

Business and Non-instructional Operations

Building Mold Management

Mold has become a significant concern in the building industry as its presence has the potential to result in both property damage and personal injury. It is the policy of the Oroville Union High School District to treat mold problems, both real and potential as incidents that require immediate corrective actions on our part. While employees must assume certain responsibilities to prevent mold problems and report them, there are preventative and remedial actions we must take to reduce our liability to protect our assets. This policy outlines the procedures we will follow during construction, maintenance and responding to staff concerns and claims. All Oroville Union High School District employees are expected to follow this policy diligently.

Procedures

Construction / Renovation

When structures are being built or renovated, the Maintenance Supervisor will oversee the construction operations not only for conformance to specifications, but for compliance with the District's mold policy. The following items are required:

- Subfloor must be thoroughly cleaned before carpet installation.
- Building materials including, but not limited to drywall, carpet, padding, cabinets, wood, and other porous and semi-porous materials may not be stored outside. If non-porous material becomes wet prior to installation, it must be thoroughly dried.
- Tarpaper must be applied to the roof before any porous materials are stored in the building.

A representative will be assigned to interact with the contractor and ensure the following elements are addressed in addition to other construction specifications:

- Drainage away from foundations
- Roof flashing installed in accordance with design specifications
- Vapor barrier
- Vents
- Window flashings
- Window flashing / caulking
- Vapor-barrier in basements
- Sump pump installation
- Rain gutters

Maintenance

HVAC

Maintenance will be performed in accordance with the manufacture guidelines. Copies of these procedures will be provided by installation contractors. Maintenance contractors will be required to adhere to the procedures as part of their subcontracting agreement. When HVAC systems are serviced, the contractor must inspect the following:

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- Operation
- Air intake
- Thermostat
- Humidity b/t 30 & 50%
- Evaporator coil
- Condensate coil
- Condensate pan
- Condenser fan motor
- Furnace
- Baseboard heaters
- Vents / Ducts
- Filters

The HVAC service contractor must also ensure the condensate pan drains properly and that no moisture is permitted to pool within the system. Automatic systems should not permit humidity levels outside of the 30 – 50% range and temperature above 85 degrees on weekends and other times when the building is unoccupied.

Cleaning

Cleaning subcontractors will be required to submit an inventory of chemicals to be used. Subcontractors must report any leaks, excessive moisture, or mold / mildew growth. All areas should be thoroughly cleaned without excessive water use. Care should be taken to prevent water from migrating to other floors, under baseboards, or carpets.

Carpet Cleaning

Clean exposed carpet surfaces in accordance with established guidelines. Subcontractors will be required to submit a list of cleaning materials to be used. Carpet cleaners must notify management of leaks, moist conditions, or observable water damage and or mold growth.

Responding to Claims

When responding to a customer complaint, a District representative will respond with the Mold Inspection Checklist and inspect the building, completing the entire checklist. A letter will be sent to the person filing the claim identifying the findings and the action to be taken. A copy of this letter will be kept on file in the Maintenance Supervisor's office. Appropriate remedial action will be completed based on the Remedial Action Guidelines. The mold complaint log will be updated upon the completion of each action. After completing the mold inspection checklist, the Maintenance Supervisor will make the determination if samples are required for testing, which will be based on the findings.

Remedial Action Guidelines

Mold growth may cause structural damage to a building if a mold/moisture problem is ignored for an extended period. In the case of a long term roof leak, for example, mold can weaken floors and walls as the mold feeds on wet wood. If it is suspected that the mold has damaged building integrity, a structural engineer or other professional with expertise in this area will be consulted.

Building Mold Management (Cont.)**Cleanup Methods**

A variety of mold cleanup methods are available for remediating damage to building materials and furnishings caused by moisture control problems and mold growth. The specific method or group of methods used will depend on the type of material affected. Please note that professional remediators may use some methods not covered in these guidelines. Absence of a method in the guidelines does not mean that it is not useful. Don't paint or caulk moldy surfaces. Clean and dry surfaces before painting. Paint applied over moldy surfaces is likely to peel.

Method 1: Wet Vacuum

Wet vacuums are vacuum cleaners designed to collect water. They can be used to remove water from floors, carpets, and hard surfaces where water has accumulated. They should not be used to vacuum porous materials such as gypsum board. They should be used only when materials are still wet. Wet vacuums may spread spores if sufficient liquid is not present. The tanks, hoses and attachments of these vacuums should be thoroughly cleaned and dried after use since mold and mold spores may stick to the surfaces.

Method 2: Damp Wipe

Whether dead or alive, mold can cause allergic reactions in sensitive individuals. Some molds produce mycotoxins that can be toxic at certain levels. Mold can generally be removed from nonporous surfaces by wiping or scrubbing with water or water and detergent. It is important to dry these surfaces quickly and thoroughly to discourage further mold growth. Instructions for cleaning surfaces, as listed on cleaning product labels, should always be read and followed. Porous materials that are wet and have mold growing on them may have to be discarded. Since molds will infiltrate porous substances and grow on or fill in empty spaces or crevices, the mold can be difficult or impossible to remove completely.

Method 3: HEPA Vacuum

HEPA (High Efficiency Particulate Air) vacuums are recommended for final cleanup of remediation areas after materials have been thoroughly dried and contaminated materials removed. HEPA vacuums are also recommended for cleanup of dust that may have settled on surfaces outside the remediation area. Care must be taken to assure that the filter is properly seated in the vacuum so that all air must pass through the filter. When changing the vacuum filter, personnel should wear PPE to prevent exposure to the mold that has been captured. The filter and the contents of the HEPA vacuum must be disposed of in well-sealed plastic bags.

Method 4: Discard

Remove damaged materials and seal in plastic bags. Building materials and furnishings that are contaminated with mold growth and are not salvageable should be double bagged using 6-mil polyethylene bags. These materials can usually be discarded as ordinary construction waste. It is important to package mold contaminated materials in sealed bags before removal from containment area to minimize the dispersion of mold spores throughout the building. Large items that have heavy mold growth should be covered with polyethylene sheeting and sealed with duct tape before they are removed from the containment area.

Building Mold Management (Cont.)

Mold Remediation/Cleanup and Biocides

The purpose of mold remediation is to remove the mold to prevent human exposure and damage to building materials and furnishings. It is necessary to clean up mold contamination, not just to kill the mold. Dead mold is still allergenic, and some dead molds are potentially toxic. The use of a biocide such as chlorine bleach is not recommended as a routine practice during mold remediation although there may be instances where professional judgment may indicate its use. In most cases, it is not possible or desirable to sterilize an area as background levels of mold spores will remain in the air. These spores will not grow if the moisture problem in the building has been resolved.

If disinfectants or biocides are used, always ventilate the area. Outdoor air may need to be brought in with fans. When using fans, take care not to distribute mold spores throughout an unaffected area. Biocides are toxic to humans as well as to mold. Use appropriate Personal Protective Equipment and read and follow label precautions. Never mix chlorine bleach solution with other cleaning solutions or detergent that contains ammonia. Toxic vapors could be produced.

Some biocides are considered pesticides and some states require that only registered pesticide applicators apply these products in schools. Make sure anyone applying a biocide is properly licensed if necessary. Fungicides are commonly applied to outdoor plants, soils and grains as a dust or spray. Do not use fungicides developed for outdoor use for mold remediation or for any other indoor situation.

Containment

The purpose of containment during remediation activities is to limit release of mold into the air and surroundings in order to minimize the exposure of remediators and building occupants to mold. Mold and moldy debris should not be allowed to spread to areas in the building beyond the contaminated site. The larger the area of moldy material, the greater the possibility of human exposure and the greater the need for containment. In general, the size of the area helps determine the level of containment. However a heavy growth of mold in a relatively small area could release more spores than a lighter growth of mold in a relatively large area. Choice of containment should be based on professional judgment. The primary object of containment should be to prevent occupants and remediators exposure to mold.

Limited Containment

Limited containment is generally recommended for areas involving between 10 and 100 square feet of mold contamination. The enclosure around the moldy area should consist of a single layer of 6mil, fire retardant polyethylene sheeting. The containment should have a slit entry and covering flap on the outside of the containment area. For small areas, the polyethylene sheeting can be affixed to floors and ceilings with duct tape. For larger areas, a steel or wooden stud frame can be erected and polyethylene sheeting attached to it. All supply and air vents, doors, chases, and risers within the containment area must be sealed with polyethylene sheeting to minimize the migration of contaminants to other parts of the building. Heavy mold growth on ceiling tiles may impact HVAC systems if the space above the ceiling is used as a return air plenum. In this case, containment should be installed from floor to the ceiling deck and the filters in the air handling units serving the affected area may have to be replaced once remediation is finished.

Building Mold Management (Cont.)

The containment area must also be maintained under negative pressure relative to surrounding areas. This will ensure that contaminated air does not flow into adjacent areas. This can be done with a HEPA filtered fan unit exhausted outside of the building. For small easily contained areas, an exhaust fan ducted to the outdoors can also be used. The surfaces of all objects removed from the containment area should be remediated/cleaned prior to removal. The remediation guidelines can be implemented when the containment is completely sealed and is under negative pressure relative to the surrounding area.

Full Containment

Full containment is recommended for the cleanup of mold contaminated surface areas greater than 100 square feet, or in any situation in which it appears likely that the occupant space would be further contaminated without full containment. Double layers of polyethylene should be used to create a barrier between the moldy area and other parts of the building. A decontamination chamber or airlock should be constructed for entry into and exit from the remediation area. The entryways to the airlock from the outside and from the airlock to the main containment area should consist of a slit entry with covering flaps on the outside surface of each slit entry. The chamber should be large enough to hold a waste container and allow a person to put on and remove PPE. All contaminated PPE except respirators should be placed in a sealed bag while in this chamber. Respirators should be worn until remediators are outside the decontamination chamber. PPE must be worn throughout the final stages of HEPA vacuuming and damp wiping of the contained area. PPE must also be worn during HEPA vacuum filter changes or cleanup of the HEPA vacuum.

Guidelines for response to clean water damage within 24-48 hours to prevent mold growth	
Water Damaged Material	Actions
Books and papers	<ul style="list-style-type: none"> • For non-valuable items, discard books and papers. • Photocopy valuable/important items, discard originals. • Freeze (in frost free freezer or meat locker) or freeze dry.
Carpet and backing dry within 24-48 hours	<ul style="list-style-type: none"> • Remove water with water extraction vacuum. • Reduce ambient humidity levels with dehumidifier. • Accelerate drying process with fans.
Ceiling tiles	<ul style="list-style-type: none"> • Discard and replace.
Cellulose insulation	<ul style="list-style-type: none"> • Discard and replace.
Concrete or cinder block surfaces	<ul style="list-style-type: none"> • Remove water with water extraction vacuum. • Accelerate drying process with dehumidifiers, fans and or heaters.
Fiberglass insulation	<ul style="list-style-type: none"> • Discard and replace.
Hard surface, porous flooring (Ceramic tile, vinyl, Linoleum)	<ul style="list-style-type: none"> • Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary. • Check to make sure underflooring is dry: dry underflooring if necessary.
Nonporous, hard surfaces (Plastics, metals)	<ul style="list-style-type: none"> • Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.
Upholstered furniture	<ul style="list-style-type: none"> • Remove water with water extraction vacuum. • Accelerate drying process with dehumidifiers, fans, and or heaters. • May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture.

Building Mold Management (Cont.)

Even if materials are dried within 48 hours, mold growth may have occurred. Items may be tested by professionals if there is doubt. Note that mold growth will not always occur after 48 hours; this is only a guideline. If a particular item(s) has high monetary value, a restoration/water damage specialist may be consulted.

These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then PPE and containment are required by OSHA. An experienced professional will be consulted if district remediators do not have expertise remediating in contaminated water situations. Do not use fans before determining that the water is clean or sanitary.

The subfloor under the carpet or other flooring material must also be cleaned and dried. See the appropriate section of this table for recommended actions depending on the composition of the subfloor.

Guidelines for response to clean water damage beyond 48 hours to prevent mold growth			
Material or Furnishing Affected	Cleanup Method	PPE	Containment
Small – Less than 10 ft. sq. total surface area affected			
Books / Papers	3	Minimum N-95 Respirator, gloves and goggles	None required
Concrete or cinder block	1,3		
Carpet & Backing	1,3		
Hard surface, porous flooring	1,2,3		
Non-porous surfaces	1,2,3		
Upholstered furniture and drapes	1,3		
Wallboard	3		
Wood surfaces	1,2,3		
Medium – Between 10 and 100 ft. sq. total surface area affected			
Books / Papers	3	Limited or Full Use professional judgment. Consider potential for remediator exposure and size of contaminated area.	Limited or Full Use professional judgment. Consider potential for remediator exposure and size of contaminated area.
Concrete or cinder block	1,3		
Carpet & Backing	1,3,4		
Hard surface, porous flooring	1,2,3		
Non-porous surfaces	1,2,3		
Upholstered furniture and drapes	1,3,4		
Wallboard	3,4		
Wood surfaces	1,2,3		

Building Mold Management (Cont.)

Large – Greater than 100 ft. sq. total surface area affected or potential for increased occupant or remediator exposure during remediation			
Books / Papers	3	Full Use professional judgment.* Consider potential for remediator/occupant exposure and size of contaminated area.	Full Use professional judgment.* Consider potential for remediator exposure and size of contaminated area.
Concrete or cinder block	1,3,4		
Carpet & Backing	1,3		
Hard surface, porous flooring	1,2,3,4		
Non-porous surfaces	1,2,3		
Upholstered furniture and drapes	1,2,4		
Wallboard	3,4		
Wood surfaces	1,2,3,4		

*Use professional judgment to determine prudent levels of PPE and containment for each situation, particularly as the remediation site size increases and the potential for exposure and health effects rises. Assess the need for increased PPE, if, during the remediation, more extensive contamination is encountered than was expected. Consult the remediation table if materials have been wet for less than 48 hours, and mold growth is not apparent. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then OSHA requires PPE and containment. An experienced professional will be consulted if district remediators do not have expertise in remediating contaminated water situations.

Select a method most appropriate to the situation. Since molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable or important, the district may consult a restoration/water damage/remediation expert. Please note that these are guidelines; other cleaning methods may be preferred by some professionals.

Cleanup Methods

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried). Steam cleaning may be an alternative for carpets and some upholstered furniture.

Method 2: Damp wipe surfaces with plain water or with water and detergent solution (except use wood floor cleaner for wood); scrub as needed.

Method 3: High efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

Method 4: Discard – remove water damaged materials and seal in plastic bags while inside of containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried.

Building Mold Management (Cont.)

Personal Protective Equipment (PPE)

- **Minimum:** Gloves, N-95 respirator, goggles/eye protection
- **Limited:** Gloves, N-95 respirator or half face respirator with HEPA filter, disposable overalls, goggles/eye protection
- **Full:** Gloves, disposable full body clothing, head gear, foot coverings, full face respirator with HEPA filter

Containment

- **Limited:** Use polyethylene sheeting ceiling to floor around affected area with a slit entry and covering flap; maintain area under negative pressure with HEPA filtered fan unit. Block supply and return vents within containment area.
- **Full:** Use two layers of fire retardant polyethylene sheeting with one airlock chamber. Maintain area under negative pressure with HEPA filtered fan exhausted outside of building. Block supply and return air vents within containment area.

Business and Non-instructional Operations

Mold Prevention Letter

Dear [insert name],

It is our goal to provide high quality buildings for our students, staff and the public. The presence of mold and mildew can be detrimental to your health, the health of others and the building materials. We have made every effort to reduce the likelihood of mold and mildew growth. As employees, some of the responsibility for preventing mold and mildew lies with you.

Please take a moment to review the mold prevention tips below for preventing mold and mildew. If, at any time, you note or suspect the presence of mold or mildew, please contact the Maintenance Supervisor immediately. Failure to report problems in a timely manner will not only be detrimental to your health, but it is a violation of the District's mold management policy.

In the event that mold or mildew is identified in your work area, we will require immediate remediation. In the event that the area to be remediated is large, another workspace will be provided.

Please contact the Maintenance Supervisor if you require further explanation at (530) 538-2300 Ext. 1110, or (530) 682-0444

Sincerely,
Jim LaGrone
Maintenance Supervisor

Mold Prevention Tips

- Fix pipe leaks and respond to any water intrusion immediately
- Use air conditioning in hot/humid weather. Hot, moist air is very conducive to mold and mildew growth.
- Keep HVAC drip pans clean and unobstructed so that condensation can flow freely and reduce the availability of nutrients that may promote mold growth.
- Vent dryers, range hoods, and other moisture generating appliances to the outside.
- Maintain humidity between 30 and 50%.
- Clean and dry wet or damp spots as soon as possible.
- Keep houseplants to a reasonable number and don't water too much.
- Dry out mops and cleaning supplies before storing.
- Wipe condensation from interior windows and sills.
- Use the exhaust fans in bathrooms and shower rooms.

Report any signs of mold or mildew to the Maintenance Supervisor immediately.

Business and Non-instructional Operations

Mold Inspection Checklist

Location:

Inspected By:

Requestors Name:

Date / Initials:

Exterior	Problem Y/N	Restrooms	Problem Y/N
Planters		Sinks	
Roof		Sink Faucets	
Rain Gutters		Inside Cabinets	
Stairs		Sink Plumbing	
Walkway		Tub / Shower Basin	
Sidewalks		Tub / Shower Faucets	
Exterior Doors		Showerheads	
Interior		Toilets	
Doors		Toilet Plumbing	
Inside Closets		Light Fixtures	
Windows		Shelving	
Baseboards		Flooring	
Walls and Ceilings		Walls and Ceilings	
Flooring		Doors	
Carpet		Windows	
Carpet in Corners		Exhaust Fans	
Shelving		HVAC	
Attic Access Panels		Operation	
Kitchen		Air Intake	
Inside Cabinets		Thermostat	
Sinks		Humidity b/t 30&50%	
Faucets		Evaporator Coil	
Flooring		Condensate Pan	
Walls and Ceilings		Condenser Coil	
Interior Doors		Condenser Fan Motor	
Windows		Furnace	
Refrigerator / Freezers		Baseboard Heaters	
Dishwashers		Vents / Ducts	
Garbage Disposal		Filters	
Washing Machines			
Dryers			
Sink Plumbing			

Describe Problems:

