



WINDOW  
CONDENSATION

 **ASAP**  
WINDOWS & DOORS

## Don't allow the fog to settle in.

Have you observed that the windows in your home are frequently fogging up? Do they appear to be accumulating moisture? This situation may not solely be the windows' fault. In fact, condensation on your windows could signal a different issue entirely. Foggy windows may indicate a need to lower indoor humidity levels before it leads to hidden, expensive problems elsewhere in your home, such as peeling paint, rotting wood, warped floors, insulation damage, mildew, and moisture stains on ceilings and walls.

This booklet is designed to help you comprehend the connection between windows and condensation. It will also guide you in recognizing when persistent high humidity and condensation might be elevating your risk of home and health issues.



## Do windows lead to condensation?

No, windows do not create condensation. However, they are frequently the first place where condensation becomes visible. Consider this: you likely don't find it surprising or alarming when your bathroom mirror fogs up after a hot shower; it's an expectation. Similarly, your car windows may fog up during humid weather or in winter when there are multiple passengers inside. These are just a few instances. While condensation typically appears in colder weather, it can also occur during humid months when the air conditioning is in use.

The mirror isn't the source of the condensation, nor are the car windows. They simply happen to be the initial spots where you notice it. Take a look at your bathroom walls after a shower – you'll find condensation there as well. Run your finger along the wall, and you'll feel the moisture on your fingertip, along with a clear trail marking where you touched the condensation.

The same concept holds true for the windows in your home.

## What causes condensation?

Condensation occurs when warm, humid air encounters a cold surface. There is moisture present in the air surrounding us. Warmer air has the capacity to hold more moisture. As the air cools, it contracts—similar to how people pull their arms and clothing closer when feeling cold—and the moisture begins to condense.

When temperatures fall, the first signs of condensation appear on the windows, as they are the coldest surfaces inside your home. During the winter months, indoor air is typically much warmer and can hold more moisture compared to the colder, drier outdoor air. As the warm, humid air inside cools and contracts upon contact with the chilly windows, moisture begins to condense on the glass.

## What causes high humidity levels in indoor air?

The primary source of indoor air humidity comes from our daily activities. Activities such as taking showers, bathing, cooking, washing dishes, doing laundry, and cleaning can contribute moisture to the air in your home, potentially adding four gallons or more each day in certain households. Even the act of breathing releases moisture into the air.

Indoor humidity can also result from the way homes are constructed. Modern energy-efficient and well-insulated homes help reduce heating and cooling expenses. However, the same features that prevent outdoor air from entering our living spaces also hinder moisture from escaping to the outside.

## I've observed condensation on my double-glazed windows. Is it bad seals or indoor humidity?

Before reaching out for repair services, consider this simple test. Glide your finger across the area where condensation has appeared. If your finger becomes wet and leaves a mark in the condensation, it indicates that the moisture is on the room side of the glass. This suggests that the condensation is due to high indoor humidity, rather than a faulty seal.

Here's an additional tip: If multiple windows are exhibiting condensation, it's highly unlikely that the seals on all of them are faulty. The issue is likely due to indoor humidity.



## I never had condensation issues with my previous windows. Why is it occurring now?

If your old windows were drafty, those gaps did more than just let in the breeze; they also allowed excess moisture to escape outside. With your new windows being better insulated, indoor humidity remains contained. While windows themselves do not cause condensation, they also cannot eliminate it. Instead, your windows are signaling that there is excess humidity within your home.

## How can humidity cause problems? I thought it was good for your health.

It was previously thought that using humidifiers during winter could promote health. However, research has demonstrated that this belief is inaccurate, especially for individuals in good health. In fact, humidifiers can potentially lead to health issues. Although manufacturers claim that humidifiers can be advantageous for plants and furniture, the Association of Appliance Manufacturers asserts that there is no evidence linking humidifier use to any medical benefits.

## What types of issues can humidity create?

**Health Issues:** Mold and mildew thrive in damp environments with organic materials like wood and plaster. With thousands of mold types, many can become airborne during reproduction. Health issues from inhaling or ingesting mold include allergic reactions, sinus and nasal irritations, infections, chronic respiratory problems, dizziness, lethargy, and asthma attacks in susceptible individuals.

**Structural damage:** Humid indoor air is under higher pressure than outdoor air, causing it to push outward through wood, plaster, insulation, and concrete. This can lead to insulation deterioration, paint blistering, unsightly stains, and structural damage.

## How can we reduce indoor humidity?

### 1. Enhance Ventilation.

- To address an immediate issue, briefly open a window in each room for a few minutes. This will allow stale, humid air to escape while fresh, dry air enters, resulting in minimal heat loss.
- Ensure that all gas burners, clothes dryers, and similar appliances are vented to the outside.
- Install exhaust fans in the kitchen and bathroom to effectively expel steam outdoors.
- Keep attic vents unobstructed and open for better airflow.
- Consider installing storm windows to maintain warmer interior glass.

### 2. Manage Indoor Humidity.

- Set your humidifier at the level recommended below for winter temperatures:

OUTSIDE TEMPERATURE	INSIDE RELATIVE HUMIDITY
-28° C   -20° F	15-20%
-23° C   -10° F	15-20%
-18° C   0° F	20-25%
-12° C   +10° F	25-30%
-7° C   +20° F	30-35%

Indoor humidity can be monitored using a humidity monitor or controlled with a humidistat, both of which can be found at most building supply stores and home improvement centers.

- If you're passionate about indoor plants, gather them in a single sunny room and be careful not to overwater them.
- Ensure that your basement's floors and walls are waterproof. Utilize a dehumidifier if necessary.
- Insulate beneath the seat and head of bay and bow windows, where condensation tends to form, to keep the window glass warmer. Position an electric fan near the window to enhance air circulation.



Humidistat



Humidity Monitor

## Is condensation more common in certain climates, homes, windows, or during particular seasons?

Yes, it is more probable that this will happen:

- In regions where average January temperatures are 2° C (35° F) or lower.
- During the summer and fall, homes often absorb moisture from the humid air. As fall approaches and the heating season begins, windows remain closed, resulting in moisture retention indoors. You may notice temporary condensation forming over the next week or two.
- Condensation can also occur on the outside of your windows. This phenomenon, known as reverse condensation, usually takes place when it's hot and humid outside. The cooler air inside your home causes the glass surface to drop below the dew point. Additionally, nearby plants can increase the chances of reverse condensation, which is more likely to happen on clear nights, especially with little to no wind.
- Sharp, rapid drops in temperature can create temporary condensation issues.
- For the first year after construction or remodeling, expect condensation as building materials dry out. These materials retain a significant amount of moisture, leading to condensation during the initial heating season.
- On bay or bow windows, where air circulation is often limited, the glass tends to be a few degrees cooler as it protrudes from the insulated house wall.
- When drapes are closed and shades are drawn, today's heavily insulated drapes and tighter shades can restrict airflow over the window glass, contributing to condensation issues.



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