

Moisture Penetration—Not Climate—the Leading Cause of Mold

The Top 10 “moldiest” states may surprise you



by Russell Boniface
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Although climate is a factor to mold, most water intrusion can be attributed to either poor design or inferior construction materials, the report says. The biggest areas that architects should be aware of regarding moisture intrusion are the roof, doors, and windows. Window and door flashing, roof underlayments, foundations sealing, and improved drainage systems are the best ways to decrease mold.

The Top 10 mold states:

- Texas
- Florida
- Oklahoma
- South Carolina
- Nevada
- Arizona
- California
- South Dakota
- Tennessee
- Kansas

The Bottom 5 mold states:

- Wisconsin
- West Virginia
- Alabama
- Massachusetts
- Minnesota.

If one state or another builds buildings better, they are going to wind up lower on the list.

What you need to know to beat mold

Lawrence Shapiro, business director of Cambridge, Mass.-based Grace Residential Building Materials, says the list does not surprise him. “Moisture intrusion has to do not only with climate but also design and construction practices. If one state or another state builds buildings better, they are going to wind up lower on the list.”

Shapiro explains where to find water leaks in homes and commercial buildings. “Doors and windows are most common and happen anywhere you get a lot of rain and wind. With windows, if you have a rough window opening, the water gets in between the window and the wall and travels down and soaks the wall underneath that window. It is important also to be aware of roof leaks at the eaves that get into the wall, especially from ice in a cool climate. You might not even notice you have a leak until the walls are completely soaked.”

To prevent water from getting into the building envelope, Shapiro recommends:

- Window and door flashing with a self-adhered rubberized, polyethylene membrane that can press onto the substrate. It will create a barrier to water entry and a drainage plane



for water to drain out of the wall

- Two types of roof underlayments: non-adhering that can be manually fastened; self-adhering that are pressed with a rubberized-asphalt backing
- Sealing concrete foundations with self-adhered membranes
- Grading the land away from the house so drainage systems can allow the water to run away from the structure.

“Door and window flashing is the easiest thing architects can put into their designs—for either a house or commercial building—to prevent water from getting in the walls,” Shapiro says. “And it costs only a few hundred dollars.

“For the roof, especially in cold climates, architects should use a roofing underlayment on the roof deck before the shingles go on at least three feet

PRACTICE

on the roof deck up to a point three feet inside the exterior wall. So even if you get a reasonable amount of ice, it won't back water up over it."

Flashing can also be used for these water penetration areas:

- Deck-to-wall intersections
- Corner boards
- Wall-to-wall tie-ins
- Foundation sill plates
- Sheathing panel seams
- Under stucco finishes
- Masonry walls.



Improper design

Shapiro points out that improper design can also lead to mold. "An improperly designed wall can allow moisture on the outside to migrate into the wall system and condense. Poor design can also allow moisture from the inside to try to migrate out through the wall and condense. Once water condenses in the wall, it does not come out. The analogy I always use is if you take a sponge and wrap it in cellophane, poke a hole in it, and put it in a sink full of water, the water will go through the hole and soak the sponge. When you want to dry out the sponge, it will not dry through the little hole. Same thing with walls. You want to go to all reasonable lengths to keep water out of your walls, because once it gets in there, it is pretty much going to stay in there."

Reference:

Useful Web sites

- Grace Residential Building
[www.grace.com]
- National Roofing Contractors
[www.nationalcontractors.com]
- American Architectural Manufacturers Association
[www.aamanet.org]