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TRACING MOISTURE INFILTRATION IN HOME

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After the past few rains, I have noticed that the carpeting in the family room was damp near the exterior wall. When I pulled back the carpeting, I could see that the padding and the plywood floor were wet all along the base of the wall. How can I tell where the water is coming from? The exterior of the building is stucco and there are no obvious signs of cracking that could let the water in. Is it possible that this is coming in from the roof?

Leakage through the exterior of buildings can be difficult to trace, particularly if you do not know where to look. However, if you have a basic understanding of how a house is constructed, you can logically trace the path of water based on the evidence that can be seen. There are predictable areas in a building that are susceptible to water leakage. Leakage can come from the exterior of the building, as in wind driven rain, or from the interior wall cavities from a plumbing leak.

If the source of moisture was a plumbing leak, it can only be from a water line or drainage line. If a water line is leaking, the moisture would not stop until the piping is fixed. If the moisture is coming from the drainage piping, say from a tub or a toilet, the water leakage would be periodic, and only leak when water was being flushed or drained down the pipes.

If there are no plumbing lines in the wall in question, then the leakage is probably coming in from the exterior of the building. The exterior siding and roof covering keep a building watertight. Leakage is most likely to occur at any penetration in the surfaces of these two building components. On the roof, the usual sources of leakage are the flashing around the plumbing vents, furnace flues, and chimneys, and at roof to wall junctions and valleys. On an exterior wall, water most easily infiltrates around the sills and the jambs of windows and doors.

The reason these areas tend to leak is that extreme care must be taken by the builder to ensure that the penetrations through these surfaces are sealed weather-tight. Once the building is finished, it is impossible to verify whether the flashing seals in these areas are properly installed. The only way people find out that they are not properly installed, is when water or water staining is discovered on interior surfaces after a few periods of heavy rain.

If the moisture inside the house is coming in from the roof, there would have to be a valley, plumbing vent or furnace flue above or near the wall in question. This can be easily observed from the exterior of the building.

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If there are no vents, valleys or flues above this wall, then I would suspect that the moisture was coming in through the exterior siding. However, do not rule out the possibility of a hole in the roof covering.

Take a close look and the water staining that is under the carpeting. Are the moisture and dampness just on the sub flooring and carpeting, or has some of it gotten into the sheet rock at the base of the wall? If there is staining and moisture at the bottom two or three inches of sheet rock, the moisture is coming from inside the wall cavity. Water that can infiltrate into a wall cavity creates a pool on the sill plate saturating the base of the sheet rock, and then flows out onto the floor.

If this is the case, and there are no vents or flues in the wall, I would check around any window above or next to this area for signs of moisture. Water can get into the wall cavity through the flashing seals around the window frame or through the corner joints of the window frame if they are not completely sealed.

Remember, water only needs a gap or separation of .003 of an inch to be able to infiltrate through a surface. This is thinner than the thickness of a piece of cellophane. If you still cannot determine the exact source of leakage, performing a water test with a hose may be necessary.

Doing a water test involves using a hose with a spray nozzle so you can simulate the rain. It is best to start spraying with the lowest surface in question first, and then gradually moving higher. If you suspect the moisture is infiltrating around a window or door, start at the bottom of the window or door and slowly work up one side and then the other, finishing at the top. By spraying one side of the window at a time, you have a better chance of isolating the source of the leakage.

When you perform a water test, you have to be patient. It can sometimes take five or ten minutes of lightly spraying on the surface before you can see the moisture infiltrate into the interior. Follow these steps, and you should be able to determine the source of the leakage. Once the source is discovered, it may be necessary to hire a competent contractor to make repairs.

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