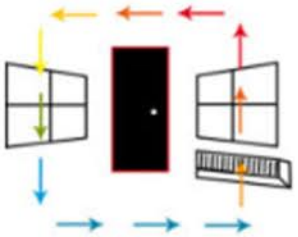
# Condensation and Secondary Glazing

Secondary glazing was originally designed to conserve heat and save on energy costs. Now just as many customers buy this to get rid of condensation on their windows. To better understand the process of reducing condensation you need to look at the following thermodynamic principles:

**1.** Convection is the movement of air circulation. This is caused when warm air rises and cool, denser air falls.



**2.** The convection process is reduced when a narrow airspace is introduced between the air movements. The airspace increases the drag between the rising and falling air. This results in the air falling down the window not being cooled to the same extent as it would be if it came into direct contact with the cold external glass.

**3.** Conduction is the process by which heat is directly transmitted through a material when there is a difference of temperature. Glass is a very good conductor of heat and therefore it can become very cold.

**4.** Warm air can 'hold' more moisture (as water vapour) than cold air.

**5.** Dew point is the temperature at which a given parcel of air must be cooled down (at constant pressure) for water vapour to condense into water droplets, often referred to as condensation or dew.

## Convection and conduction

When we heat the air in our homes, the warm air rises straight to the ceiling. his rising air displaces other warm air near the ceiling. This then slowly sinks as it cools, travelling down the walls.

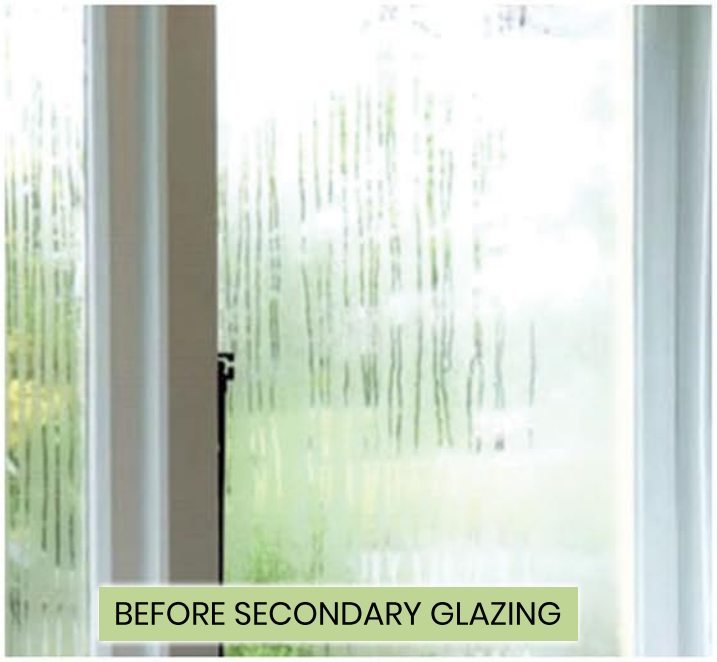
When the air travelling down the wall passes a cold window, conduction occurs causing the warm air to be cooled as it passes the cold pane of glass. This cooled air can then fall even faster and often causes a draught effect at the bottom of the windowsill. This results in cold spots being felt within the room.

This cycle will continue to pull warm air against the window establishing a convection current. This will cool your room throughout the day and night.

## How can Secondary glazing from the Glazing shop help?

The secondary glazing significantly reduces the rate of heat loss. This is because the insulating airspace between the two surfaces is less prone to convection and conduction. A secondary glazed window will still cool the internal falling air, but the conduction process is greatly reduced. Our secondary glazing uses solid polycarbonate and not glass because of its superior insulating properties. This can prevent the transfer of heat much better than glass.

This is why, under similar conditions on a cold day, glass will be a lot colder to the touch than the polycarbonate.





Thanks to the thermal properties of the glazing panels our secondary glazing reduces the amount of condensation occurring. This enables your current glazing to last longer, without rot to the frames. Creating a drier and healthier home in which to live.