



Your guide to **condensation** and how to reduce it

# *Come home to comfort*



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# Stay warm and dry all year round

**Living in New Zealand's damp climate means it's hard to escape condensation. Waking up in the morning and seeing water droplets covering the inside of your windows is just a part of life for many of us.**

Although windows can seem like the culprit, they're not actually the cause of condensation. In fact, it's caused by activity in your home. With the right conditions condensation will form on any surface, but it's often more visible on windows.

High humidity can lead to mould on walls, ceilings and materials like curtains and carpets, and can be a major cause of deterioration in homes and buildings.

The good news is we're here to help you understand what causes condensation, and how to reduce it, so your home stays warm, dry and comfortable, all year round.





# What causes condensation?

**The air inside your home contains moisture. When the indoor temperature cools down, the air can't hold as much water vapour. This means the vapour condenses as a liquid, which is particularly visible on cold, non-absorbent surfaces like windows. There's also unseen moisture which penetrates your carpets, fabrics and other absorbent surfaces, making them feel cold and damp.**

## *Where the moisture comes from*

- Every time we breathe, whether asleep or awake, we put moisture in the air. On a cold morning, you can actually see the moisture appear right in front of you when you breathe. Water vapour also comes from using water, such as when cooking, showering or growing indoor plants.
- Clothes dryers and unflued gas heaters can create a significant amount of moisture inside your home.
- New houses will have a higher level of internal moisture, because framing timber, concrete floor slabs and other building materials can take several months to stabilise. Even your geographical location and climate can have an effect on condensation. New Zealand humidity levels vary across the country.

Household activity	Average moisture added to indoor air
Cooking	3.0 litres per day
Clothes washing	500 ml per day
Showers and baths	1.5 litres per day per person
Dishes	1.0 litre per day
Clothes drying (unvented)	5.0 litres per load
Gas heater (unflued)	1.0 litre per hour
Breathing	20ml per hour per person
Pot plants	As much as you give them

## Taking a closer look

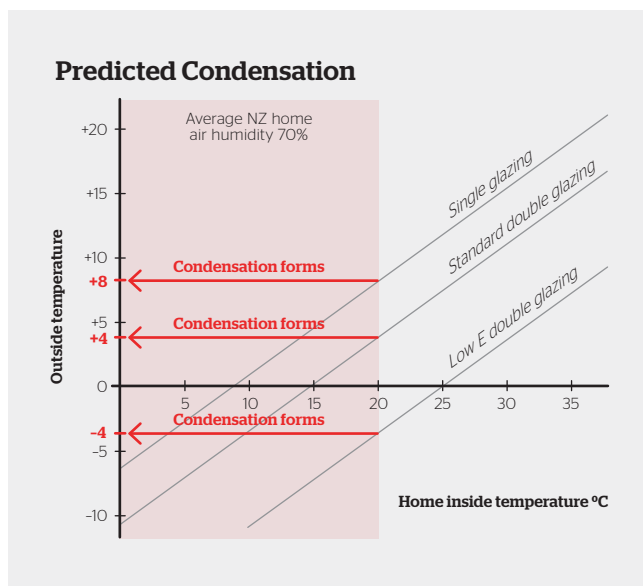
Thanks to science, we can use measurements to pinpoint the exact time when condensation will appear. The two common terms we use are 'relative humidity' and 'dew point'.

### Relative humidity

Relative humidity (RH) is how we measure moisture in the air. For example, a room humidity of 80% RH means the ability of the air to hold water is 80% loaded. 100% is saturation point. The higher the temperature, the greater the amount of moisture the air can hold as water vapour. The lower the temperature, the less the amount of moisture the air can hold. So the moisture is released at a temperature we call the dew point.

### Dew point

Dew point is the temperature at which the air becomes cool enough that the moisture in the air is released. The air can only hold a certain amount of moisture. The cooler the air gets, the less it can hold water in the form of vapour, and it has to let the water go. If it touches a cooler surface, the water vapour appears as condensation. This often means water appears on windows, mirrors and walls, as well as disappearing into the furnishings and carpet.



### Knowing the numbers

If you'd like to know when conditions are right for condensation to start forming in your home, head to a website like [www.decatour.de](http://www.decatour.de), which has an online dew point calculator.

All you need to know is your room temperature and indoor humidity.

To find this out, you'll need a thermometer and a hygrometer. Thermometers with accuracy as close as 1%, and electronic hygrometers with accuracy as close as 5% are available from hardware or electronic stores - just check the accuracy specifications before buying. When you can measure humidity, it becomes much easier to start managing it.

## How to reduce condensation

Unfortunately, simply installing new windows won't fix a condensation problem. But there are a number of things you can do to help minimise the chance of condensation:

### Ventilation

Ventilation can help reduce moisture and condensation, keeping your home drier, healthier and more comfortable. Keeping windows open, even if only by a little for part of the day, can help reduce condensation.

Some window types can be supplied with passive ventilation, which allows you to lock your windows without stopping ongoing ventilation. Ventilation is especially important in newer homes, because they tend to be more airtight, providing less natural airflow.

When cooking, drying laundry, or showering, make sure you let the water vapour escape outside. You can do this by opening windows or vents, or turning on a ventilation fan.

### Dehumidifiers

Dehumidifiers are useful to reduce moisture in the air. A dehumidifier draws in the moisture-laden air from around the room, extracts the water and deposits it into an inbuilt container. You can easily dispose of this water by removing and emptying the container.

### Domestic ventilation systems

There are several types of HVAC systems available, which work by replacing the moisture-laden air in your home with air that may be drier - potentially reducing condensation and improving air quality as a result. Some systems have built in electric heaters that also warm your home.



## How windows can help

Double glazing helps keep the surface of the inside glass warmer, reducing the likelihood of condensation forming on the windows. Like double glazing, thermally efficient window frames help prevent the transfer of heat through window frames, helping to reduce condensation on windows. Thermally efficient window frames should only be used with double glazing.

### Some key points to remember

- Windows don't cause condensation.
- Moisture in the air comes from us breathing, from using water, unflued gas heaters and from drying building materials.
- Levels of moisture in the air can also vary depending on your geographical location.

- High humidity can promote mould growth and deterioration in your home.
- Relative humidity is a measure of the moisture in the air. Dew point is the temperature at which condensation forms.
- You can reduce humidity and condensation by having proper ventilation. This includes keeping windows and vents open, and using ventilation fans.
- Windows with double glazing (IGUs) and thermally efficient window frames will help minimise the appearance of condensation, but they don't stop condensation being created.
- Dehumidifiers will help reduce inside air relative humidity and condensation.
- HVAC systems will help control ventilation, relative humidity and temperature, and reduce condensation.





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**Source:** Window Association of New Zealand. *Guide to Understanding Condensation*. [www.wanz.org.nz](http://www.wanz.org.nz)

For ideas, advice and further information about condensation solutions, speak to your local Fairview manufacturer, or visit us online at [fairviewwindows.co.nz](http://fairviewwindows.co.nz).

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