing microbial remediation needs to understand that moisture problems must be fixed first or mold will return. Heating, ventilation and air conditioning systems are commonly affected when mold problems occur. The possibility of HVAC contamination should always be considered by microbial supervisors and all supervisors should be familiar with the methods used to clean these systems.

- Discuss Water Damage Restoration and HVAC Cleaning & Restoration
- Recognize relevant industry work practices & standards
- Discuss Water Damage Restoration
- Evaluate HVAC Cleaning & Restoration Options

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Chapter 9 - Supervising Microbial Remediation

This chapter goes into specifics about how to supervise microbial remediation projects and indoor environmental projects in general. We give some tips for how to supervise employees along with more detail on designing and effective remediation plan, insurance issues and contract document issues. This chapter also includes paperwork to help with hazard evaluation, supplies, safety meetings and post remediation verification issues.

- Define Indoor Environmental Contracting
- Recognize the Critical Concepts for Indoor Environmental Contractors
- Discuss supervision of Indoor Environmental Contracting Projects

- Design an Effective Remediation Plan
- Evaluate types of Insurance types for microbial remediation contractors
- Discuss the types of Contract Documents

Appendix Review - Guidance documents and regulations section

During this portion of the course the instructor reviews the guidance documents and regulations that are included as appendices in the course manual. Guidance documents include National Air Duct Cleaners (NADCA) Assessment, Cleaning and Restoration (ACR) 2006 on HVAC cleaning, EPA Mold in Schools and Commercial Buildings, EPA Should You have the Air Ducts in Your Home Cleaned and the Occupational Safety and Health Administration (OSHA) Mold Remediation Guidance, 29CFR 1910.134.

- Discuss the NADCA ACR 2006
- Summarize the EPA documents Mold in Schools and Commercial Buildings & Should You have the Air Ducts in Your Home Cleaned
- Discuss the importance of OSHA documents including 29 CFR1910.134 and 29 CRF 1910.1200

ACAC Practice EXAM