Common Contaminants of Concern in the **PALMS*** of your Hands

OSHA+AIHA Alliance

(*) PALMS – PCB's, Asbestos, Lead/Legionella, Mold/Metals, Silica/Safety

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By Royal Charter

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* PCB
* Asbestos
* Lead / Legionella
* Mold / Metals
* Silica / Safety

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- ❑ Professional Development Hours (PDH) - the Practicing Institute of Engineering (PIE) for licensed Professional Engineers (PE) in New York State. PIE-approved courses are qualified for the American Institute of Architecture (AIA) Health, Safety, Welfare (HSW)-related training. To confirm the acceptance of PDHs outside of NYS, please consult the licensure board of that state.
- ❑ Professional Development Electives (PDE) - NYS Department of State (DOS) Code Division for Code Enforcement Officials (CEOs) and Building Safety Inspectors (BSIs) Certifications.
- ❑ Continuing Maintenance (CM) Hours/Units - CIHs and CSPs.

Annual PALMS Joint Meeting of NYC ASSP + AIHA + SENY

February 21, 2019

Presented by:
Mark Drozdov

AMERICAN SOCIETY OF SAFETY PROFESSIONALS

AIHA
Protecting Worker Health

Safety Executives of New York, Inc.

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AMERICAN SOCIETY OF
SAFETY PROFESSIONALS
New York City Chapter
MARK DROZDOV
In appreciation
for the presentation
on P.A.L.M.S.
February 21, 2019

P.A.L.M.S.

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Mark Drozdov MS, BSI, SSM, CSFSM, RSO, CAI, CMA, GPRO

SVP/Technical Director – BSI Services and Solutions (NYC) Inc.

Mark is a well known author and presenter on the subjects represented by the acronym PALMS – which stands for PCB, Asbestos, Lead/ Legionella, Mold/ Metals, Silica/ Safety & Health and heads the OSHA+AIHA NY Alliance to develop 'PALMS Best Practice Guideline' to address the Significant Environmental Health & Safety (EHS) Issues of the Common Contaminants of Concern Principals in the PALMS of your Hands.

For over 25 years, he has been on the consulting industry's leading edge of the BEST-PRACTICE programs and has effectively managed diverse range of projects, completing HazMat Testing, Remediation Engineering, Industrial Hygiene, Safety, Risk, Hazards Assessment and Code Compliance /Training and Certification Audits.

Mark is Principal Instructor, Lecturer/Adjunct Professor for The Cooper Union's GBG/EHS Program , also Columbia University, CUNY/City & Hunter Colleges and Stevens Institute of Technology (SIT). Mark served as Graduate Curriculum Development Director for Polytechnic University/NYU, Industrial Hygiene Safety Consultant for Long Island Occupational Environmental Health Center at Stony Brook University. He holds a Master of Science (MS) Degree in Green Building Planning & Design/Architecture.

Mark served as NY President of the American Industrial Hygiene Association and is a current AIHA.org GOVERNMENT ACTIONS Committee Officer. He was published in many industry publications, including on Risk Management in The Construction Executive and Crain's NY Business, and conducted numerous Presentations and Conferences and is recognized as a litigation support expert.

As a Certified Building Safety Inspector (BSI) per NYS Department of State (DOS) Division of Building Standards and Codes, Mark regularly performs fire, safety and property inspections of existing buildings and structures, as a Licensed Site Safety Manager (SSM) per NYCDOB, he designs and implements safety regulations to minimize injuries and accidents on construction sites. He's also a Certified Asbestos Investigator (CAI), Certified Mold Assessor (CMA), Radiation Safety Officer (RSO), Green Professional (GPRO), OSHA-authorized Instructor, EPA, DOH, DOL, DOB & FDNY approved Instructor, NYCOER-Gold Certified Professional and Committees Member of ASTM and ANSI, ACEC - Standards of Practice, Continuing Education and Scholarship, ASHRAE, ASHE/American Hospital Association (AHA), Local Emergency Planning Committee (LEPC), Safety Executives of New York (SENY) . **He is the International WELL Building Institute (IWBI) Faculty Member and Board of Directors Member of the Institute of Inspection, Cleaning, and Restoration Certification (IICRC), as well as serves on the IICRC Committees of Building Construction Identification (BCI) and the Safety & Health Field Guide for Disaster Restoration Professionals, Professional Member of the American Society of Safety Professionals (ASSP),, active Committee Member of NYC ASSP and the Fall Protection Standards ANSI Z359 Committee.**

Mark is a Certified Lead Auditor (ISO 19011:18) for ISO 14001:15 Environmental Management Systems (EMS) and ISO 45001 the first Global Standard for Occupational Health and Safety Management System (OHS MS) and US Technical Advisory Group (TAG) participant and an ISO Instructor.

Presentation Objectives:

- To identify the specifics of **PALMS** - risks and the latest developments
- To understand the applicable regulations and standards to **PALMS**
- **PALMS** updates - Permissible Exposure Limits (PEL)

Presentation Outline

- PALMS background, GHS & Toxic Exposures
- Workplace Hazard Exposure Analyzed
  - PEL, REL, and TLV
- OSHA+AIHA Alliance on PALMS
- PALMS UPDATES
  - BSI, ISO 45001 and IICRC
- Q&A

Recent Developments in the **PALMS*** of Your Hands

* **P**CB's
* **A**sbestos
* **L**ead / **L**egionella
* **M**old / **M**etals
* **S**ilica / **S**afety

P.A.L.M.S.

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NYC Labor Technical College
Building-Works Pre-Apprenticeship Program
Columbia University
OSHA Construction Safety & Health
Hotel Pennsylvania
NYC DOB Filing Representative
The City College of New York (CCNY)
NYC DOB Filing Representative
MTA/New York City Transit (NYCT)
Significant Code Issues - P.A.L.M.S.
The Cooper Union
Green Building Guidelines/Environmental Safety

Exploitation by exposure: Human rights and toxic exposures

22 October 2018, 3:00PM to 4:30 PM
UN Headquarters, New York, Conference Room E

Today, the evidence has grown that the vast majority of the global population lives on the wrong side of a toxic divide. For over 20 years, the mandate on human rights and toxics (formerly toxic waste) has reported to the UN Human Rights Council on human rights violations arising from toxic pollution. Given the need for stronger action at the global level, the mandate was requested in 2017 to begin reporting on the issue to the UN General Assembly.

This side event, organised parallel to the 73rd Session of the U.N. General Assembly, aims to further unfold the impacts of toxic pollution through the lens of human rights, and discuss potential solutions to these impacts. The panel will discuss pressing issues related workers' rights, childhood exposure, and the need for greater ambition at the international level to protect everyone's human rights, including the rights to life, health, food, water, just conditions of work, and a healthy environment.

Introductory Remarks

- Karolina Skog, Minister of the Environment and Energy, Sweden

Panellists

- David Michaels, Professor, Milken Institute School of Public Health, George Washington University
- Richard Fuller, President, Pure Earth
- Hilal Elver, UN Special Rapporteur on the right to food
- Baskut Tuncak, UN Special Rapporteur on human rights and toxics

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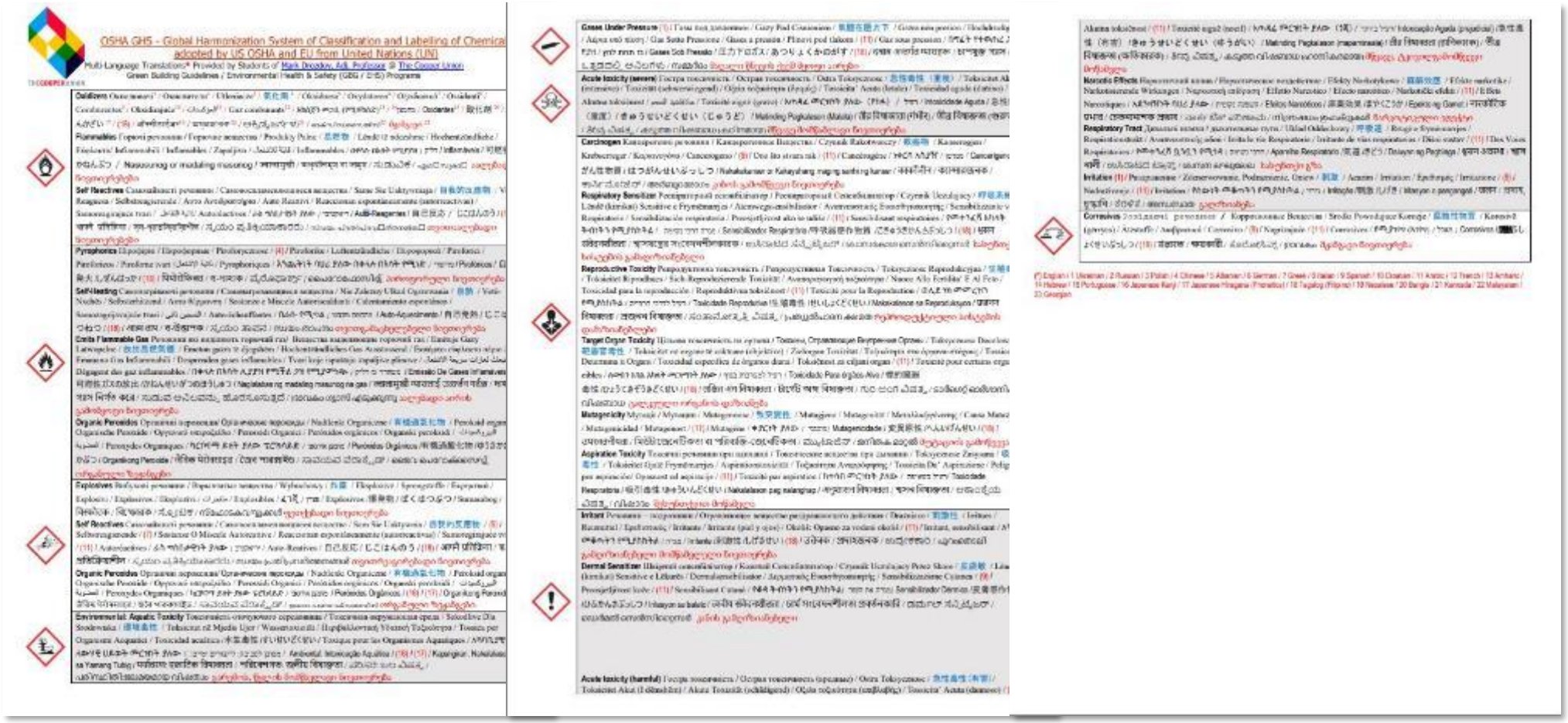
***Note:** All attendees must register by Friday 19 October 2018 (10AM EST) for admission by sending an email to srtoxicwaste@ohchr.org, and bring a valid ID, and a copy of this invitation to the UN Visitors Entrance (East 46th Street and 1st Avenue)*

GLOBAL HARMONIZATION SYSTEM (**GHS**) of CLASSIFICATION and LABELLING of CHEMICALS adopted by US OSHA and EU from **United Nations (UN)**

Multi-Language (23+) Translations Provided by Students of Mark Drozdov, Adj. Professor @ **THE COOPER UNION**
GREEN BUILDING GUIDELINES/ENVIRONMENTAL HEALTH & SAFETY (EHS) PROGRAMS



https://www.bsigroup.com/globalassets/localfiles/en-us/documents/ehs-events/osha-ghs-symbols-multi-language.pdf

NYCDEP Master Environmental Hazard Remediation Technician Registration (voluntary)

http://www.nyc.gov/html/dep/pdf/air/qa-vhmrt.pdf

1. IICRC Water Damage Restoration Technician (WRT) 20 hours
2. Applied Microbial Remediation Technician (AMRT) 24 hours / Prerequisite: IICRC-accredited Water Damage Restoration Technician (WRT)
3. Fire and Smoke Restoration Technician (FSRT) 16 hours
4. NYS Asbestos Handler 32 hours or 8 hour Refresher
5. EPA Lead Worker 16 hours or 8 hour Refresher
6. HAZWOPER 40 hours or 8 hour Refresher
7. OSHA 10 Construction
8. OSHA 10 Gen. Industry
9. PCB 4 hours
10. Bloodborne Pathogens 4 hours
11. ICRA 4 hours

TOTAL: 180 hours – 4.5 weeks NOTE: New NY Mold Regs to comply now.

Nassau County
Long Island, New York

Environmental Hazard Remediation Provider / Remediation Technician License

became law September 25, 2014 - Chapter 21 New Title D-22, Training requirements by Jan. 1, 2020

https://www.nassaucountyny.gov/DocumentCenter/View/9956

1. **IICRC Water Damage Restoration Technician (WRT) 19 hours**
2. **Applied Microbial Remediation Technician (AMRT) 28 hours / Prerequisite: IICRC-accredited Water Damage Restoration Technician (WRT)**
3. **Fire and Smoke Restoration Technician (FSRT) 14 hours**
4. **OSHA 10 Construction + Gen. Industry**
5. **NYS Asbestos Handler 32 hours**
6. **EPA Lead Worker 16 hours**
7. **HAZWOPER 40 hours**
8. **OSHA 10 Construction**
9. **PCB 4 hours**
10. **Bloodborne Pathogens 4 hours**
11. **ICRA 4 hours**

TOTAL: 171 hours – 4.275 weeks

NOTE: New NY Mold Regs to comply now.

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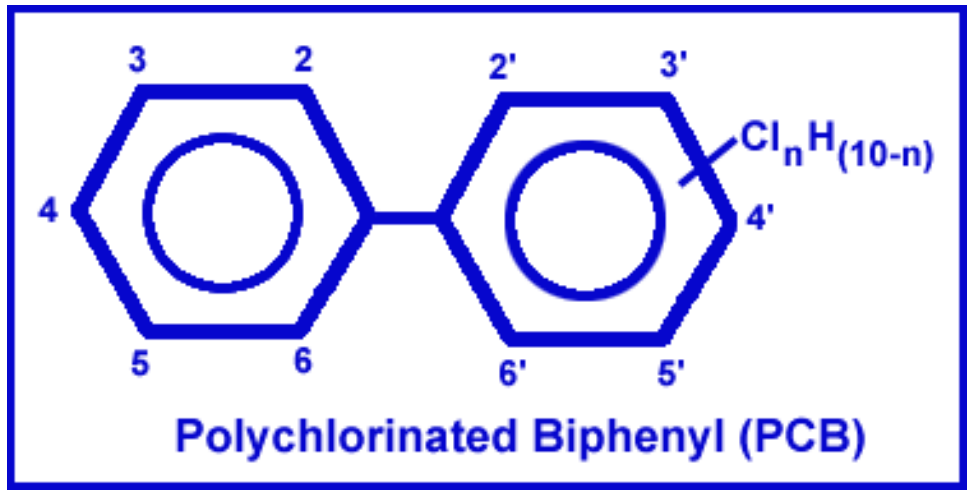
Recent Developments in the **PALMS*** of Your Hands

* **P**CB's

POLYCHLORINATED BIPHENYLS – PCB'S

Figure 1

Figure 2



- Manufactured by the Monsanto Company under the trade name "Aroclor"
- Industrial and commercial applications
- NOTE: Mercury vapor fluorescent light tubes

IMPORTANT LIMITS & THRESHOLDS – PCB'S

- Concentrations over 50 ppm in bulk material –

  NYS Hazardous Waste

- Concentrations between 1 and 50 ppm in soil –

  PCB Remediation Waste

- OSHA Permissible Exposure Limit (PEL) –

  1 mg/cubic meter

- Recommended Soil Clean-Up Objective –

  1 ppm (TAGM 4046)

Recent Developments in the **PALMS*** of Your Hands

* **A**sbestos

ASBESTOS RULE AMENDMENT NYC DEP

- Effective January 6, 2019

the new Asbestos NYC rules and regulations that just went into effect this month and only refer to "textured paint" - where as we now know that even regular paints may contain asbestos-talc filler:

1-38 Asbestos Assessment Report – Asbestos Survey and Sampling Requirements.…Other suspect miscellaneous materials including, but not limited to, insulation board, vapor barriers, coatings, non-metallic or non-wood roof decking, felts, cementitious board (transite), pipe (transite), flashing, shingles, galbestos, dust and debris, floor tiles, cove base, floor leveler compound, ceiling tile, vermiculite insulation, gaskets, seals, sealants (including for condensate control), vibration isolators, laboratory tables and hoods, chalkboards, pipe penetration packing and other fire-stopping materials, millboard, electrical wire insulation, fire curtains, fire blankets, fire doors, brakes and clutches, mastics, adhesives, glues, caulks, sheet flooring (linoleum), wallpaper, drywall, plasterboard, spackling/ joint compound, textured paint, grout, glazing compound, and terrazzo…

NEW YORK STATE OF OPPORTUNITY. Department of Health

ANDREW M. CUOMO
Governor

HOWARD A. ZUCKER, M.D., J.D.
Commissioner

SALLY DRESLIN, M.S., R.N.
Executive Deputy Commissioner

SUBJECT	DATE	PAGE	ITEM NO.
Polarized-Light Microscope Method for Identifying and Quantitating Asbestos in Surfacing Material Containing Vermiculite Bulk Samples	05/06/16	4 of 42	198.8

Table 1. Asbestos Sample Types

Material Types that may be analyzed by Item 198.1 (unless NOB material is identified)	Material Types that must be analyzed by Item 198.6/198.4	Material Types that must be analyzed by Item 198.8 or RJ Lee Method 055
Ceiling Tiles *without* Cellulose	Ceiling Tiles *with* Cellulose	**Surfacing Material containing Vermiculite (SM-V)**
Gypsum Wallboard Joint Compounds	Resilient Floor Tiles	
Wall and Ceiling Plaster	Vinyl Asbestos Tile	
Acoustical Ceiling and Wall Coatings	Mastic	
Sprayed Decorative Coatings (Texture Coats)	Asphalt Shingles	
Asbestos Pipe Packing	Roofing Materials	
Pipe Insulation	Paint Chips	
Duct Wrap	Caulking	
Fiberglass Insulation	Glazing	
Boiler Insulation	Rubberized Asbestos Gaskets	
Furnace Gaskets	Siding Shingles	
House Wrap	**NOB materials (other than SM-V) with < 10% vermiculite**	
Friable materials (other than SM-V) with < 10% vermiculite	**Any material (Friable or NOB other than SM-V) with > 10% vermiculite**	
Surfacing Material (SM) without Vermiculite		

Asbestos-Contaminated Talc Used as Filler in Paints (non-textured too)
Source: Gouverneur Mine, New York

- http://www.lipsitzponterio.com/jobsites-Gouverneur_Talc_Balmat_Asbestos_Exposure.html
- **https://nypost.com/2018/07/12/nearly-4-7b-awarded-in-suit-linking-cancer-johnson-johnson-baby-powder/**
- https://nypost.com/2018/12/14/how-johnson-johnson-hid-its-baby-powder-asbestos-problem/?utm_campaign=iosapp&utm_source=message_app

In 1948, the Gouverneur Talc Company began mining and milling talc near Balmat, New York. A subsidiary of R. T. Vanderbilt, Gouverneur Talc produced talc for various industrial uses, including the manufacture of paint, ceramics and plastic molding compound. In 1974, the mines and mills of the International Talc Company were acquired by Gouverneur Talc. These facilities were adjacent to the Gouverneur Talc mine. In 2008, Gouverneur Talc ceased talc production at its Balmat facilities.

Scientists have correlated exposure to talc mined in the Gouverneur area of Northern New York with instances of mesothelioma and other asbestos-related diseases among the talc miners.[1] Naturally-occurring asbestos formations exist throughout talc deposits in this region. Jefferson County, which is just south of the area where the mines were located and where many of the miners lived, has continually had one of the highest mortality rates for mesothelioma in the United States over the past fifty years. [2] Males in this community had the sixth highest mesothelioma mortality rate in the nation during a period in time when the Balmat mines were extremely active (1968-1981). The mesothelioma mortality rate for women during this time period was the second highest in the nation. Since the early 1980's, the mesothelioma rate has increased to the point that it is now five to ten times the background rate. [3] Talc mine workers, outside contractors and residents of Jefferson and St. Lawrence Counties are at risk of developing mesothelioma, lung cancer or other lung ailments related to talc exposure from the Balmat mines.

Prior to the late 1970s, asbestos insulation covered boilers, pipes and associated equipment throughout the Gouverneur Talc facility. Due to wear and tear, laborers removed and reapplied asbestos-containing materials. When workers handled asbestos-containing insulation, asbestos dust and fibers were released into the air and into the breathing zones of anyone in the vicinity. Most workers were completely unaware of the dangers of exposure to asbestos and performed their work without masks or protective gear. Exposure to asbestos can cause mesothelioma, lung cancer or other asbestos-related diseases.

Exposure to dust resulting from talc mining and milling put many miners and their families at risk for mesothelioma and lung cancer. If you or a loved one worked, lived or played near the Balmat mines and have been diagnosed with mesothelioma or lung cancer, we urge you to contact us regarding your legal rights.

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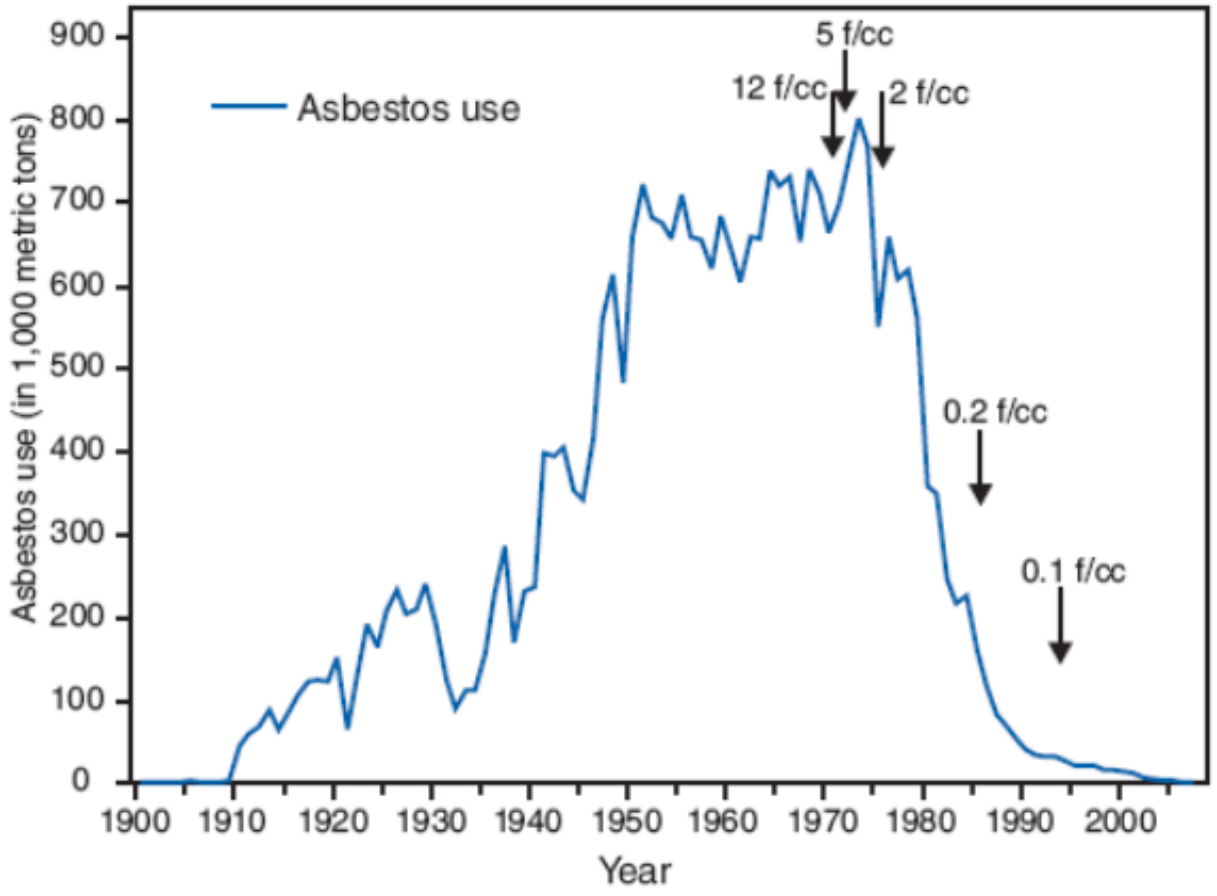
[1] Abraham, Jerrold L., Bruce W. Case, and Mindy J. Hull. "Mesothelioma among Workers in Asbestiform Fiber-bearing Talc Mines in New York State." *The Annals of Occupational Hygiene* 46 (2002): 132.

[2] Abraham, Jerrold L., Bruce W. Case, and Mindy J. Hull. "Mesothelioma among Workers in Asbestiform Fiber-bearing Talc Mines in New York State." *The Annals of Occupational Hygiene* 46 (2002): 132-134.

[3] Abraham, Jerrold L., Bruce W. Case, and Mindy J. Hull. "Mesothelioma among Workers in Asbestiform Fiber-bearing Talc Mines in New York State." *The Annals of Occupational Hygiene* 46 (2002): 134.

Asbestos Use and Permissible Exposure Limits (PEL)

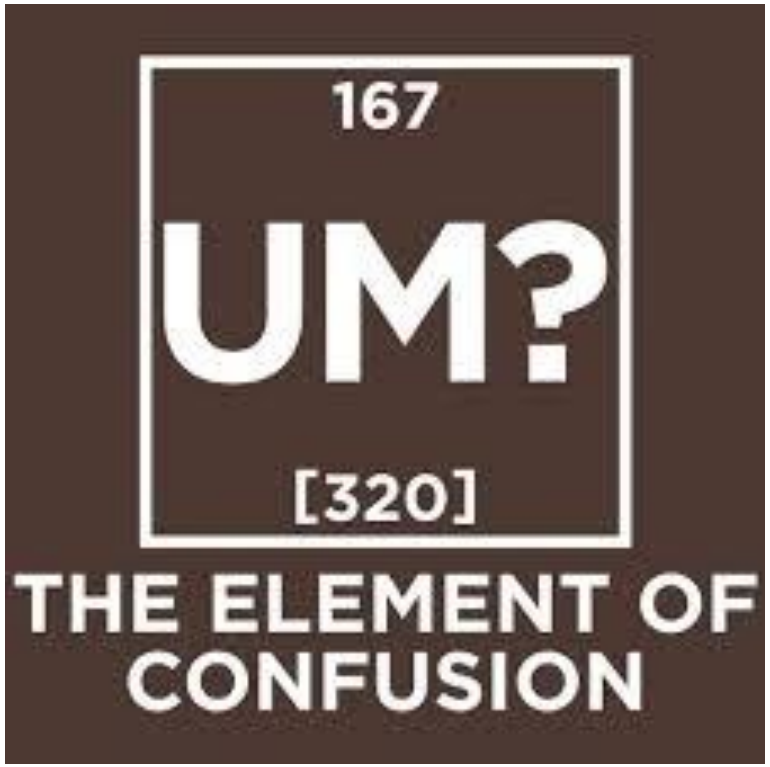
US - 1900 TO TODAY



http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5815a3.htm

It can be confusing:

- TLV
- REL
- PEL



Many questions raised:

- How are the limits developed?
- How are they reviewed and modified?
- Who has input?
- How are they applied in practice?
- Are they measureable, achievable, enforceable?
- Are they truly protective and effective in the promotion of greater occupational health?

Threshold Limit Values (TLV)
American Conference of Governmental Industrial Hygienists (ACGIH)

- First Nationally-recognized limits in US, since 1940's
- TLV is based on group consensus resulting in a recommendation of what the upper exposure limits should be for a hazardous substance.
    - Advisory guidelines prepared by small committee of volunteers
    - Restricted Participation, Selective Input, Authors Not Disclosed
    - Largely academic participation from Universities
- ACGIH has 677 chemicals with TLVs.
- Position and Policy Statements Are Clear - *Not developed as enforceable standards*

Recommended Exposure Limit (REL) National Institute for Occupational Safety and Health (NIOSH)

- REL is an occupational exposure limit recommended by NIOSH to OSHA to adopt as the "new" permissible exposure limit.
- The REL is a level that NIOSH believes would be protective of workplace safety and employee health over a working lifetime.
- Although not legally enforceable limits, NIOSH RELs are considered by OSHA during the promulgation of legally enforceable PELs.
    - No REL has ever been adopted by OSHA.
    - RELs are used as guides by some industry and advocacy organizations.
    - NIOSH publishes RELs that OSHA takes into consideration when promulgating new regulatory exposure limits.

Permissible Exposure Limits (PEL) Occupational Safety and Health Administration (OSHA)

- Required by law in Section 6 of the Occupational Safety and Health Act
- PEL is the maximum upper exposure legal limit to a hazardous substance exposure that an employee can be exposed to in an 8-hour period TWA.
- Essentially, a PEL is often the same as a TLV/REL except PELs are actual OSHA regulations.
  - The OSHA regulatory PELs are published in 29CFR 1910.1000 Table Z1, Z-2 and Z-3.
  - Legislature approval is required to change a PEL.
  - Enforceable, with defined penalties.
- Dedicated staffing for Health Standards with annual budget (OSHA & NIOSH) over $1B
  - Due process with open hearings, disclosure and negotiated rulemaking
  - Allows for Temporary Emergency Standards if imminent danger is known
  - Extremely political with factors beyond safe limits of exposure considered
- OSHA has approximately 212 chemicals with PELs.

What's the Problem?

- PEL's and TLV's often used interchangeably in rules, procedures, contracts and claims.
- OSHA PELs adopted TLVs based on recommendations made by the ACGIH in 1968, meaning the existing PELs were once TLVs.
- Derivation and application not conforming to stated objectives
- Practitioners uncertainty as to which exposure limit to use and too often poorly equipped to explain these differences

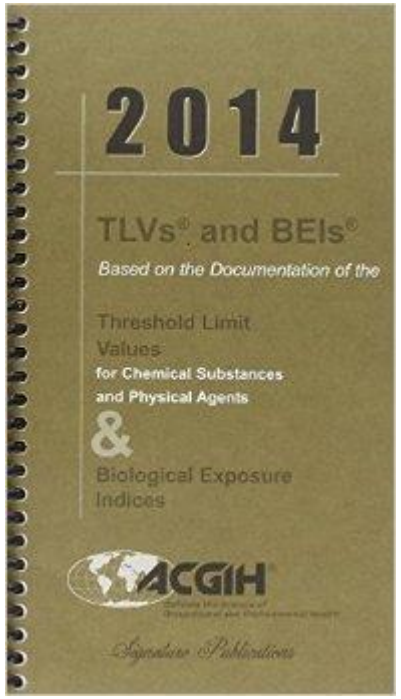
TLV, REL AND PEL FOR RESPIRABLE SILICA

CAS number: 112945-52-5

ACGIH TLV-TWA 25 µg/m3

NIOSH REL 50 µg/m3

OSHA PEL 50 µg/m3



- Since 1970 TLV for silica has changed many times. Meanwhile the OSHA PEL took 45 years to be changed.
- Which exposure limit do you use? Is there an industry standard you should be aware of?
- Since the OSHA PEL is higher, isn't the new TLV automatically better and more protective?

TLV FAQ

- Is this TLV the law? No - It is neither a standard nor a regulation.
- Does a TLV represent the consensus of the industrial hygiene profession? No - Membership on the TLV committee is restricted to employees of governmental organizations.
- Does TLV Documentation provide a complete and balanced summary of the information known and available on this topic? No - It summarizes a series of illness claims for others to sort out through further investigation and analysis.
- Does the TLV Committee conduct new research to determine how this limit may be achieved? No - The TLV Statement of Position is clear that these values are presented with no consideration for economic or technical feasibility.
- Since the OSHA PEL for silica is higher, isn't the TLV automatically better and more protective? Not Necessarily, TLVs and PELs play very different roles.

Summary

- The PEL, REL, and TLV are measurements that identify the upper exposure limits of a hazardous substance based on TWA 8 hours of exposure.
- The PEL is enforceable by OSHA (and the Law), whereas the REL and TLV are not.
- When an employee's workplace hazardous substance exposure is analyzed, it takes into account all three terms: PEL, REL, and TLV.
- Understanding how everything works together to obtain a clear picture of an employee's exposure is the key to workplace safety in this regard.

Recent Developments in the **PALMS*** of Your Hands

* **L**ead / **L**egionella

LEAD

- Lead Paint: Currently, lead paint is defined as having a lead content of 1 mg/cm2. NYC is proposing to lower this to 0.5 mg/cm2. Under this new standard, New York City's lead paint definition will be the most stringent of any big city, and even more homes will be subject to the enforcement powers already set forth in Local Law 1.
- Lead Dust: Currently defined at 40 mcg/ft2 for floors and 250 mcg/ft2 for window sills, NYC is proposing lowering the lead dust definition to 10 mcg/ft2 for floors and 100 mcg/ft2 for window sills. NYC is proposing that this protective new legal standard be used to assess all lead dust hazards, including from construction work in residential buildings and cleanup verification, which is a significant step further than what the EPA recently proposed.

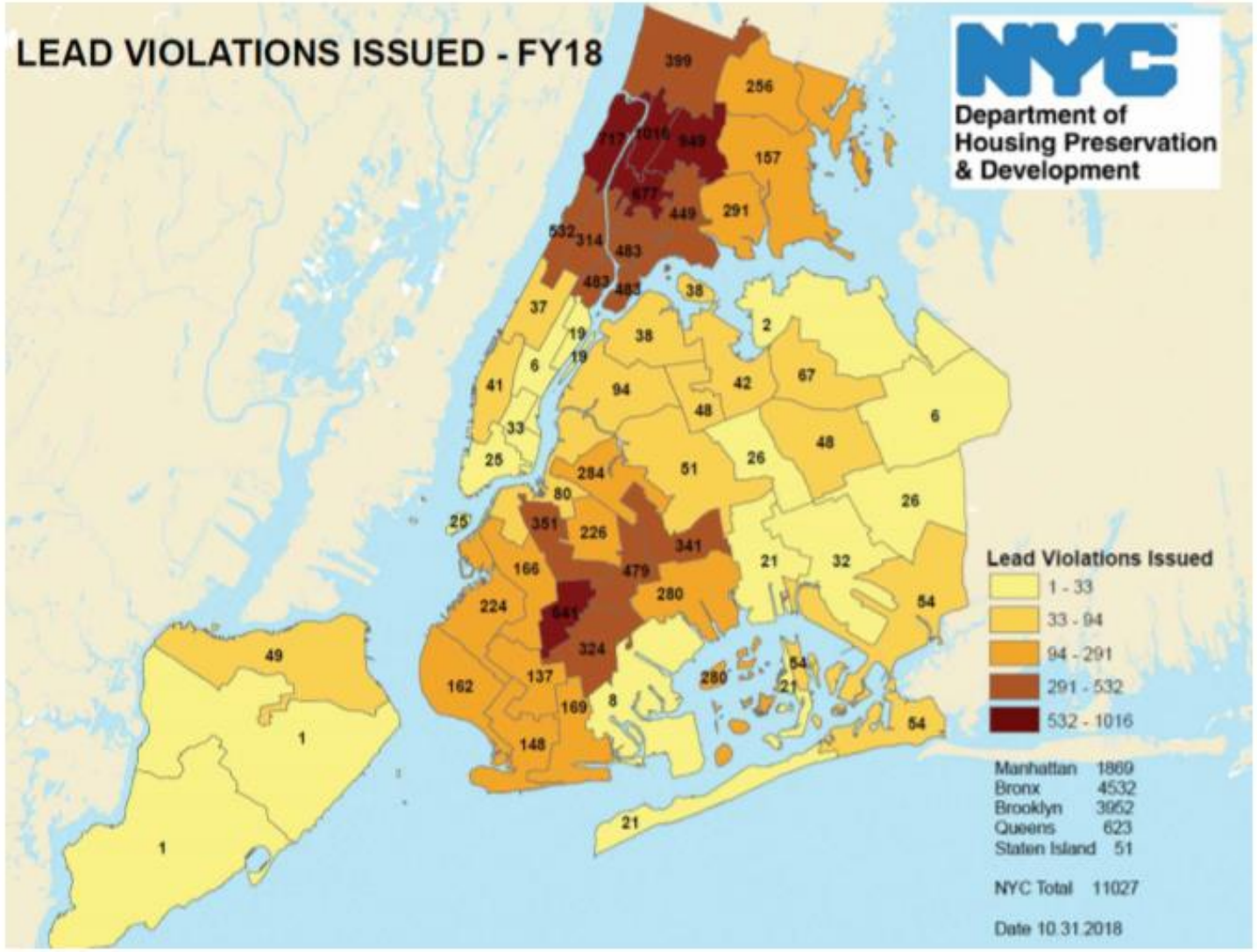
LEAD FREE NYC

In a group of 219 children who had a blood lead level at or above 15 mcg/dL in 2017, the following lead hazards were identified based on a home inspection and child-specific, comprehensive risk assessment results.

Note: For children that do not have an identified detectable lead hazard in the child's environment, DOHMH works with the child and their family until the child's blood lead level drops below 5 mcg/dL. Of the 2 home inspections that identified water or soil with detectable levels of lead, both had a secondary source of paint identified. Soil is sampled and tested only when a child has a risk factor identified for (i) playing outside of the building where there is bare soil or (ii) eating soil. A residential water test is sent to each family, but it is not always returned.

Source: NYC Department of Health and Mental Hygiene

LEAD FREE NYC

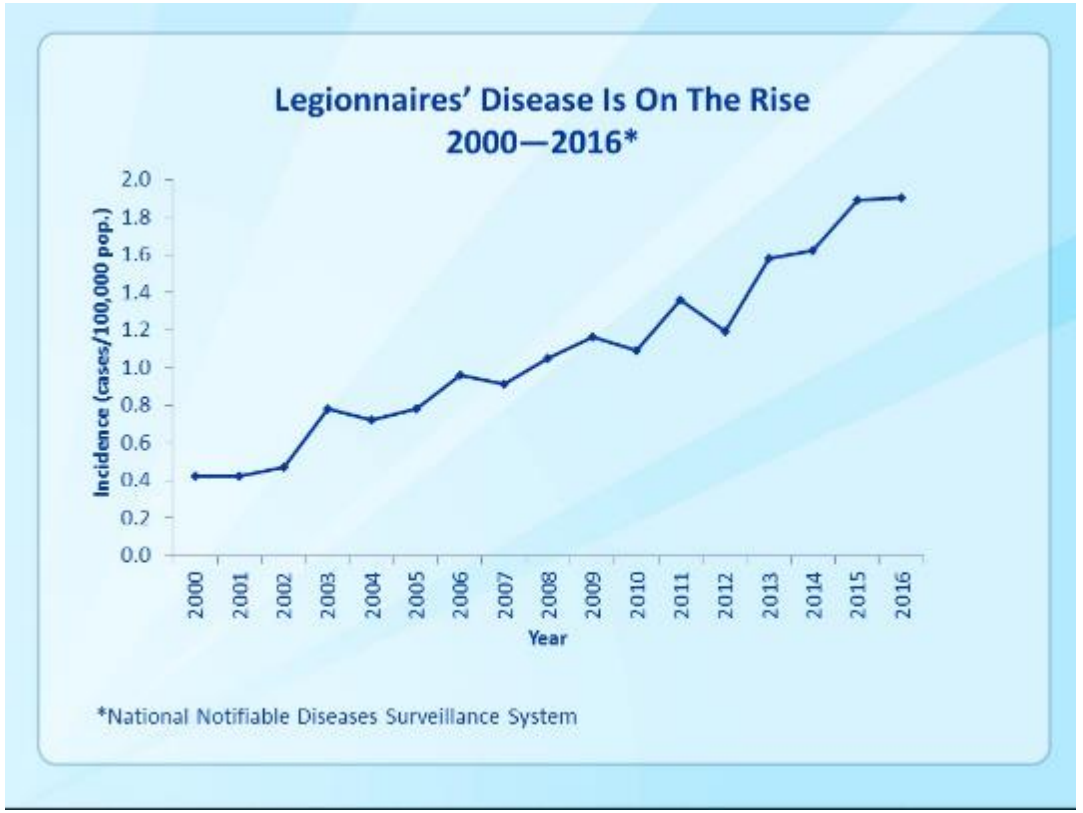


LEGIONELLA

Legionella can cause Legionnaires' disease or Pontiac fever, collectively known as legionellosis.

Appendix 4-B

Interpretation of Routine[1] *Legionella* Culture Results from Covered Facilities	
Percentage of Positive *Legionella* Test Sites	Response
< 30%	Maintain environmental assessment and *Legionella* monitoring in accordance with the sampling and management plan.
≥ 30%	○ Immediately institute short-term control measures[2] in accordance with the direction of a qualified professional,[3] and notify the department. ○ The water system shall be re-sampled no sooner than 7 days and no later than 4 weeks after disinfection to determine the efficacy of the treatment. • Retest and retest. If retest is ≥ 30% positive, repeat short-term control measures.[2] • With receipt of results < 30% positive[4], resume monitoring in accordance with the sampling and management plan. ○ For persistent results, as determined by the department, showing ≥ 30% positive sites, long-term control measures[5] shall be implemented in accordance with the direction of a qualified professional[3] and the department.



LEGIONELLA – NYC vs. NYS (cooling towers)

NYC (cooling towers):

Table 8-1. Corrective actions required for *Legionella* culture results.

Level	*Legionella* Culture Result[1]	Process Triggered by *Legionella* Culture Results
1	<10 CFU/ml	Maintain water chemistry and biocide levels.
2	≥ 10 CFU/ml to <100 CFU/ml	Initiate immediate disinfection by increasing biocide concentration or using a different biocide within 24 hours; review treatment program; and retest water within 3-7 days. Subsequent test results must be interpreted in accordance with this Table until level 1 is reached.
3	≥ 100 CFU/ml to <1000 CFU/ml	Initiate immediate disinfection by increasing biocide concentration or using a different biocide (within 24 hours); reviewing treatment program; performing visual inspection to evaluate need to perform cleaning and further disinfection. Retest water within 3-7 days. Subsequent test results must be interpreted in accordance with this Table until level 1 is reached.
4	≥ 1000 CFU/ml	Initiate immediate disinfection by increasing biocides within 24 hours. Within 48 hours perform full remediation of the tower by hyperhalogenating[2], draining, cleaning, and flushing. Review treatment program; retest water within 3-7 days. Subsequent test results must be interpreted in accordance with this Table until level 1 is reached. For *Legionella* results at this level, notify Department within 24 hours of receiving test result.[3]

NYS (cooling towers):

Appendix 4-A

Interpretation of *Legionella* Culture Results from Cooling Towers	
Legionella Test Results in CFU/mL[1]	Response
No detection (< 20 CFU/mL)	Maintain treatment program and *Legionella* monitoring in accordance with the maintenance program and plan.
For levels at ≥ 20 CFU/mL but < 1000 CFU/mL perform the following:	○ Review treatment program. ○ Institute immediate *online disinfection*[2] to help with control ○ Retest the water in 3 – 7 days. • Continue to retest at the same time interval until one sample retest result is < 20 CFU/mL. With receipt of result < 20 CFU/mL, resume routine maintenance program and plan. • If retest is ≥ 20 CFU/mL but < 100 CFU/mL, repeat *online disinfection*[2] and retest until < 20 CFU/mL attained. • If retest is ≥100 CFU/mL but < 1000 CFU/mL, further investigate the water treatment program and immediately perform *online disinfection*.[2] Retest and repeat attempts at control strategy until < 20 CFU/mL attained. ○ If retest is ≥ 1000 CFU/mL, undertake control strategy as noted below.
For levels ≥ 1000 CFU/mL perform the following:	○ Review the treatment program and provide appropriate notifications per section 4-1.6 of this Subpart. ○ Institute immediate *online decontamination*[3] to help with control ○ Retest the water in 3 – 7 days. • Continue to retest at the same time interval until one sample retest result is < 20 CFU/mL. With receipt of result < 20 CFU/mL, resume routine maintenance program and plan. • If any retest is ≥ 20 CFU/mL but < 100 CFU/mL, repeat *online disinfection*[2] and retest until < 20 CFU/mL attained. • If any retest is ≥ 100 CFU/mL but < 1000 CFU/mL, further investigate the water treatment program and immediately perform *online disinfection*.[2] Re-test and repeat attempts at control strategy until < 20 CFU/mL attained. • If any retest is ≥ 1000 CFU/mL: ▪ carry out *system decontamination*[4].

[1] Colony forming units per milliliter.

[2] Online disinfection means – Dose the cooling tower water system with either a different biocide or a similar biocide at an increased concentration than currently used.

[3] Online decontamination means – Dose the recirculation water with a halogen-based compound (chlorine or bromine) equivalent to at least 5 milligrams per liter (mg/L) or parts per

ANSI/ASHRAE Standard 188-2018 Legionellosis: Risk Management for Building Water Systems, an American National Standard that aims to minimize the potential for Legionnaires' disease to spread throughout building water systems has been revised.

British Standard - BS 8580-1:2019 Water quality. Risk assessments for Legionella control. Code of practice*

HSG 274 Part 1 is concerned with cooling towers
HSG 274 Part 2 is concerned with hot and cold water services
HSG 274 Part 3 is concerned with "other" systems
HSG 282 The control of legionella and other infectious agents in spas/pools

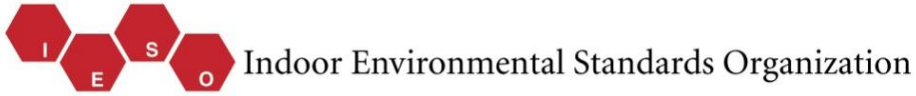
*UK's Health and Safety Executive (HSE) *Approved Code of Practice and Guidance*

Recent Developments in the **PALMS*** of Your Hands

* **M**old / **M**etals

REGULATIONS. GUIDELINES. STANDARDS

Safety Executives
of New York, Inc.



Building Code of The City of New York (2014)

2506.3 Mold resistanc Gypsum board or cement board, used in an assembly for the following areas, shall have a mold resistance rating of 10 in accordance with ASTM D3273:

1. Interior faces of exterior walls of basements, cellars, and other below grade rooms;
2. Walls and ceilings of spaces containing condensers, water tanks, water pumps, and pressure reduction valves;
3. Walls and ceilings of laundry rooms;
4. Portions of walls within 2 feet (610 mm) of kitchen sinks to a height of 4 feet (1219 mm) above the floor;
5. Portions of walls within 2 feet (610 mm) of kitchen stoves to a height of 4 feet (1219 mm) above the floor;
6. Walls of bathrooms that are not solely water closet compartments, other than walls specifically required to be cement board;
7. Walls and ceilings in service sink closets; and
8. Portions of walls within 2 feet (610 mm) of mop sinks or service sinks to a height of 4 feet (1219 mm) above the floor.

OSHA®
Occupational Safety and Health Administration

- Level I: Small Isolated Areas (10 sq. ft. or less) – can be remediated by properly trained maintenance staff with proper PPE.
- Level II: Mid-Sized Isolated Areas (10-30 sq. ft.) – can be remediated by properly trained maintenance staff with proper PPE.
- Level III: Large Isolated Areas (30 –100 sq. ft.) – to be remediated by personnel trained in the handling of hazardous materials with proper PPE.
- Level IV: Extensive Contamination (greater than 100 sq. ft.) - to be remediated by personnel trained in the handling of hazardous materials with proper PPE

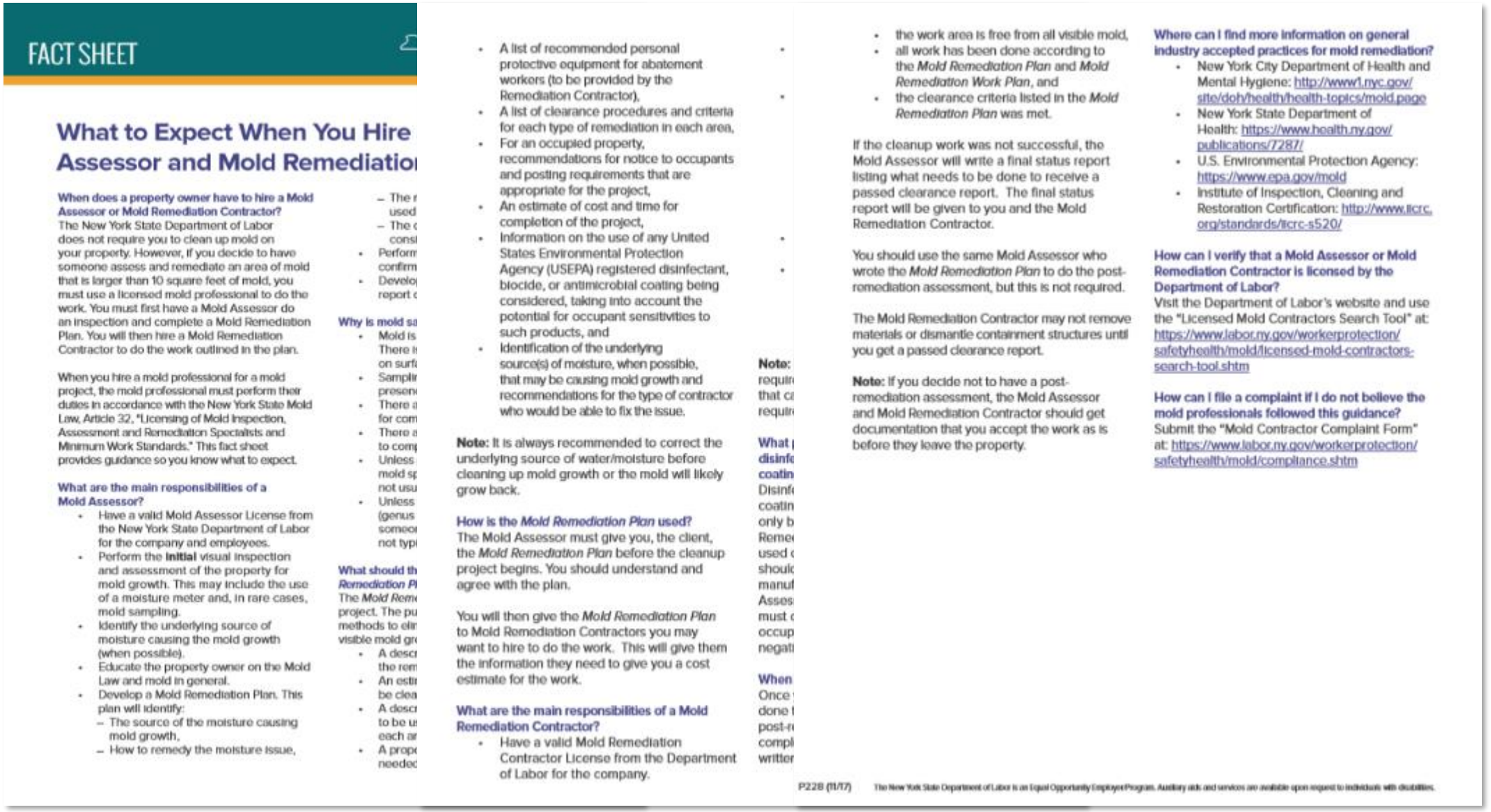
The American Society of Safety Engineers

- ASSE (**now ASSP**) believes the Society can assist its members by providing guidelines under which such work can be executed in a manner that provides protection to workers and which does not cause increased risk to building occupants.
- The current focus of ASSE's efforts is workplace employee occupants and remediation workers. This position statement is the foundation upon which current ASSE initiatives and efforts in this area will be based and defines ASSE's current understanding and position regarding mold in the indoor environment at this point in time.
- Regular visual inspections for signs of mold growth and proper building design, operation, and maintenance are key to preventing mold-related incidents in building occupants.
- Routine measures can be taken to minimize mold growth indoors, primarily by controlling water intrusion into buildings including leaks, condensation, and excessive moisture in outdoor air.

LEGISLATION ESTABLISHED - MOLD

Article 32 **New York State Labor Law** (amended February 5, 2015)

- Licensing
- Mold Project is > 10SF
- Minimum Standards
- Remediation Protocol
- Biocide Statement
- Conflict of Interest Clause
- Certificate of Completion



FACT SHEET

What to Expect When You Hire Assessor and Mold Remediatio

When does a property owner have to hire a Mold Assessor or Mold Remediation Contractor?
The New York State Department of Labor does not require you to clean up mold on your property. However, if you decide to have someone assess and remediate an area of mold that is larger than 10 square feet of mold, you must use a licensed mold professional to do the work. You must first have a Mold Assessor do an inspection and complete a Mold Remediation Plan. You will then hire a Mold Remediation Contractor to do the work outlined in the plan.

When you hire a mold professional for a mold project, the mold professional must perform their duties in accordance with the New York State Mold Law, Article 32, "Licensing of Mold Inspection, Assessment and Remediation Specialists and Minimum Work Standards." This fact sheet provides guidance so you know what to expect.

What are the main responsibilities of a Mold Assessor?

- Have a valid Mold Assessor License from the New York State Department of Labor for the company and employees.
- Perform the **initial** visual inspection and assessment of the property for mold growth. This may include the use of a moisture meter and, in rare cases, mold sampling.
- Identify the underlying source of moisture causing the mold growth (when possible).
- Educate the property owner on the Mold Law and mold in general.
- Develop a Mold Remediation Plan. This plan will identify:
  - The source of the moisture causing mold growth,
  - How to remedy the moisture issue,
  - The
  - The
- Perform
- Develo

Why is mold sa

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- A list of recommended personal protective equipment for abatement workers (to be provided by the Remediation Contractor),
- A list of clearance procedures and criteria for each type of remediation in each area,
- For an occupied property, recommendations for notice to occupants and posting requirements that are appropriate for the project,
- An estimate of cost and time for completion of the project,
- Information on the use of any United States Environmental Protection Agency (USEPA) registered disinfectant, biocide, or antimicrobial coating being considered, taking into account the potential for occupant sensitivities to such products, and
- Identification of the underlying source(s) of moisture, when possible, that may be causing mold growth and recommendations for the type of contractor who would be able to fix the issue.

Note: It is always recommended to correct the underlying source of water/moisture before cleaning up mold growth or the mold will likely grow back.

How is the *Mold Remediation Plan* used?
The Mold Assessor must give you, the client, the *Mold Remediation Plan* before the cleanup project begins. You should understand and agree with the plan.

You will then give the *Mold Remediation Plan* to Mold Remediation Contractors you may want to hire to do the work. This will give them the information they need to give you a cost estimate for the work.

What are the main responsibilities of a Mold Remediation Contractor?

- Have a valid Mold Remediation Contractor License from the Department of Labor for the company.

Note:

What

- the work area is free from all visible mold,
- all work has been done according to the *Mold Remediation Plan* and *Mold Remediation Work Plan*, and
- the clearance criteria listed in the *Mold Remediation Plan* was met.

If the cleanup work was not successful, the Mold Assessor will write a final status report listing what needs to be done to receive a passed clearance report. The final status report will be given to you and the Mold Remediation Contractor.

You should use the same Mold Assessor who wrote the *Mold Remediation Plan* to do the post-remediation assessment, but this is not required.

The Mold Remediation Contractor may not remove materials or dismantle containment structures until you get a passed clearance report.

Note: If you decide not to have a post-remediation assessment, the Mold Assessor and Mold Remediation Contractor should get documentation that you accept the work as is before they leave the property.

Where can I find more information on general industry accepted practices for mold remediation?

- New York City Department of Health and Mental Hygiene: http://www1.nyc.gov/site/doh/health/health-topics/mold.page
- New York State Department of Health: https://www.health.ny.gov/publications/7287/
- U.S. Environmental Protection Agency: https://www.epa.gov/mold
- Institute of Inspection, Cleaning and Restoration Certification: http://www.iicrc.org/standards/iicrc-s520/

How can I verify that a Mold Assessor or Mold Remediation Contractor is licensed by the Department of Labor?
Visit the Department of Labor's website and use the "Licensed Mold Contractors Search Tool" at: https://www.labor.ny.gov/workerprotection/safetyhealth/mold/licensed-mold-contractors-search-tool.shtm

How can I file a complaint if I do not believe the mold professionals followed this guidance?
Submit the "Mold Contractor Complaint Form" at: https://www.labor.ny.gov/workerprotection/safetyhealth/mold/compliance.shtm

P228 (11/17) The New York State Department of Labor is an Equal Opportunity Employer/Program. Auxiliary aids and services are available upon request to individuals with disabilities.

NYS DOL FACT SHEET FOR MOLD ASSESSMENT AND MOLD REMEDIATION

- New York City Department of Health and Mental Hygiene: http://www1.nyc.gov/site/doh/health/health-topics/mold.page
- New York State Department of Health: https://www.health.ny.gov/publications/7287/
- U.S. Environmental Protection Agency: https://www.epa.gov/mold
- Institute of Inspection, Cleaning and Restoration Certification (**IICRC.ORG**)

IICRC
Institute of Inspection Cleaning and Restoration Certification

- IICRC Standards serve to develop common, industry-accepted language and terminology for universal concepts and procedures -become the de facto “standard of care”
- IICRC is accredited by American National Standards Institute (ANSI)
- IICRC is a standard-setting, non-profit organization that serves more than 25 countries
- ANSI/IICRC S520 Standard & Reference Guide for Professional Mold Remediation
- ANSI/IICRC S500 Standard & Reference Guide for Professional Water Damage Restoration
- IICRC Safety & Health Field Guide for Disaster Restoration Professionals

Indoor Allergen Hazards (Mold & Pests) Local Law 61

Local Law 61 of 2018 established minimum standards for carrying out Mold Assessment,, Mold Abatement and Mold Remediation for buildings that contain 10 or more dwelling units or is located on a zoning lot that contains 25,000 or more square feet of non-residential floor area. The law also requires the person holding a Mold Assessment license to file with DEP a Mold Remediation Form and Work Plan as well as a Mold Post Assessment Form and a Mold Post Certification Form.

For more information, please visit the link below:

https://www1.nyc.gov/assets/buildings/local_laws/ll55of2018.pdf

Department of Housing Preservation & Development

Notice of Adoption of Rules regarding Indoor Allergen Hazards Local Law 55 Effective January 19, 2019

Local Law 55 of 2018 establishes and owner's responsibility to investigate for and remediate indoor allergen hazards like mold, cockroaches, mice and rats in multiple dwellings. The rules provide work practices to be used by owners in performing work to remediate these conditions. The rules also provide a sample form for owners to use in providing notice to tenants as requires under the law, and procedures for submitting certifications of correction of such violations.

For more information, please visit the link below:

https://www1.nyc.gov/site/hpd/owners/indoor-allergen-hazards.page

HPD's December 2018 Notice to Property Owners

Allergen Hazards: can worsen allergies and trigger asthma attacks in people who are sensitive to them. Common indoor allergens or triggers include mold, mice, cockroaches, and rats. Effective January 19th, 2019, under Local Law 55 of 2018, owners of multiple dwellings will be required to annually inspect units for mold, mice, cockroaches, and rats (indoor allergen hazards). Please note that this update only addresses requirements for mold.
Effective January 1st 2019, Local Law 61 of 2018 requires the use of two **different** licensed professionals (mold remediators and mold assessors) when a property owner of a building with 10 or more units is addressing mold over 10 square feet (including when addressing HPD "Class B" or "Class C" mold violations):

Mold assessors: The mold assessor is required to prepare a mold remediation plan outlining specific requirements including methods to be used to remediate mold. This plan must be submitted to the property owner. In addition, the mold assessor is required to prepare a post-remediation assessment. This assessment is conducted to ensure that a hired independent third party remediation contractor performed the remediation with methods consistent with the mold remediation plan.

Mold remediators: The mold remediator must develop a work plan that includes instructions and/or operating procedures that fulfill the requirements in the mold remediation plan developed by the mold assessor. The mold remediator is required to use the safe work practices outlined in Administrative Code §27-2017.9 of Local Law 55 including using plastic sheeting to cover the openings in the work area and using HEPA vacuum-shrouded tools to remove dust.

HPD's December 2018 Notice to Property Owners - cont'd

- Both types of mold contractors must be licensed pursuant to the requirements of Article 32 of the New York State Labor Law and must perform work in accordance with the standards outlined in the Labor Law, in addition to the work practices outlined in Administrative Code §27-2017.9. Administrative Code §24-154 of Local Law 61 requires that the mold remediation work plan and the post-remediation assessment report be filed separately with the Department of Environmental Protection (DEP) by the respective mold contractor. **The contractors are required to file with DEP whether or not the work is done pursuant to an HPD violation.**
- Local Law 61 of 2018 established minimum standards for carrying out Mold Assessment,, Mold Abatement and Mold Remediation for buildings that contain 10 or more dwelling units or is located on a zoning lot that contains 25,000 or more square feet of non-residential floor area. The law also requires the person holding a Mold Assessment license to file with DEP a Mold Remediation Form and Work Plan as well as a Mold Post Assessment Form and a Mold Post Certification Form.

For more information, please visit the link below:

https://www1.nyc.gov/assets/buildings/local_laws/ll55of2018.pdf

You can search for licensed mold contractors in your area by visiting: https://www.labor.ny.gov/workerprotection/safetyhealth/mold/licensed-mold-contractors-search-tool.shtm

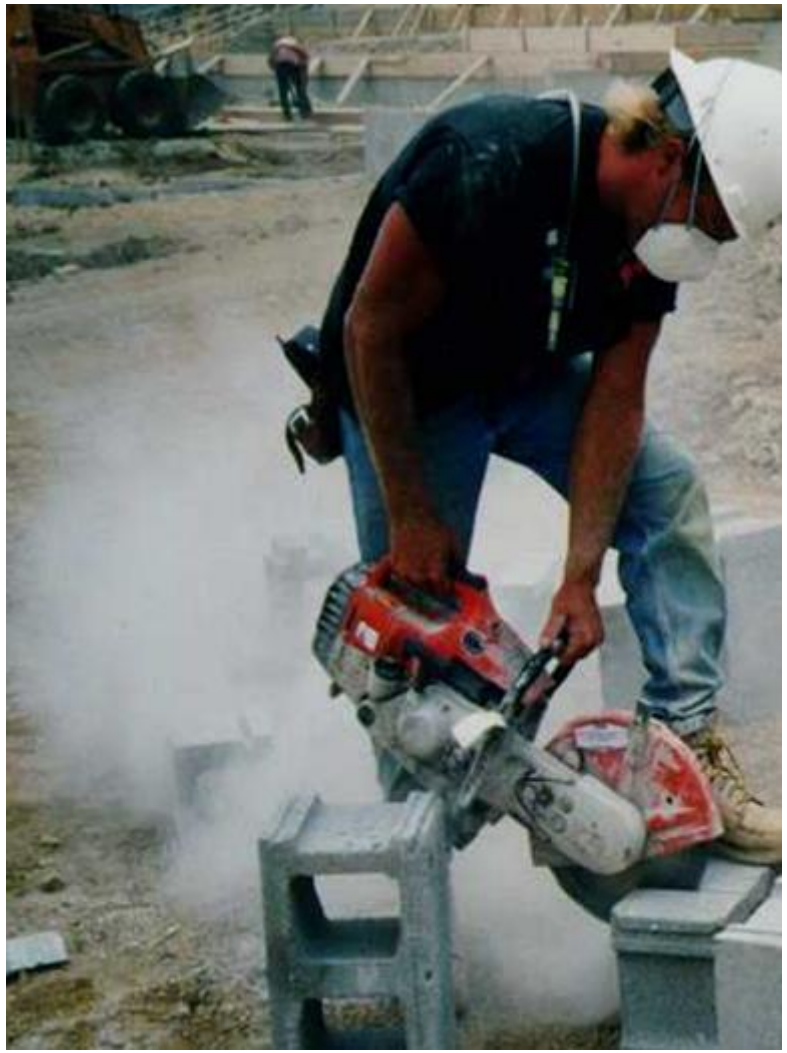
To download required notices and pamphlets, and to learn more about an owner's obligations to correct indoor allergen hazard, including pests, please visit: https://www1.nyc.gov/site/hpd/owners/indoor-allergen-hazards.page.

To learn more about the minimum work standards required for licensed mold contractors, please visit: https://law.justia.com/codes/new-york/2015/lab/article-32/.

https://www1.nyc.gov/site/hpd/owners/indoor-allergen-hazards.page

https://www1.nyc.gov/assets/hpd/downloads/pdf/Owners/maintenance-requirements-updates-for-property-owners.pdf

Recent Developments in the **PALMS*** of Your Hands



* **S**ilica / **S**afety

SILICA

- The NEW silica standards, 29 CFR 1910.1053 and 29 CFR 1926.1153, define respirable crystalline silica as "quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling."


DANGER
SILICA DUST HAZARD
RESPIRATORS REQUIRED
IN THIS AREA
DANGER
SILICA DUST HAZARD
EXPOSURE TO CRYSTALLINE SILICA
DUST CAN CAUSE CANCER
OR SILICOSIS
AVOID BREATHING DUST
DANGER
NO
SMOKING

SILICA

- Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica
- OSHA requires to determine worker exposures to respirable crystalline silica, unless it's one of the specific exposure control methods detailed in Table 1.
- If a work task is not addressed by Table 1, OSHA requires either

    1) objective air monitoring data (performance option), or

    2) periodic monitoring (scheduled option).

New York State Toxic Mold Task Force - December 2010

Toxic Mold – this term is not specifically defined in Public Health Law Section 1384 and there is no generally accepted scientific definition or category of "toxic mold."

Toxic – as used in this report: any adverse effects that might occur as a result of mold exposure (by inhalation, ingestion or skin contact), including allergic, inflammatory or mucous membrane irritation responses as well as effects such as tissue damage that could be caused by mycotoxins. Adverse responses in people exposed to any chemical agent produced by molds can be considered toxic responses.

http://www.health.ny.gov/environmental/indoors/air/mold/task_force/docs/final_toxic_mold_task_force_report.pdf

What separates poison from remedy is the dose

Paracelsus
The Father of Toxicology
1493-1541


007
LICENCE TO KILL


Daniel Craig
Timothy Dalton
1989 License Revoked
George Lazenby
Sean Connery
Roger Moore
Pierce Brosnan

Around the world, BSI enables businesses like yours to turn best practices into habits of excellence.

- **86,000 clients** in **193** countries
- **49%** of the Fortune 500
- **75%** of the FTSE 100
- **77%** of the Nikkei 225 Index
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BSI – innovator for over a century

1. **QUALITY MANAGEMENT**
   BS 5750 (1979) → **ISO 9001** (1987)
   ISO 13485
   IATF 16949
   AS/EN 9100

2. **ENVIRONMENTAL MANAGEMENT**
   BS 7750 (1992) → **ISO 14001** (1996)

3. **OCCUPATIONAL HEALTH AND SAFETY**
   BS 8800 (1996) → BS OHSAS 18001 (1999) → **ISO 45001** (2018)

4. **INFORMATION SECURITY**
   BS 7799 (1995) → **ISO 27001** (2005)

5. **BUSINESS CONTINUITY**
   BS 25999 (2007) → **ISO 22301** (2012)

ISO 45001 Development

- Basic principles of BS OHSAS:18001:2007 (maintenance and improvement)
- The need to 'provide safe and healthy working conditions'
- Focus on prevention
- Reflect increasingly complex organizational environments
- Integration with other ISO MS
- Mandated alignment to HLS

Best Practice = International Standards

Leadership and OHS Culture

- Greater emphasis for senior managers to be involved in the management system

Risk and Opportunities

- Broader approach to risks and the introduction of opportunities

Context of Organizations

- Needs of workers and other interested parties emphasized

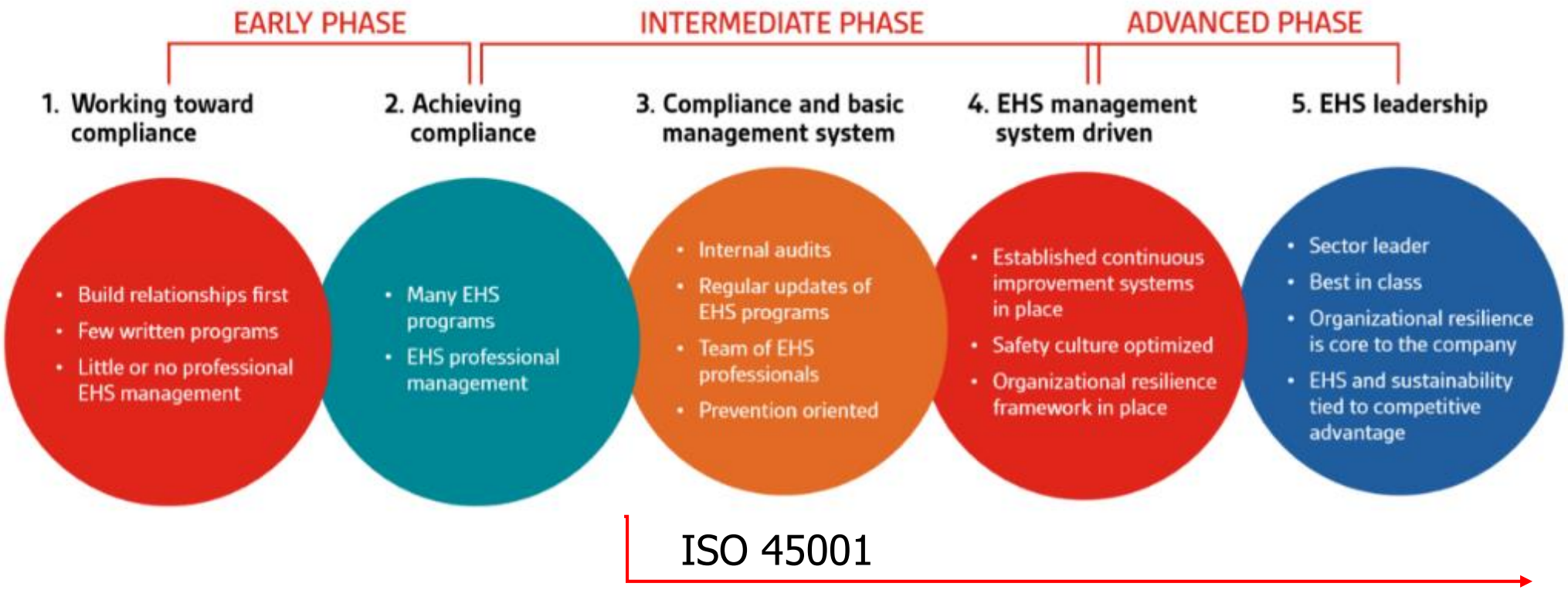
Participation and Consultation

- Enhanced emphasis on worker participation and consultation

Documented Information

- More flexible approach

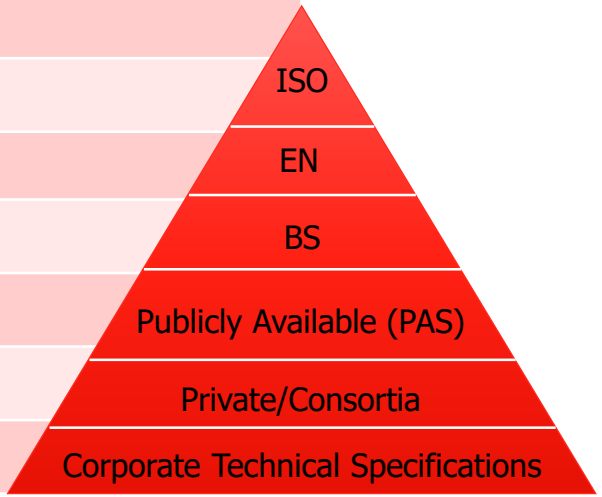
The focus at early phases of maturity is establishing compliance.



Development of the world's leading standards

BSI has worked with industry to build consensus, develop standards of excellence and drive organizational resilience

BS Year	British Standard	ISO Year	ISO Standard
1979	BS 5750	1987	ISO 9001 **(Quality Management)**
1992	BS 7750	1996	ISO 14001 **(Environmental Management)**
1996	BS 8800	1999	OHSAS 18001 /AS/NZS 4801 **ISO 45001 (Occupational Health & Safety)**
1979	BS 5750 (based)	1999	AS9100 **(Aerospace)**
2000	BS 8600	2004	ISO 10002 **(Customer Satisfaction)**
1995	BS 7799	2005	ISO/IEC 27001 **(Information Security)**
2002	BS 15000	2005	ISO/IEC 20000 **(IT Service Management)**
2009	BS 16001	2011	ISO 50001 **(Energy Management)**
2006	BS 25999	2012	ISO 22301 (**Business Continuity)**



US Department of Labor suggests “the use of ISO Standards as Industry Best Practice to Set Up your Program”

The New Framework for Business

What is the ISO Structure?

- The basic building blocks are common for all business management process
- Many companies have already deployed and benefited from the adoption of the Quality Management System ISO 9001
- The growing trend is the use of Sustainability standards like ISO 14001 and ISO 50001
- All management systems will have the same look and feel and be easier to integrate

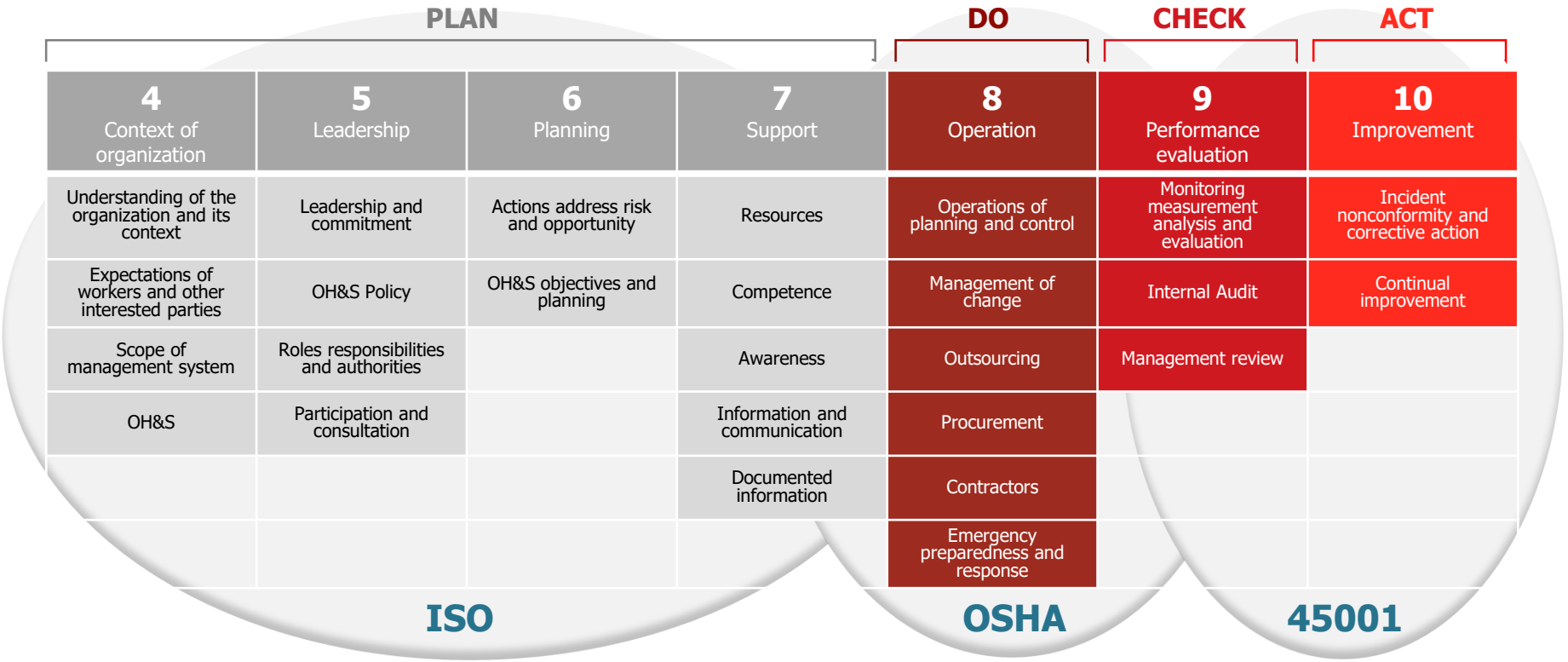
ISO 45001
High Level Structure Benefits

- Provides an overall management system framework, common terms and definitions
- Easier to integrate more than one management system
- Reduce conflicts, duplication, and misunderstandings

With the new standard now aligned to a high level structure (HLS), it allows for much easier integration across multiple management system standards. The harmonized requirements not only help us reduce the number of duplicated and redundant processes, but also helps us operate more efficiently in our organization

Detail of Requirements for an Effective OH&S Management System

What you might already have in place



Benefits of ISO 45001 – What our clients say

- Brings health and safety and continual improvement into the heart of your business
  - Health and safety management is more integrated and aligned with your business strategies which has improved performance
- Introduction of risk & opportunity management
  - Helps identify and manage risk more effectively and identify opportunities that contribute to improved health and safety performance
- An integrated approach
  - It's become easier to implement more than one management system as it provides a more holistic view that saves time and money
- Leadership
  - Greater involvement by the leadership team is a motivating factor resulting in everyone being more aligned and focused on improving occupational health and safety performance

ISO 45001

"It's a great opportunity improve OH&S performance, protect your people and make your organization more resilient."

IICRC

Institute of Inspection Cleaning and Restoration Certification

- The IICRC, originally named the International Institute of Carpet and Upholstery Cleaning Inc. (IICUC), was founded in 1972 by Ed York.
- The IICRC is managed by a board of directors, which is composed of 15 members elected by the IICRC's shareholders. The elected board members are active in their respective industries and formulate standards and create future policies.
- The IICRC currently has 15 standards and two field guides, over 29 certifications, more than 60,000 certified technicians and 6,000 certified firms.

IICRC
Institute of Inspection Cleaning and Restoration Certification

SNAPSHOT

STANDARDS

- ANSI Accredited industry developed procedures
- Developed by volunteer consensus bodies
- Recognized by local, state and federal authorities; and industry agencies
- 15 current/developing standards & two Field Guides available

iicrc.org/IICRCStandards

CERTIFICATIONS

- Approved curriculum taught by IICRC Approved Instructors
- Over 29 certifications & Continuing Education opportunities
- Journeyman and Master Designations
- Industry recognized & preferred

iicrc.org/IICRCCertifications

IICRC
CERTIFIED FIRM

CERTIFIED FIRMS

- Listing on the IICRC Certified Firm Locator accessed by consumers and industry professionals
- Must employ at least one IICRC Certified Technician
- Access to marketing materials to expand your business
- Consumer preferred

iicrc.org/IICRCCertifiedFirm

STANDARDS

iicrc.org/Standards

The IICRC standards serve to develop common, industry-accepted language and terminology that enables us to more universally discuss concepts and procedures regarding cleaning, inspection and restoration. You can also review our IICRC Standards Development Process Summary.

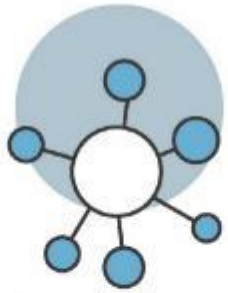
The IICRC is an American National Standards Institute (ANSI) member and accredited standards developer. ANSI is responsible for overseeing the development of national consensus standards and verifying that the requirements for due process, consensus, and other criteria for approval have been met by the standard's developer.

The IICRC serves as the secretariat for several ANSI committees that develop cleaning and restoration related standards.

STANDARDS

iicrc.org/Standards

IICRC

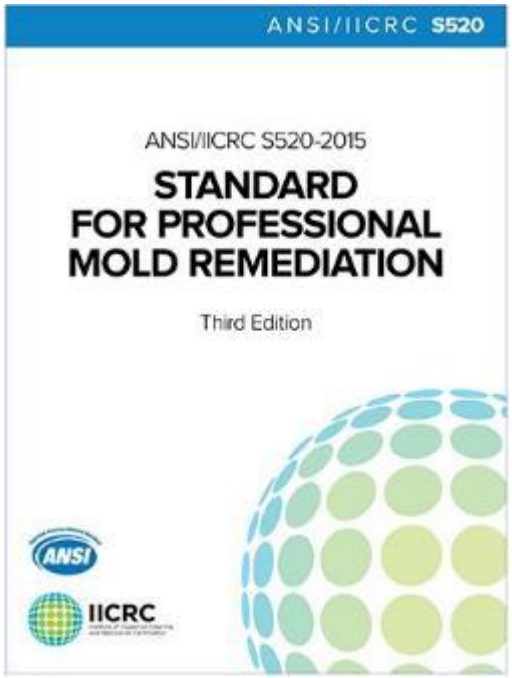


ANSI/IICRC S520

Standard and IICRC R520
Reference Guide for
Professional Mold
Remediation

ANSI - IICRC S520 Standard for Professional Mold Remediation

- The Standard is more internationally acceptable with the inclusion of international measurements compliant with **Global Harmonization System (GHS)** requirements.
- Enhanced rules added for negative pressure containments used in sensitive environments.
- **Lead-based paint** and coatings clarified to reflect compliance with EPA's renovation, repair and painting (RRP) program.
- Temperature extremes, either hot or cold, should not be used as an alternative to cleaning procedures and physical removal of mold contamination.
- Language strengthened to read – "Remediators should not mist or fog disinfectants or sanitizers in an attempt to kill mold in lieu of **complete source removal**."
- It is recommended that HVAC systems are not to be used for dehumidification or drying during a mold remediation project.
- Remediators may perform Post Remediation Evaluation (PRE) and Indoor Environmental Professional (IEP) may perform Post Remediation Verification (PRV).
- If the IEP conducting assessment or PRV is not independent from the remediator, they should disclose in writing to the client that they are deviating from the Standard.
- If the IEP conducting any activity such as assessment or post-remediation verification is not independent from the remediator, they should disclose this "complexity" in writing to the client that they are deviating from the Standard.
- If the project involves post remediation verification by an IEP, it should be conducted prior to application of coatings: including resurfacers, repair coatings or HVAC sealants.



Condition – Indoor environments relative to mold

- **Condition 1 = "normal fungal ecology"** = an indoor environment that may have settled spores, fungal fragments or traces of actual growth whose identity, location and quantity are reflective of a normal fungal ecology for a similar indoor environment.
- **Condition 2 = "settled spores"** = an indoor environment which is primarily contaminated with settled spores that were dispersed directly or indirectly from a Condition 3 area, and which may have traces of actual growth.
- **Condition 3 = "actual growth"** = an indoor environment contaminated with the presence of actual mold growth and associated spores. Actual growth includes growth that is active or dormant, visible or hidden.

These Conditions help categorize indoor environments based on their relative "moldiness." Conditions are defined by the Institute of Inspection, Cleaning, and Restoration Certification, in the IICRC S520 Standard and Reference Guide for Professional Mold Remediation

STANDARDS

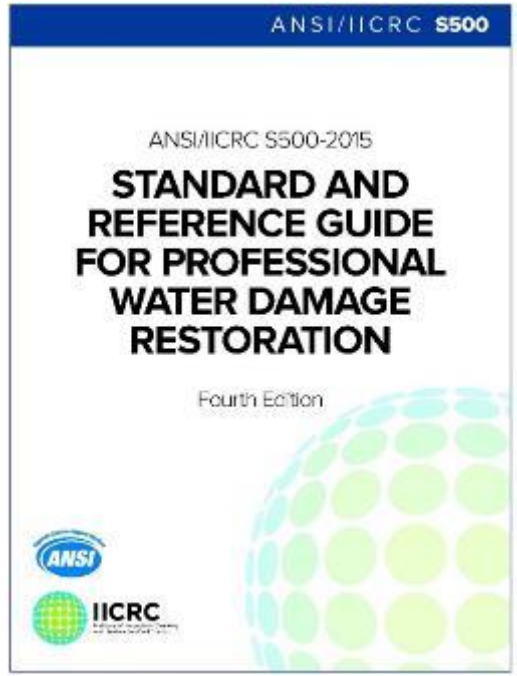
iicrc.org/Standards

IICRC

ANSI/IICRC S500

Standard and Reference
Guide for Professional
Water Damage Restoration
(2015)

ANSI - IICRC S500 Standard for Professional Water Damage Restoration



<u>Categories describing the type of liquid involved</u>:

- **Category 1**. This is liquid from a clean and sanitary source, such as faucets, toilet tanks, drinking fountains, etc. But, category one can quickly degrade into category two.
- **Category 2.** This category of liquid used to be called grey water, and is described as having a level of contaminates that may cause illness or discomfort if ingested. Sources include dishwasher or washing machine overflows, flush from sink drains, and toilet overflow with some urine but not feces.
- **Category 3**. This is the worst classification and is grossly unsanitary. It could cause severe illness or death if ingested. It used to be called black water, and sources include sewer backup, flooding from rivers or streams, toilet overflow with feces, and stagnant liquid that has begun to support bacterial growth.

Classes of Destruction

- **Class 1**. The lowest and easiest to deal with, this has a slow evaporation rate. Only part of a room or area was affected, there is little or no wet carpet, and the moisture has only affected materials with a low permeance rate, such as plywood or concrete.

- **Class 2**. With a fast evaporation rate, this level affects an entire room, carpeting, or cushioning, the wetness has wicked up the walls at least 12”, and there is moisture remaining in structural materials.

- **Class 3**. This class has the fastest evaporation rate, and ceilings, walls, insulation, carpet and sub-floors are all saturated. The liquid may have come from overhead.

- **Class 4**. This class is labeled as specialty drying situations, which means there has been enough liquid and time to saturate materials with very low permeance, such as hardwood, brick, or stone.

INDOOR ENVIRONMENTAL PROFESSIONAL (IEP)

Trained in building science, construction techniques, mechanical systems, and how to perform healthy building inspections. As with every profession, IEPs rely on Standards, Guidance Documents with Definitions and criteria for discussing scenarios they commonly encounter.

The term IEP was originally introduced in the ANSI IICRC S520 Standard and Reference Guide for Professional Mold Remediation, for the purpose of identifying an individual with the education, training, and experience to determine mold **Conditions 1, 2 and 3**, assess shifts in the fungal ecology of buildings, systems, and contents, and to verify their return to a Condition 1 status.

In ANSI IICRC S500, the same general descriptions and qualifications have been expanded to include the skills needed to assess other microorganisms, specifically those organisms associated with sewage backflow, mud slides and flooding.

IEP skills include performing an assessment of contaminated property, systems, and contents, creating a sampling strategy, sampling the indoor environment, maintaining a chain of custody, interpreting laboratory data, and, if requested, confirming:

Category I, 2 or 3 water for the purpose of establishing a scope of work and verifying the return of the environment to an acceptable or otherwise non-contaminated status.

Quantifying Water Damage - **Class 1, 2, 3 or 4.**

Indoor Environmental Assessments – the 3 C's – covers three very important definitions for mold inspectors, insurance adjusters, and industrial hygienists. For all 3 C's – Condition, Category or Class – lower numbers are better!

STANDARDS

iicrc.org/Standards

CURRENT IICRC STANDARDS & FIELD GUIDES

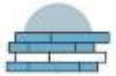
IICRC

ANSI/IICRC S100

Standard and IICRC R100 Reference Guide for Professional Cleaning of Textile Floor Coverings

BSR/IICRC S210

Standard for Dimension Stone Maintenance and Restoration



BSR/IICRC S220

Standard for Hard Surface Floor Covering Inspection

BSR/IICRC S300

Standard for Professional Upholstery Cleaning

BSR/IICRC S340

Standard for Professional Cleaning and Maintenance of Leather Furnishings

BSR/IICRC S400

Standard Professional Cleaning, Maintenance and Restoration of the Commercial Built Environment

ANSI/IICRC S500

Standard and Reference Guide for Professional Water Damage Restoration (2015)

ANSI/IICRC S520

Standard and IICRC R520 Reference Guide for Professional Mold Remediation

BSR/IICRC S530

Standard for Indoor Environmental Assessment for Suspected Mold Contaminated Structures

ANSI/IICRC S540

Standard for Trauma and Crime Scene Cleanup

BSR/IICRC S550

Standard for Professional Water Damage Restoration on Commercial Structures

BSR/IICRC S590

Standard for HVAC Cleaning and Decontamination in a Water Damaged Environment

BSR/IICRC S700

Standard for Professional Fire and Smoke Damage Restoration

BSR/IICRC S710

Standard for Development of Scope of Work in Fire and Smoke Damaged Environment

BSR/IICRC S740

Standard for Professional Restoration of Fire and Smoke Damaged Personal Items

ANSI/IICRC S800

Standard and Reference Guide for Professional Inspection of Textile Floor Coverings

FIELD GUIDE

Safety and Health Professional Cleaners

FIELD GUIDE

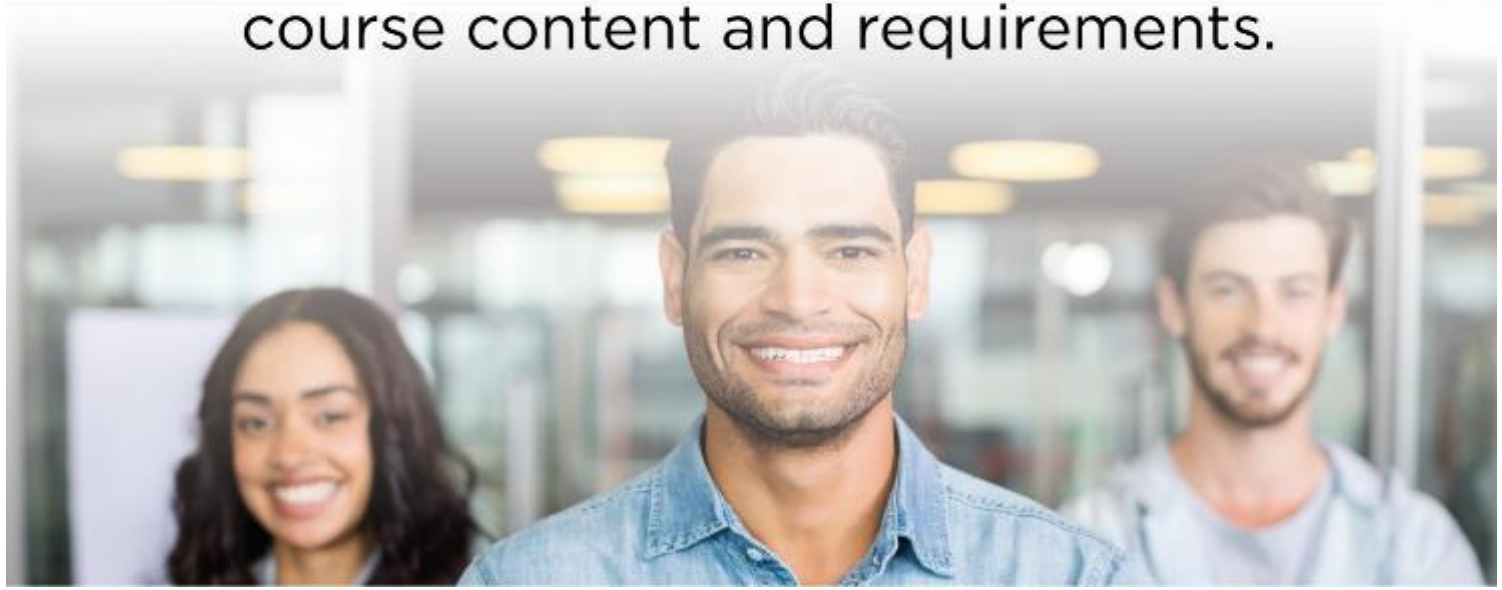
Safety and Health Disaster Restoration Professionals

CERTIFICATIONS

iicrc.org/IICRCCertifications

IICRC

Certification classes are taught in 29 different categories and vary from one to five days, depending on course content and requirements.



CERTIFICATIONS

iicrc.org/IICRCCertifications

IICRC

AMRT: Applied Microbial Remediation Technician
ASD: Applied Structural Drying Technician
BMT: Building Moisture Thermography
CCMT: Commercial Carpet Maintenance Technician
CCT: Carpet Cleaning Technician
CDS: Commercial Drying Specialist
CPT: Contents Processing Specialist*
CRT: Color Repair Technician
CTI: Ceramic Tile Inspector
FCT: Floor Care (Hard Surfaces) Technician
FSRT: Fire and Smoke Restoration Technician
HCT: House Cleaning Technician
HST: Health and Safety Technician
ISSI: Introduction to Substrate and Subfloor Inspection

*In development

LCT: Leather Cleaning Technician
MSI: Marble and Stone Inspector
MRS: Mold Removal Specialist
OCT: Odor Control Technician
RCT: Rug Cleaning Technician
RFI: Resilient Floor Inspector
RFMT: Resilient Flooring Maintenance Technician
RRT: Carpet Repair and Reinstallation Technician
SCFI: Stone and Ceramic Flooring Inspector
SCI: Senior Carpet Inspector
SMT: Stone, Masonry and Ceramic Tile Cleaning Technician
UFT: Upholstery and Fabric Technician
WFMT: Wood Floor Maintenance Technician
WLFI: Wood and Laminate Flooring Inspector
WRT: Water Damage Restoration Technician

Q & A

PALMS hand out –

https://www.bsigroup.com/globalassets/localfiles/en-us/documents/ehs-events/bsi-ehs-palms-2018-table.pdf do you know your levels?

do you know your levels?

By Royal Charter

bsi.

Significant Environmental Issues/Common Contaminants of Concern - Regulatory Levels in the PALMS of your hands

- **P** **Polychlorinated Biphenyls (PCB)**
- **A** **Asbestos**
- **L** **Lead, Legionella**
- **M** **Mold, Metals** →
- **S** **Silica**

- Cadmium
- Beryllium
- Titanium
- Nickel
- Mercury
- Antimony
- Inorganic Arsenic
- Hexavalent Chromium
- Silver
- Zinc
- Selenium
- Copper

https://www.bsigroup.com/globalassets/localfiles/en-us/documents/ehs-events/bsi-ehs-palms-2018-table.pdf

OSHA+AIHA NY ALLIANCE ON PALMS GUIDELINE/BEST PRACTICE

1. Identifying and Comparing the Permissible Exposure Levels (PEL) for each of the PALMS.
2. Demonstrating the similarities and differences of these Common Contaminants of Concern.
3. Selection of the appropriate Personal Protective Equipment (PPE) for each and all PALMS.
4. Evaluating the Toxicity of each and all PALMS (most toxic and synergistic effects).
5. State-of-the-art Exposure assessment of each and all PALMS.

Question & Answers by OSHA:

Q1: Is the presence of mold in a facility where there are workers working, considered a biological hazard that requires controls to place on the mold according to OSHA? Is mold a biological hazard according to OSHA? As it is listed here: https://www.osha.gov/SLTC/biologicalagents/index.html

A1: OSHA does not have a mold standard. However, if there was a workplace condition that exposed a worker to a health hazard related to mold exposure, OSHA may issue a "general duty clause" violation. In such a case, OSHA would have to prove that the worker exposure to the said hazardous condition resulted in the specific mold health hazard. Keep in mind that workers who are affected by mold exposures could have a wide range of reactions. Workers could be at greater risk if they have allergies, asthma, sinusitis, or other respiratory conditions. A weakened immune system will also exasperate any reaction. Below is the section of the website that covers mold in greater detail: https://www.osha.gov/SLTC/molds/index.html

Question & Answers by OSHA:

Q2: When will OSHA address psychological risk assessments with appropriate ECP's, SWP's and training requirements for 'mental PPE' including post trauma assessment and treatment protocols? OSHA addresses hazard and risk assessments for all worker activities. However, the risks and hazards relating to work activities are physical only. Many activities fall into a high psychological risk. These include first responders (fire, police, paramedics, emergency hospital trauma staff) and secondary responders (forensic restoration, crime/trauma scene cleaners). We know that these work exposures are traumatic by definition and result in critical incident stress which left untreated can develop into post-traumatic stress disorder and burns out the average technician in less than 6 months and then these unsuspecting workers are permanently damaged emotionally and usually never connect the dots.

A2: OSHA recognizes mental health as a risk factor in cases involving workplace violence (https://www.osha.gov/SLTC/workplaceviolence/recognition.html).

OSHA also provides information on the risk of stress, particularly in the healthcare industry (https://www.osha.gov/SLTC/etools/hospital/hazards/stress/stress.html).

OSHA also provides information on stress hazards for workers responding to an incident (https://www.osha.gov/SLTC/emergencypreparedness/guides/critical.html).

Question & Answers by OSHA:

Q3: Does a hazard assessment have to be performed on the responses to water damage, fire damage and mold remediation site upon arriving to a site to determine the required PPE or is it just a best practice? Is hazard assessment not the law? Shall an employer also have a competent person make a written certification of the hazard assessment?

A3: Yes. Employers are required to conduct a hazard assessment to determine the types of hazards their workers will likely be exposed to and the type of PPE which may be required. **The assessment has to be documented.**

1910.132(d) *Hazard assessment and equipment selection*.

1910.132(d)(1) The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the employer shall:
1910.132(d)(1)(i) Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;

1910.132(d)(1)(ii) Communicate selection decisions to each affected employee; and,

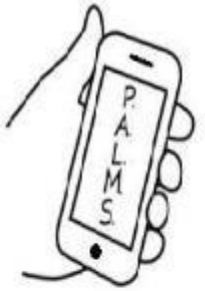
1910.132(d)(1)(iii) Select PPE that properly fits each affected employee.

1910.132(d)(2) The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.

Non-mandatory appendix B contains an example of procedures that would comply with the requirement for a hazard assessment.
https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910SubpartIAppB

Significant Environmental Issues/Common Contaminants of Concern
REGULATORY LEVELS in the P.A.L.M.S.* of YOUR HANDS

PCB's
Asbestos
Lead
Mold
Silica



(*) P.A.L.M.S. - PCB, Asbestos, Lead/Legionella, Mold/Metals, Silica/Safety & Health

Compilation of Significant Environmental Issues/Common Contaminants of Concern

P	POLYCHLORINATED BIPHENYLS (PCB)	
A	ASBESTOS	
L	LEAD	
M	MOLD	
S	SILICA	

L	LEGIONELLA		
M	METALS (HEAVY/TOXIC)		
	CADMIUM		INORGANIC ARSENIC
	BERYLLIUM		HEXAVALENT CHROMIUM
	TITANIUM		SILVER
	NICKEL		ZINC
	MERCURY		SELENIUM
	ANTIMONY		COPPER

*Due to ever Changing Regulations / Requirements always check the Current Limits with the Appropriate Regulatory Agencies

P.A.L.M.S.

https://www.bsigroup.com/globalassets/localfiles/en-us/documents/ehs-events/bsi-ehs-palms-2018-table.pdf

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By Royal Charter

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