

Mildew - Causes and Prevention

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Mildew will appear on many different types of surfaces. It is a black or sometimes white growth produced by mold. Molds are always present in the air and only need moisture and a food source to flourish. Most surfaces contain enough nutrients for mold spores to grow and any dirt on a surface only provides additional food for the mold.

Molds can generally be detected by the musty odor they produce. They grow on paper, drywall, wood, paint and wallpaper, caulking and many other surfaces where moisture is present.

The first step in reducing mold is to keep things clean. A solution of chlorine bleach and water (1 part bleach to 4 parts water) will kill mold. Add a detergent to remove dust and dirt. Exercise caution when disturbing mold spores as these can cause respiratory problems, especially for people with asthma and other breathing problems.

The next step is to reduce humidity. In a climate like Winnipeg where we heat the air in winter and cool the air in summer this can be a challenge. Warm air can hold more moisture than cold air. Properly installed air conditioning systems cool the air by removing moisture and circulating the cool, dry air back into the room. Air movement is another excellent way to remove moisture. A bathroom fan can move moisture-laden air to the outside. Cooking and bathing can add as much as 3 gallons or more of water a day to the house unless circulation is adequate.

Exterior corners are common locations for mold to grow. Due to improper insulation the interior wall can become colder than the air in the room and cause moisture to condense on the surface. Under windows is also a common location. Humid air will condense on cold windows forming frost and go thru a cycle of freezing and thawing causing water to run down the wall and wicking up the drywall or plaster, forming mold and rotting the wall.

A solution for this problem is sometimes as simple as putting extensions on the drapery rods to move them further out from the wall, allowing air to circulate more freely. A large quantity of plants kept in an area can also cause high humidity and lead to problems. Mold and mildew are commonly found on the exterior wall surfaces of corner rooms. An exposed corner room is more likely to be more significantly colder than adjoining rooms, so that it has a higher relative humidity than other rooms at the same water vapor pressure.

If mold and mildew growth are found in a corner room, then relative humidity next to the room surfaces are above 70%. However is the relative humidity above 70% because the room is too cold or because there is too much moisture present? The amount of moisture in the room can be estimated by measuring both temperature and relative humidity at the same location and at the same time. Suppose there are two cases.

1. Assume the relative humidity is 30% and the temperature is 70 degrees F in the middle of the room. The low relative humidity at that temp indicates that the water vapor pressure or absolute humidity is low. The high surface relative humidity is probably due to room surfaces that are too

cold. Temperature is the main factor, and control strategies should involve increasing the temperature of the cold room surfaces.

2. In the second case assume that the relative humidity is 50% and the temperature is 70 degrees F in the middle of the room. The higher relative humidity at that temperature indicates that the water vapor pressure is high and there are relatively large amounts of moisture in the air. The high surface relative humidity is probably due to air that is too moist. Humidity is the dominating factor, and control strategies should involve decreasing the moisture content of the indoor air.

Air conditioned spaces can also be a problem. Mold and mildew can be as extensive in cooling climates as in heating climates. The same principals apply: either too cold, moisture levels too high, or both. A common example of mold growth in cooling climates can be found in rooms where “conditioned” cold air blows against the interior surface of an exterior wall. This condition, which may be due to poor duct design, diffuser location, or diffuser performance, creates a cold spot at the interior finish surface. A mold problem can occur within the wall cavity. It is a particular problem with walls decorated with low maintenance finishes such as vinyl wall coverings which can trap moisture. Possible solutions for the problem are :

1. Prevent warm, humid exterior air from contacting the cold interior finish.
2. Eliminate cold spots by relocating vents, ducts and diffusers.
3. Ensure vapor barriers , facing sealants, and insulation are properly specified, installed and maintained.
4. Increase room temp to avoid over cooling.

For more information on assessing building moisture and humidity levels, or other painting and decorating issues, please contact Patrick Curry of Precision Painting at 786-6633.

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