

Tropical Mold Forest

Proper Plant Placement can Prevent Problems

by Peter Sierck

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Rancho Santa Fe is one of the prettiest and most sought after locations to live in Southern California. Only the rich and famous can afford to buy property in this area. The climate is mild, mostly sunny and sometimes hot in summer—in short, perfect. Eucalyptus trees and orange groves separate large estates. When you drive by the individual properties you may not even see a structure. Large estates such as these require a lot of organized maintenance with gardeners and other staff working constantly.

The homeowner of one of these beautiful estates noticed a strange odor in one of his first floor guest rooms. However, there was nothing unusual to be noticed in the room or surfaces. The odor was intermittent and a good nose was needed to identify it. Stella, a Jack Russell Terrier trained to sniff out locations with mold growth (*see related article, page 36*), was brought to the property. Stella indicated mold odors coming from the exterior walls in several rooms of the main house. In the large guesthouse, she indicated mold at all exterior walls. The dog handler visually inspected the accessible areas, however, no visible mold growth was found.

Confusion arose, since the odor was confirmed but no source was found. A scientific building evaluation appeared to be the next logical step. An indoor air quality testing company specializing in mold and moisture investigation was hired.

The visual inspection of the exterior revealed extremely lush tropical vegetation very close to and along many of the exterior stucco walls. The soil was soaking wet around the perimeters of the structures. On this particular summer day, the outside temperatures reached 90° Fahrenheit.

Sprinkler overspray patterns were visible on the stucco, causing some of it to flake off. Wood rot was noted at the base of the French door casings. Brick stone veneer was present in some areas. Rain gutters were missing and the site drainage system was questionable.

Hypothesis Tested

The inspection of the interior confirmed the dog handler's findings that there were no areas with visible mold growth in the main or guesthouse, although a mold odor was definitely present in the entire guesthouse. The hypothesis: hidden mold growth in the exterior wall cavities due to the excessive amount of water load from the exterior.

To challenge the hypothesis, a number of spore trap air samples were collected from exterior wall cavities through the electrical outlets. The laboratory analysis uniformly showed spore counts in the 1 to 2 million range with predominance (>90 percent) of penicillium and aspergillus type spores. These results warranted destructive testing at the exterior walls.

Some low level mold growth on surfaces was also suspected in the guesthouse and confirmed with laboratory analysis. A closer inspection showed patches of mold growth on soft fabric furnishings.

Baseboards were removed in selected areas and small exploratory cut-outs were made into the drywall. Mold growth was present on the back side of the baseboards and on the bottom section of the walls. The back sides of the drywall cut-outs also show significant mold growth.

The residents stayed in the home while the mold remediation was conducted. To protect the interior environment, local containments with a negative pressure differential were erected. The decision was



Lush vegetation hid the beginnings of wood rot on this French door.

made to remediate the guesthouse with a full containment. The drywall and insulation material was removed and replaced up to four feet high. During the removal process, deterioration of the building paper was detected in some areas. This required the removal of the exterior stucco to re-install a continuous drain plane membrane. After being cleaned via HEPA vacuuming and damp wiping, the containment work areas were tested and cleared for mold levels. Reconstruction of the interior could start, but the original water intrusion problem had not been yet been addressed.

If They Had Only Known

It is of the utmost importance that all the water intrusion sources are identified and eliminated to prevent a recurrence of moisture damage and subsequent mold growth. Tropical plants require tremendous amounts of water and should not be planted close to a structure. Local drought-resistant plants require far less water and can be a beautiful substitute in xeroscape landscaping. Sprinkler system overspray should never hit the exterior building envelope because eventually moisture will migrate through the building paper and it will cause material deterioration. Drip-irrigation systems are a good substitute and will dramatically reduce the amount of water delivered to the plants and the structure. Rain gutters diverting the water away from the structure and a properly functioning site drainage system should be installed.

Guesthouses are especially problematic and notorious for mold problems. They are infrequently occupied and therefore not heated in the winter nor ventilated in the summer. This can easily cause a high moisture load indoors causing xerophillic fungi to grow on surface materials. Many of the soft fabrics furnishings in this guesthouse had to be discarded due to the confirmed presence of active surface mold growth. A thorough deep-cleaning of all remaining surfaces was performed and the carpet and padding was replaced. A dehumidifier was installed in the ventilation system and the system is now controlled by a humidistat and thermostat. This will insure that a certain relative humidity level is not exceeded and adequate temperatures are maintained.

If these homeowners had known, they

The mold growth, indicated by a strange odor and subsequent air samples, was fully revealed once the baseboard was removed.

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This guesthouse was not so inviting when mold was the visitor.

could have saved a few hundred thousand dollars. Different plants, a landscaping and watering schedule, proper roof and site drainage and regular heating and ventilation would have prevented all these troubles. m

