

RedGuard

Mold Remediation Procedure

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1.0 REFERENCES

Mold abatement will be conducted in accordance with established guidance, including the following publications:

- Standard and Reference Guide for Professional Mold Remediation S520, *Institute of Inspection, Cleaning, and Restoration Certification (IICRC)*
- Guidelines on Assessment and Remediation of Fungi in Indoor Environments, *New York City Public Health Department*
- Mold Remediation in Schools and Commercial Buildings, *Environmental Protection Agency (EPA)*

Note that the above references refer to contamination in different ways.

- The EPA categorizes remediation by size. Less than 10 square feet (sf) is small, between 10 and 100 sf is medium, and greater than 100 sf is large.
- The New York City Public Health Department also categorizes remediation by size. Less than 10 sf is Level I, between 10 sf and 30 sf is Level II, 30 sf to 100 sf is Level III, greater than 100 contiguous sf is Level IV, and remediation of a heating, ventilation, and air conditioning (HVAC) system is Level V.
- The Institute of Inspection, Cleaning, and Restoration Certification (IICRC) categorizes by conditions. Condition 1 is normal fungal ecology, which includes some settled spores. Condition 2 is settled spores which have been dispersed from a Condition 3 area and may have some fungal growth. Condition 3 is actual growth, active or dormant, visible or hidden. The IICRC's goal of remediation is to return Conditions 2 and 3 to Condition 1, a normal fungal ecology.

What Does Mold Need to Grow?

There are three main necessities that mold spores need to grow and thrive.

Moisture

Mold spores need moist or damp areas to grow and reproduce. Watch for flooding, leaky pipes or windows, etc. Also excess moisture in the bathrooms, kitchens, and laundry rooms are prime areas for mold growth. Moisture content above 19% for about one week is required for significant surface mold growth to occur on lumber and/or wood structural components that may be found as internal walls in our buildings. EPA recommends maintaining low indoor humidity, below 60%, ideally 30-50%. Mold growth can be controlled if leaks are controlled/eliminated within the first 24-48 hours.

Food

Mold spores need food, in the literal sense as well as other materials (i.e. cotton, leather, wood, paper products and others). The most dangerous materials mold loves to grow on, are porous materials (beds, couches etc.). It is often impossible to remove mold growth from these items and they must be removed.

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Optimum Temperatures

Mold spores thrive in temperatures 32 and 120 degrees Fahrenheit. Temperatures from about 70 – 90 degrees are the most conducive for mold growth. Chances of mold growth are heightened greatly between those temperatures. You may be wondering why mold can grow in your freezer. Mold doesn't die when temperatures drop below 32 degrees, they lay dormant until temperatures raise, or they are set out to warm up.

Favorable Conditions for Mold - 5 tips describing favorable or unfavorable conditions for mold growth:

A relative Humidity of roughly 50% or higher

A good preventative measure would be to purchase a hygrometer to measure humidity levels in your home.

Damp or Dusty Conditions

Avoid developing piles of rags, clothing or other mold food sources.

Stagnant air

This explains why overly "tight" homes designed for energy efficiency can have mold problems.

Unfavorable Conditions for Mold Ventilation

Good circulation throughout the home is important to eliminate dampness or potential moisture; especially in attics, basements, crawlspaces, laundry rooms.

Dry Air Indoors

Make sure to keep your home's relative humidity down below 50%.

2.0 CUSTOMER SITE REMEDIATION

On-site remediation will generally consist of minor abatement of small amounts of mold, or an EPA Category 1 (less than 10 sf); however, local circumstances may warrant larger abatements.

Cleanup of mold in units at customer sites will be performed only if the entire unit can be isolated from customer employees. Mold remediation will not be performed if customer employees remain in the unit, even if their location is outside the remediation area.

If the unit is attached to another customer building, and remediation is performed on site, the unit will be isolated by sealing the entrances and creating a containment (see paragraph 4.6).

3.0 REDGUARD REMEDIATION

Units that have mold contamination outside the capabilities of Customer Site Remediation will be returned to RedGuard for abatement.

4.0 REMEDIATION PROCEDURES

It is anticipated that most mold contamination will involve moisture that has penetrated the wall cavities or under the floor, where it will impact the mineral wool insulation, fabric membrane,

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oriented strand board (OSB) sheathing, and wood framing members. However, when there is mold growth in the area, spores can settle on furnishings and equipment in the unit. Also, wet conditions may cause actual mold growth on surfaces of the furnishings. In those cases, the mold must be removed from the surfaces of the furnishings.

Remediation procedures for Customer Site Remediation and remediation at RedGuard are identical, except that remediation at RedGuard may encompass a larger scale.

4.1 Cavities of Walls and Floors

Equipment/Supplies Needed:

- Moisture meter with long pins
Exotech MO290 Meter and MO290-EP Extension Pins
- Pry bars or other tools to remove fiber reinforced panels (FRPs) and OSB sheathing
- Polyethylene (poly) bags or drums to contain moldy materials
- High efficiency particulate air (HEPA) vacuum
Nilfisk GD-930 HEPA Vacuum
- Neutral detergent, i.e., Simple Green, Mr. Clean, etc., but **never** use bleach or ammonia.
- Mildew Resistant Primer Paint, i.e., Kilz Premium or Kilz Latex 2 and Mildew resistant Paint, i.e., Kilz Porch & Patio Floor Paint.

When the wall and floor cavities have been wet and have potential mold, investigation and abatement will include the following:

- Remove FRPs and OSB sheathing to expose the fabric membrane.
- Use a moisture meter with long pins to penetrate the fabric membrane and test the mineral wool insulation as far into the cavity as possible without contacting the metal exterior wall. Keep the two pins within about 1 inch of each other. Touching the pins to metal will cause the moisture meter to read incorrectly (indicating moisture that is not there). The moisture meter will detect moisture at the tips of the pins.
- Define the area of moisture.
- Plan on removing insulation at least 1 foot past the defined moisture.
- Remove the fabric membrane and mineral wool insulation. Place both in bags or drums for disposal.
- Use a HEPA vacuum to clean the cavity and remove remaining insulation and loose visible mold.
- Inspect the wood studs. If structurally compromised, or mold has penetrated the surface of the wood, they must be replaced.
- If mold is visible on the hard surfaces, scrub the cavity with a neutral detergent and water.
- Allow the cavity to completely dry before installing new materials. Use air movers and dehumidifiers if necessary to dry the cavity within 12 hours.
- Install new insulation and fabric membrane.
- Inspect the OSB. If it has been wet and shows any sign of mold or delamination, discard it and install new OSB.

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4.2 Air Conditioning Units

If the units are equipped with through-the-wall air conditioning units, the air conditioners will be turned off and sealed in the remediation areas by placing a layer of poly sheeting over the air conditioner and sealing with duct tape. If the air conditioner has been impacted by active mold growth on solid surfaces, the unit will need to be cleaned with a neutral detergent and water, including the interior surfaces, and the filters washed or replaced.

4.3 Non-Porous Surfaces

Hard, cleanable, non-porous surfaces, such as metal, glass, or plastic, will be cleaned using a HEPA vacuum and scrubbed using a neutral detergent, such as dishwashing detergent and water. Ensure surfaces are adequately rinsed to remove detergent residue and dried (within 12 hours), using air movers and dehumidifiers if necessary.

4.4 Semi-Porous Surfaces

Finished surfaces (such as paneling or furniture) will be cleaned by scrubbing with a neutral detergent and water. Rough or unfinished surfaces (such as wood studs) will be cleaned by wire brushing or sanding, as long as the structural integrity is maintained.

4.5 Porous Surfaces

Porous surfaces, such as carpeting, fabric, books, and paper, usually require removal and disposal. Carpets with surface mold (settled spores) can be steam cleaned, but mold growing in the carpet will require removal of the carpet. If the unit has flooded, and the carpet has been wet for more than 48 hours, the carpet and pad will be removed.

4.6 Containment Activities

Mold abatement conducted by RedGuard employees will not require the use of negative pressure containment.

Abatement of a complete unit that is physically isolated from other buildings can be conducted without critical or isolation barriers. Abatement activities in units that are physically attached to other buildings, or in portions of units, will require the use of critical barriers to prevent contamination of adjacent areas.

Critical and/or isolation barriers may be required to isolate contaminated areas from clean areas and protect other areas of the impacted unit or adjacent customer building areas. Critical and isolation barriers are passive and do not include the use of negative pressure.

Critical barriers are barriers that seal off all openings to the defined abatement work areas, including, but not limited to, operable windows, doorways, or any other penetrations. Barriers will be built over doorways the work area using three overlapping layers of poly.

To enhance customer satisfaction, barriers will be built over doorways on units at customer sites, even if the units are physically isolated from other buildings, or the doors will remain closed during remediation activities.

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5.0 SPECIAL PRECAUTIONS

No air cleaners that produce ozone will be used.

6.0 USE OF CHEMICALS

The EPA no longer recommends the use of bleach in remediation activities, and RedGuard will not use it. Application of biocides will be considered in certain situations. Surfaces can be cleaned with Bio T Max, Perma-Wash, or similar antimicrobial cleaner.

7.0 DISPOSAL OF PPE AND MOLD CONTAMINATED MATERIALS/BAGS

Mold-contaminated materials including PPE will be placed in plastic bags or drums for removal from the remediation area. HEPA vacuum the exterior of the bags or drums prior to removal from the contaminated area. This is to prevent dispersal of mold spores throughout the remainder of the unit. Disposal of mold-contaminated materials is not regulated and once removed from the building can be disposed of as normal waste.

8.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

While performing active remediation, employees will wear personal protective equipment (PPE), which will include a minimum of:

Respirators

- For areas less than 10 square feet, filtering face piece respirators (N95 disposable respirator).
- For areas between 10 and 100 square feet, filtering face piece respirators (N100 disposable respirator).
- For areas greater than 100 square feet, half or full face respirators with 100 level particle filters should be used. This respirator requires medical clearance, spirometry, and fit test before use and annually thereafter.

Tyvek coveralls

Safety glasses

Nitrile or leather gloves.

During activities involving heavy infestations of mold, employees will increase their respiratory protection to full-face respirators with HEPA filters. Additional PPE that is necessary to provide protection against physical abrasion or injury will be worn as required (e.g., leather gloves, hard hats, etc.).

9.0 POST REMEDIATION VERIFICATION

Post remediation verification will be performed of all mold remediation activities prior to put back. A visual examination and if necessary moisture tests will be performed to ensure mold-impacted materials have been properly removed, and there is no visible mold on surfaces.

Mold Remediation Test

Name _____ Date _____

1. Moisture is one of three necessities molds spores need to grow. What are the other two?

2. Mold growth will take place in insulation, fabric, wood, OSB, and HVAC units and ducts?
T F
3. It is safe to remove mold with bleach or ammonia?
T F
4. How do you detect for moisture if you do not see evidence of mold growth?

5. What percentage of moisture is necessary for mold growth?
 - a. 15%
 - b. 25%
 - c. 40%
 - d. 60%
6. There are three main necessities that mold spores need to grow and thrive?
 - a. Leather, wood, steel
 - b. Cloth, wood, couch
 - c. Moisture, food, and optimum temperature
7. Cleanup of mold in units at customer sites will be performed only if the entire unit can be isolated from customer employees. Mold remediation will not be performed if customer employees remain in the unit, even if their location is outside the remediation area.
T F
8. If the air conditioner has been impacted by active mold growth on solid surfaces, the unit will need to be cleaned with a neutral detergent and water, including the interior surfaces, and the filters washed or replaced.
T. F
9. Critical barriers are barriers that seal off all openings to the defined abatement work areas, including, but not limited to, operable windows, doorways, or any other penetrations. Barriers will be built over doorways the work area using three overlapping layers of poly.

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T F

10. The EPA no longer recommends the use of bleach in remediation activities, and RedGuard will not use it. Application of biocides will be considered in certain situations. Surfaces can be cleaned with Bio T Max, Perma-Wash, or similar antimicrobial cleaner.

11. Employee diligence in following this procedure completely ensures that the job is done safely and effectively.

T F

12. Disposal of mold-contaminated materials is not regulated and once removed from the building can be disposed of as normal waste.

T F