



The thermal safety of units that open, whether pivoting or sliding, must be considered separately to vertical units, and will typically be based on worst case conditions, depending on allowable movement.

HORIZONTAL PIVOTING UNITS

Units that pivot relative to the horizontal will effectively change their inclination, and so, as with sloping units, glazing that is at an angle closer to 35° will be subjected to greater levels of incident solar radiation.

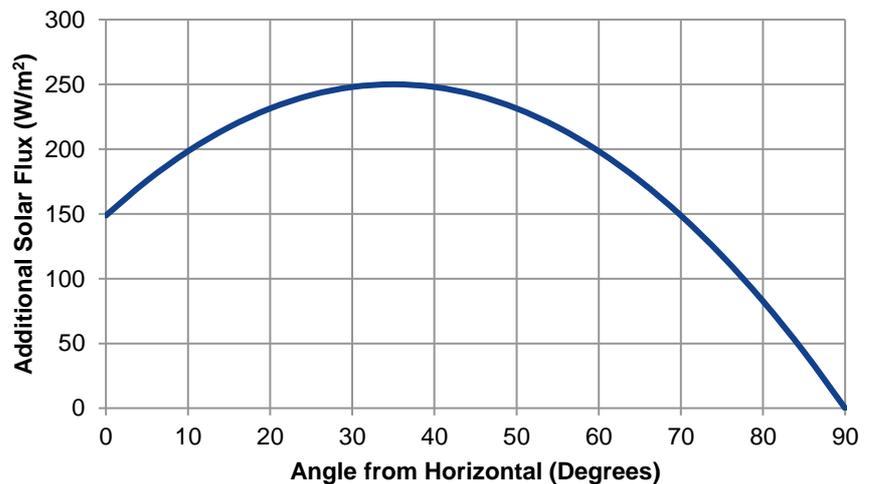


Figure 1 - Additional Solar Flux from Unit Opening Angle

In addition, the external and internal heat transfer coefficients will also change, altering the rate of heat loss or gain within the units.

VERTICAL PIVOTING UNITS

Although units that vertical relative to the vertical, will still stay vertical, their orientation will change. As such, upon opening they may face a worse case orientation than when closed, for example, North East units may pivot to face East, and as such, be subjected to an increased level of solar radiation.

SLIDING UNITS

When sliding units are opened, issues can be created by the overlapping panes, which in effect, turn a double glazed unit, into a quadruple glazed unit. Although the level of solar radiation to the internal unit would be reduced due to the absorbance of the outer unit, the air present in the space between the two units will likely heat up, increasing the temperature of the panes facing each other in the centre.

Between the overlapping units there may be expected to be some level of ventilation present as air may be able to flow between the two units should gaps around the periphery be sufficient. However, in the case of sliding sash units, there is often very limited clearance to allow sufficient airflow in and out of the cavity to significantly reduce the potential temperature build-up.

In the case of patio doors and sliding sashes, the opening part of the unit will tend to open to the inside, and as such not be exposed to external natural air flows, leaving natural convection of warm air as the only driver for air exchange.

As such, under worst case conditions, it would be assumed that air flow is limited, and the centre cavity is acting as if it were hermetically sealed.

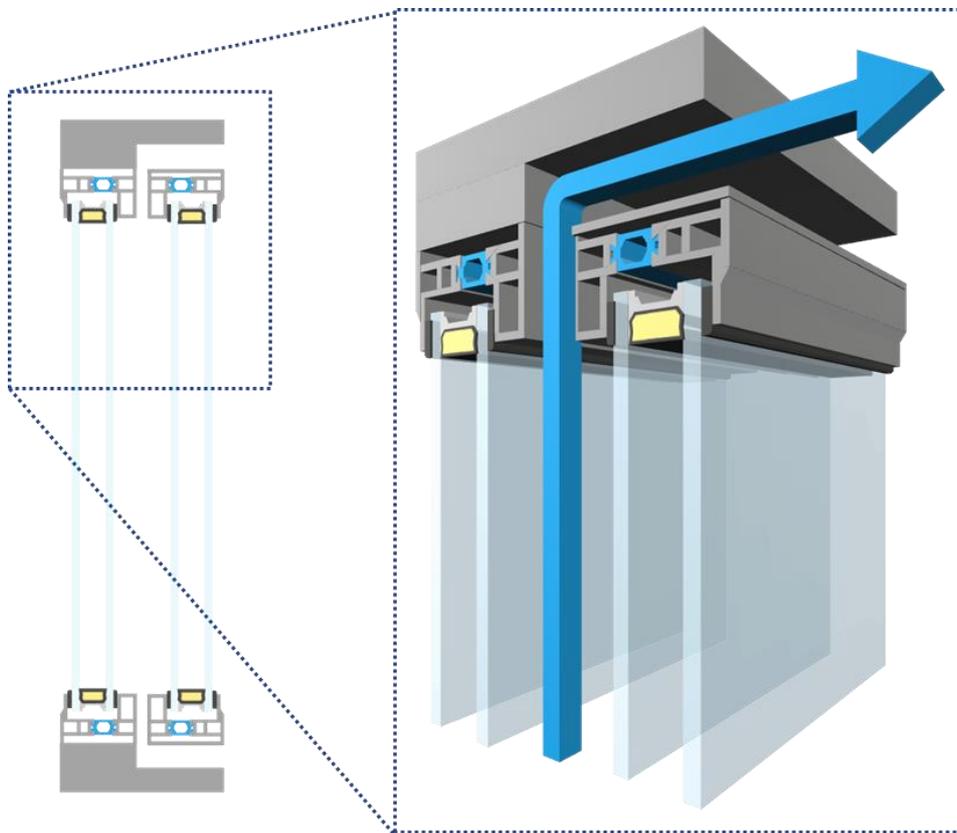


Figure 2 – Illustration of Airflow Between Overlapping Units