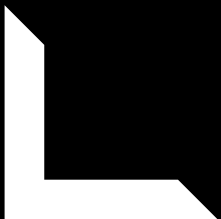
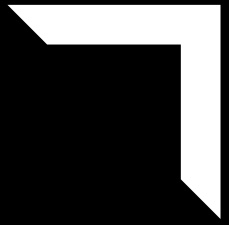




# CONDENSATION GUIDELINES

---



# CONDENSATION EXPLAINED

Condensation is the moisture on windows and doors when indoor humidity meets cold outdoor temperatures. Upgrading your home can make it tighter, possibly leading to more condensation. We're here to help you understand and manage these changes for a comfortable living space.

## ROOMSIDE CONDENSATION

Condensation forming on the interior of windows and doors is the result of high humidity levels in your home combined with cold temperatures outside. This occurrence is called roomside condensation. Roomside condensation occurs when high humidity within your home interacts with cold external temperatures. Air carrying elevated humidity retains water vapor until it encounters a surface temperature equal to or less than the dew point, leading to the appearance of condensation, typically in the form of water droplets or frost on the inner side of windows. As indoor air becomes drier or the glass surface warms, the condensation gradually diminishes.

Roomside condensation can be managed by upgrading to energy-efficient windows and doors or implementing changes like a new roof or siding can diminish air infiltration, enhancing the home's tightness. While this can reduce energy loss, a more airtight home might retain more humidity, potentially causing condensation on colder surfaces more frequently compared to the pre-construction alterations.

### Conditions which cause condensation

#### Inside

Temperature: 70° F

Humidity: 40%

Dew Point: 44° F

Glass Temperature: 43° F



#### Outside

Air Temperature: 0° F

- Humidity is higher than recommended amount.
- High humidity causes dew point to be higher.
- Condensation appears on interior glass because glass temperature is below dew point.

### Conditions which prevent condensation

#### Inside

Temperature: 70° F

Humidity: 30%

Dew Point: 37° F

Glass Temperature: 43° F



#### Outside

Air Temperature: 0° F

- Humidity is at recommended amount.
- Lower humidity also lowers dew point.
- No condensation on interior glass because glass temperature is above dew point.

### Maximum recommended humidity levels

Outside Temperature	Inside Temperature
20° F to 40° F	Not over 40%
10° F to 20° F	Not over 35%
0° F to 10° F	Not over 30%
-10° F to 0° F	Not over 25%
-20° F to -10° F	Not over 20%
-20° F or below	Not over 15%

# EXTERIOR CONDENSATION

Exterior condensation is a phenomenon predominantly observed in summer. It is caused by specific atmospheric conditions: heightened outdoor humidity, minimal wind, and clear night skies. Similar to roomside condensation, it forms when glass temperature drops below the dew point of the external air.

To address exterior condensation, open window coverings at night, trim shrubbery for better air circulation, and consider a slight air conditioner adjustment. Redirect air vents blowing cool air directly at windows to mitigate condensation.

---

## Triple-pane Low-E Insulated Glass with Argon

Outside

Air Temperature: 50° F

Dew Point: 48° F

Glass Temperature: 47° F



Inside

Air Temperature: 70° F

- Heat loss to the night air and sky cools outside glass.
- Energy efficient window keeps heat inside the home so exterior glass stays cool.
- Condensation appears because exterior glass temperature is below dew point

## Dual-pane Clear Insulated Glass

Outside

Air Temperature: 50° F

Dew Point: 48° F

Glass Temperature: 55° F



Inside

Air Temperature: 70° F

- Heat loss to the night air and sky cools outside glass.
- Non-energy efficient window allows heat from inside the home to warm up exterior glass.
- Condensation does not appear because exterior glass temperature is above dew point.

---

# BETWEEN-THE-GLASS CONDENSATION

Condensation between two pieces of Insulated Glass is not controllable and is an indication of glass seal failure. Contact AEROFRAME to discuss solutions.

# CONDENSATION PREVENTION

Quick tips for controlling humidity and condensation in your home.

Sources of Humidity	Action Required
Air Circulation	Ensure optimal air circulation by opening window coverings and leaving interior doors ajar during the day.
Moisture producing areas	Secure doors and windows leading to greenhouse areas, hot tubs, or pools; shield large aquariums.
Moist air trapped in attic and crawl space	Ensure clear soffit vents and seal around indoor light fixtures to prevent warm air ascent to the attic. Implement vapor barriers to hinder soil moisture from rising into the home.
Furnace	Regularly service and ensure the proper functioning of the furnace. Examine dryer heat sources, including gas or electric furnaces.
Stale air	Install an Air-to-Air exchanger to expel moist air outdoors, ensuring unobstructed openings. Avoid covering or redirecting warm air registers, refrain from closing off rooms, and open windows slightly to introduce cool, dry air.
Groundwater seeping through foundation	Implement gutters, flashing, and downspouts to direct water away from the home's foundation.
Excessive humidifier use	Use hygrometers to monitor humidity levels, maintaining optimal moisture in the air. Adjust or turn off humidifiers as needed.
Damp basement	Use a dehumidifier in the basement to alleviate excess moisture.
New wood, plaster, cement, and other building materials	New building materials hold significant moisture. During the initial heating season, this moisture is released into the air, settling on cool surfaces. This condensation type may persist for a few heating seasons.

If condensation issues persist, please contact an expert or [info@aeroframe.com](mailto:info@aeroframe.com).

# FREQUENTLY ASKED QUESTIONS

**Q: Why do I have condensation with my new windows when my old windows did not?**

A: Windows do not cause condensation; they are indicators of high indoor humidity. Newer, more efficient windows, being less prone to air leakage, may exhibit condensation that was less noticeable with older, leakier windows.

**Q: What is condensation?**

A: Condensation is the process of transforming gas into a liquid. When the air becomes saturated with excessive humidity, it can no longer hold the water vapor present. This moisture becomes visible when warm, moist air contacts a cooler surface, such as window glass, causing it to condense.

**Q: Do windows or doors cause condensation?**

A: No, windows and doors do not cause condensation. They merely reveal elevated humidity levels. Just as a bathroom mirror doesn't induce condensation after a hot shower, or car windows don't cause frost when several passengers are present, the cooler surface is where condensation collects.

**Q: Why does roomside condensation occur?**

A: Roomside condensation occurs when the temperature of the interior glass surface is at or below the dew point for the humidity within. Warmer air, capable of holding more moisture than cooler air, condenses upon contact with the cool glass surface, manifesting as visible droplets or frost.

**Q: What is the dew point?**

A: The dew point is the air temperature at which it can no longer retain all its water vapor, resulting in the condensation of some water into liquid form.

**Q: What causes excess humidity in the home?**

A: Everyday activities, such as showers, cooking, and even breathing, contribute moisture to indoor air. Additionally, modern, well-insulated homes, while efficient in conserving energy, may inadvertently trap moisture. Excess humidity is also influenced by seasonal variations, especially in regions with January temperatures averaging 35°F (35°C) or less.

**Q: Are there other cases where window condensation is only temporary?**

A: Yes, new construction or remodeling materials, as well as humid summers, can introduce excess moisture that causes temporary condensation. Quick temperature drops during the heating season may also induce temporary condensation.

**Q: Why do I have condensation on my windows and my neighbor does not?**

A: Indoor temperature, ventilation, air exchange, window coverings, and everyday activities can vary from home to home. The number of occupants and their daily activities further influence indoor humidity levels.

# FREQUENTLY ASKED QUESTIONS

**Q: How does air circulation impact roomside condensation?**

A: Effective air circulation is crucial in mitigating condensation. Poor circulation keeps air near windows cooler, leading to quicker cooling and condensation. Adequate air circulation slows this process, reducing condensation.

**Q: Will roomside condensation ruin my windows?**

A: If condensation issues are not addressed, window problems may appear over time.

**Q: Why do I still have roomside condensation even though I am running a dehumidifier?**

A: Persistent condensation despite dehumidifier usage suggests ongoing high humidity levels, influenced by factors like varying air temperatures, circulation, window coverings, and other moisture sources.

**Q: What can I do to control roomside condensation?**

A: Effectively controlling roomside condensation involves reducing indoor humidity levels through practical measures detailed in the provided table.

**Q: Do windows or doors cause exterior condensation?**

A: No, windows and doors do not cause exterior condensation. Exterior condensation is a natural atmospheric phenomenon, particularly during periods of higher outside humidity.

**Q: How can I control exterior condensation?**

A: Managing exterior condensation involves actions such as opening drapes at night, slightly increasing interior temperature, redirecting air from vents, or providing shielding from the sky.

**Q: What does condensation between glass panes mean?**

A: Condensation between sealed glass panes indicates seal failure. Contact AeroFrame to discuss replacement or warranty solutions.



# CONTACT

---

aeroframe.com  
1-877-323-7263

US Office  
Suite 110 – 22745 29th Drive SE,  
Bothell, WA 98021  
USA

Canada Office  
Jameson House, 838 W Hastings St #700,  
Vancouver, BC V6C 0A6  
Canada