

**JOHN R. SCHNEIDER**

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**INSIDE AND OUT**

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***Understanding Mold Remediation Part 1***

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“Ensure the approach taken to remediate the mold is based on facts, and not sensationalized fear or a misunderstanding of what needs to be done to correct the situation.”

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Almost everyone has heard or read about mold, and the potential health hazards it can create. While mold is currently a hot topic similar to what asbestos was in the 1980's, care must be taken to ensure the approach taken to remediate the mold is based on facts, and not sensationalized fear or a misunderstanding of what needs to be done to correct the situation. If the abatement approach is not thoroughly reviewed, tens of thousands of dollars can be spent and sometimes wasted, on the abatement process with little benefit for the owner or occupants of a building.

I recently had the opportunity to work with a client whose home developed a substantial case of mold that had to be remediated. It started out as a basically straightforward scenario. The house was 11 years old, and had been subject to previous leakage around some of the windows, and at some of the water and drainage lines serving the upstairs hall and master bathrooms. Initially, the builder was brought back to make repairs on the windows and bathrooms, and the belief was that the repairs corrected the source of leakage.

However, it wasn't until after the ten-year statute of limitations for the builder, the owner and some of her children began suffering headaches and respiratory problems that did not seem to clear up. The owner finally realized that the cause of the ailments might be associated with the living environment of the house, and she decided to have this investigated. I was contacted by the owner's attorney to inspect the house to determine if there were any visible conditions that may be contributing to ailments the occupants were experiencing.

The exterior of the building was wood siding and a brick veneer at the front, and stucco at the rear. At first glance, there were no unusual conditions noted at the front of the house. However, upon closer inspection, I discovered that water had been infiltrating behind the brick veneer and wood siding at unsealed joints, and behind the wood trim and stucco around the windows. This was allowing moisture to infiltrate into the building, and mold and fungus to grow on the siding and trim.

It wasn't hard to tell when first entering the home, that there was a heavy smell of mold in the air. Mold growth was noted around the window frames, and at the base of some walls. Further investigation determined that some of the mold growth and staining to the walls could be directly associated with water leakage through the exterior siding and trim adjacent to the windows, and the brick wainscoting at the front. Water staining and minor mold growth was noted at the family room and garage ceilings, which was possibly the result of previous repairs to the bathrooms above.

At this point it was decided to have the mold analyzed, and to perform a full inspection of the house. We needed to find out what was causing the mold to grow, and whether it was causing the illness of the occupants. To analyze the mold, we consulted with an industrial hygienist. An industrial hygienist is trained and experienced to identify environmental pollutants and has the ability to design a protocol for their abatement. They are also the only people in the State of California certified to perform this service. I contacted Janine Boscacci, of Industrial Hygiene Services, located in Danville. Janine truly understands her trade, and tries to take practical approaches

## ***Understanding Mold Remediation Part 1 - Continued***

when designing abatement procedures. Based on samples taken from the interior and exterior of the house, Janine discovered that the house was indeed contaminated with high levels of *Aspergillus/Penicillium*, *Cladosporium*, and *Stachybotrys*. These molds affect the respiratory system, and can cause breathing problems, headaches, and disorientation. They are also molds that can commonly be found in homes.

Janine found mold contamination around 10 windows, and on many walls, ceilings, and floor surfaces. This included the carpeting, linoleum in the kitchen, and wood subfloors in the bathrooms. Her initial proposal suggested removing and disposing of the infected windows and sections of sheetrock at the walls and ceiling, removing or sanding of affected wood members, removing kitchen and bathroom cabinets, and carpeting, and cleaning whatever else was left. This meant the interior of the building would be almost gutted, including the damaged wood siding and brick veneer on the outside. This was necessary for Janine to give a final clearance, and confirm that all the identified mold had been eliminated from the building.

Initially, mold remediation companies were solicited to perform the abatement. Their bids for the work came in at \$40,000 to \$50,000, with the caveat that costs would greatly increase, once walls and ceilings were opened up. The one unknown fact that we faced was how much mold was actually behind the wall surfaces, and how far it extended into the framing members and areas that could not be seen. To help determine this, we cut openings around the windows, and in the walls and ceilings where the greatest concentrations of mold were noted. Doing this allowed Janine to perform a further investigation of the framing members and set new limits on how far the mold had traveled, and what actually had to be removed.

With Janine's revised scope of remediation, we were able to get an initial bid of \$15,000 to do the work. On top of this cost was an additional \$12,000.00 cost for removing and cleaning all of the personal belongings of the occupants. There was still a potential of further increases in the cost, depending on what was discovered as the cabinets and carpeting were removed, and walls and ceilings were further opened up. Therefore, it was extremely important that this job was closely monitored as the work progressed.

Next week, I will tell you how the costs for this job almost got out of control, and what was done to prevent that from happening. I will also tell you how this extensive mold remediation could have been prevented.

*John R. Schneider is a licensed general building contractor and an ICBO certified residential code specialist. He is president of All About Homes, a residential inspection company, and has been performing code and construction consultations since 1985. Readers may address their comments to John Schneider, 24326 Mission Blvd., Suite 7, Hayward, CA 94544, Fax number: 510-537-8666, or on the web at [www.allabouthomes.com](http://www.allabouthomes.com). Schneider will answer questions of general interest in the paper. He reserves the right to edit the letter for brevity and clarity. Readers are encouraged to contact a competent contractor or code consultant for specific information regarding questions they may have about their home.*

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**INSIDE AND OUT**

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***Understanding Mold Remediation Part 2***

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“Ensure the approach taken to remediate the mold is based on facts, and not sensationalized fear or a misunderstanding of what needs to be done to correct the situation.”

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This is the second part of an article I wrote last week describing the costs and work involved in abating mold in single family dwellings. A client of mine discovered mold related conditions in her home, had it investigated, and began the abatement process.

The abatement processes for remediating mold is to remove, clean, or sand the mold away from all of the affected areas, and dispose of it properly. As this work is being performed, a room has to be completely sealed off from the other areas of the house, and large blowers called air scrubbers continuously run and filter the spores from the air. As the cleaning and sanding is occurring, a vacuum is also running collecting all of the dust. The workers wear disposable protective clothing, and respirators to protect their breathing. Each day after work all of the tools and blowers have to be wiped down so as not to spread the mold. The average cost for abatement on this project was over \$3,500 a day, and jobs of this nature can take weeks to complete.

After the remediation contractor started his work, he discovered the mold extended behind the tub surrounds and under the shower, and found further mold growth on wall studs and ceiling joists after removing additional sheet-rock. This meant that the bathrooms had to be completely stripped, and further remediation was needed on the wall framing. Based upon his revised bid, the job was going to cost an additional \$40,000 to \$65,000! This was more than triple the cost of his original bid of \$15,000.00, and more than we could afford to spend. We needed to determine if the newly discovered mold was a concern, and if all of the additional work suggested by the remediation company was actually necessary.

I inspected the newly opened areas and saw that some of the mold was a continuation of the moisture intrusion, but most of mold was in areas that did not have a source of moisture to have contributed to its growth. The mold on the wood framing appeared to be a common type called “lumber mold”, often found on lumber after it has been shipped to a jobsite. To be sure, I contacted Janine Boscacci, of Industrial Hygiene Services to take samples of the mold, and see if there were any other options for the additional remediation.

Janine reported that the samples of the mold on the lumber were indeed, common types of mold called *Ceratomyces*, and *Ophiostoma*. She explained, “These molds are often referred to as sapstain fungus, or “lumber mold”, and are almost everywhere in the environment. Lumber mold will rapidly colonize on freshly cut lumber and is characterized by its common black color seen on the wood surface. The nutrient source for this mold is the stored sugars in the cellular structure of the wood. Unlike decay fungi that may attack wood when exposed to chronic moisture, lumber mold only attacks the wood surface. In other words, the damage to the wood is only cosmetic, not structural.”

When I asked her if there was a need to remove this mold, she stated, “Visible mold growing on surfaces where people may come in contact with it should be cleaned and removed. The decision to remove mold from enclosed cavities or lumber must be made after considering how much mold is present, whether or not it is a potential

## ***Understanding Mold Remediation Part 2 - Continued***

health concern, and how likely it is to be opened or disturbed. Removing lumber mold from all surfaces of the wood would be impossible unless the entire building was completely dismantled. Mold spores are present on surfaces in all homes, and even if a building is stripped of all components and every spore is killed or removed, normal mold spores from outdoors or on replacement parts have the potential to grow. “

Janine stated that in the vast majority of cases, mold problems in homes are related to flooding and water leaks that affect building materials. Since the newly discovered lumber mold was not related to any source of water intrusion, it did not make sense to have it removed. By not requiring the removal of the lumber mold, Janine gave us the ability to redesign the methods of abatement suggested by the remediation contractor. The remediation contractor cooperated with us, and came up with additional suggestions to further limit the expense of what needed to be done to complete the job. The additional costs of remediation turned out to be less than \$24,000.

This is a perfect example of how quickly a job can spiral out of control, and how costs can double or triple, if questions are not asked and alternate solutions are not considered. It also shows the importance of working with qualified professionals. However, this particular job did not end with the mold abatement. Once mold was removed, reconstruction had to begin to put the house back together.

A window company was hired to replace the windows that had been taken out, and a general contractor was hired to re-install sheetrock where it had removed, completely redo the hall and master bathrooms, the kitchen, the floor coverings, replace the siding at the exterior that was pulled off, and finally, paint the inside and outside of the house. Costs to put the house back to its original condition were approximately \$135,000. Total costs of the project were over \$182,000.

The moral of this story is that homeowners must take an active role in the maintenance of their homes, and take action at the first signs of a mold or moisture intrusion problem beginning to occur. Some of the mold that was discovered could have been prevented if the leakage around the windows and plumbing lines had been identified in its early stages, and steps were taken to stop the moisture intrusion. Had the owner realized sooner that the developing mold was a potential problem, she may have been able to make the claim for damages against the original builder under the ten-year statute of limitation.

Homeowners should inspect their homes on a periodic basis and look for signs of leakage and moisture penetration. Keep all joints in the exterior siding and trim (particularly around doors and windows) well sealed, and your roof in good repair. If water staining or mold growth is noted, have it investigated and repaired before it can present a costly repair.

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