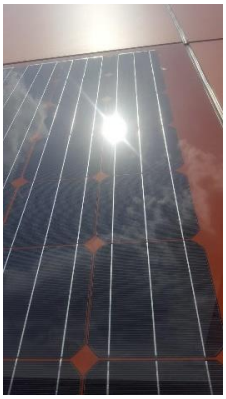


Q-Air - 6-pane glazing solution

Q-Air is a 6-pane glazing solution with U_W < 0.35 W/m^{2}K utilizing 2 mm internal glass panes. It facilitates:

- Exceptional energy efficiency and living comfort;
- Doesn’t need any external solar shading devices;
- Removes the need for seasonal energy storage;
- Increases usable living space;
- Sound insulation > 43 dB;
- Internal and external flush design.

REFLEX

Q-Air

Table of contents

What can you find in other white papers

Q-Air – unique selling propositions in detail

Explains main Q-Air USPs:

- Winter cold draught prevention;
- Summer heat radiation from the glass;
- No exterior sun shading;
- Nearly independent nearly-zero energy building;
- Costs, reduced maintenance and extra floor space.

Q-Air – the new paradigm in reduction dependency from fossil fuels in buildings

With Q-Air it is possible to design a building that requires none or almost no heating. This is important in mitigating building related CO_2 emissions which mainly originate in heating demand that is difficult to satisfy with renewables. Cooling, on the other hand, can be readily achieved through photovoltaic power. This concept also eliminates the need for seasonal energy storage.

Q-Air – experimental evaluation

This white paper shows experimental experiences with multipane glazing as it progressed since its inception in 2010. General evaluation is given.

Q-Air – longevity of sealed glass units

It will come as a surprise to many, that loss of argon or krypton gas is not what determines the lifespan of a sealed glass unit. Degradation originates in silver Low-E coating corrosion, which is greatly exacerbated by water vapour migration into the sealed unit. This corrosion determines the primary lifespan of the unit where low U-value should be maintained. A comprehensive account of ageing process is given.

Q-Air – detailed physical properties

Full product range is described:

- Centre of glass heat transmission (U_g)
- Temperature dependency of the centre of glass U_g value
- Angular dependency of solar heat gain (g – value)
- Linear heat transmittance value (ψ - values)
- Light transmission (LT), solar heat gain (g) datasheets

Q-Air new builds and refurbishments

A newbuild twin flush look example in Spain:

A refurbishment example in Norway:

Aesthetics

EXTERIOR SHADING-FREE SOLUTION

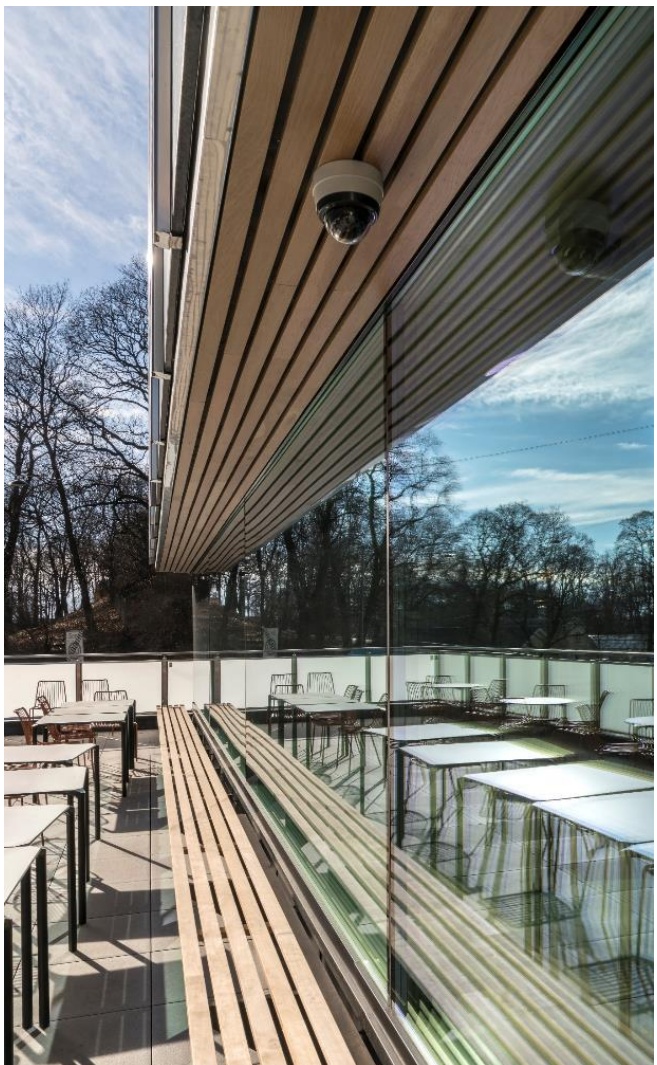
Q-Air makes dynamic solar shading superfluous.

TWIN FLUSH LOOK

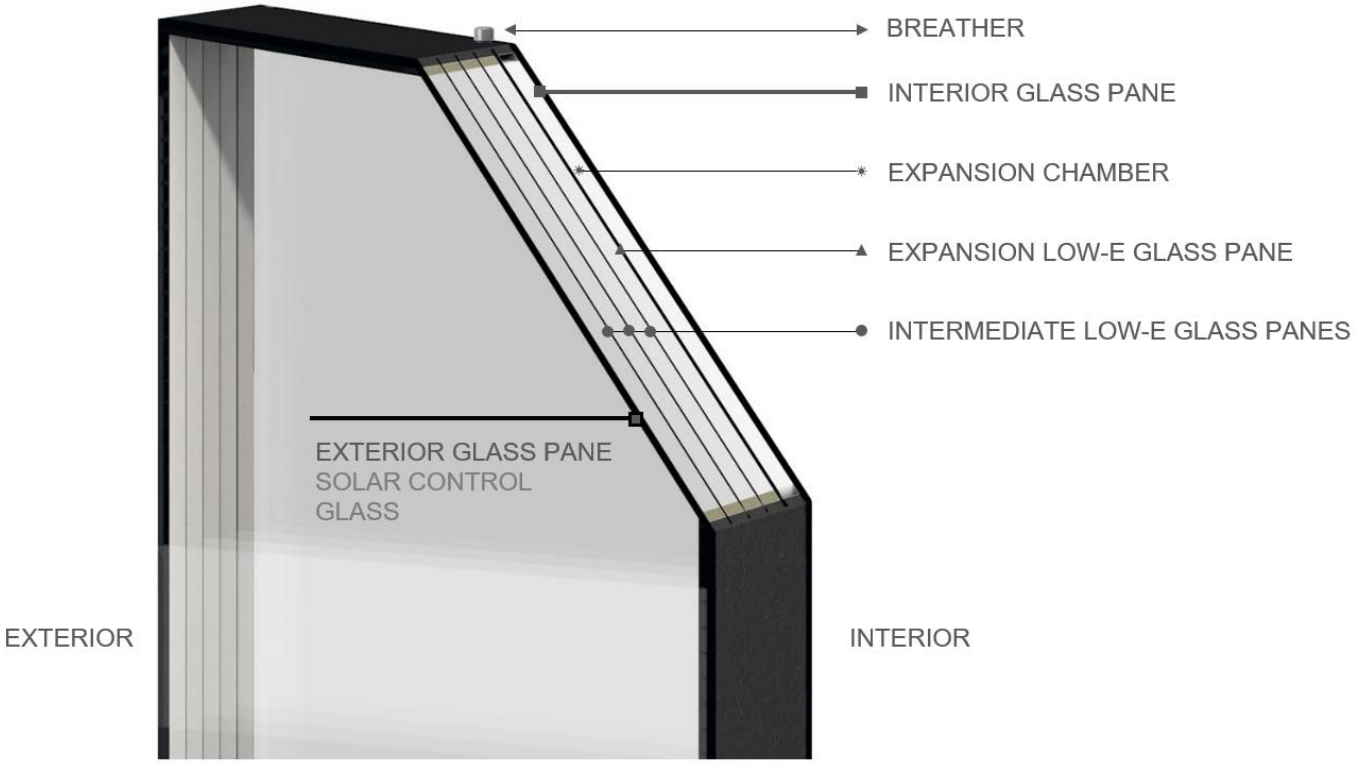
Q-Air offers a unique twin structural glazing solution with substructure completely concealed between the glass panes.

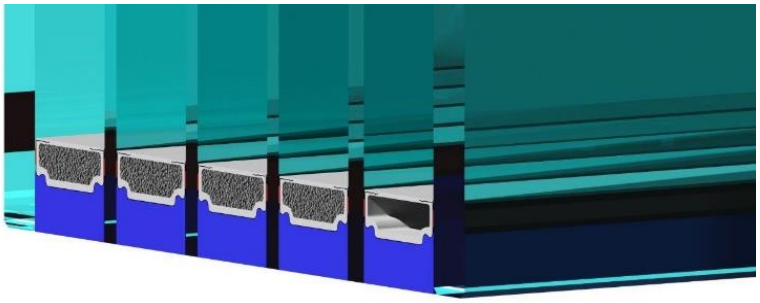
LARGE UNITS

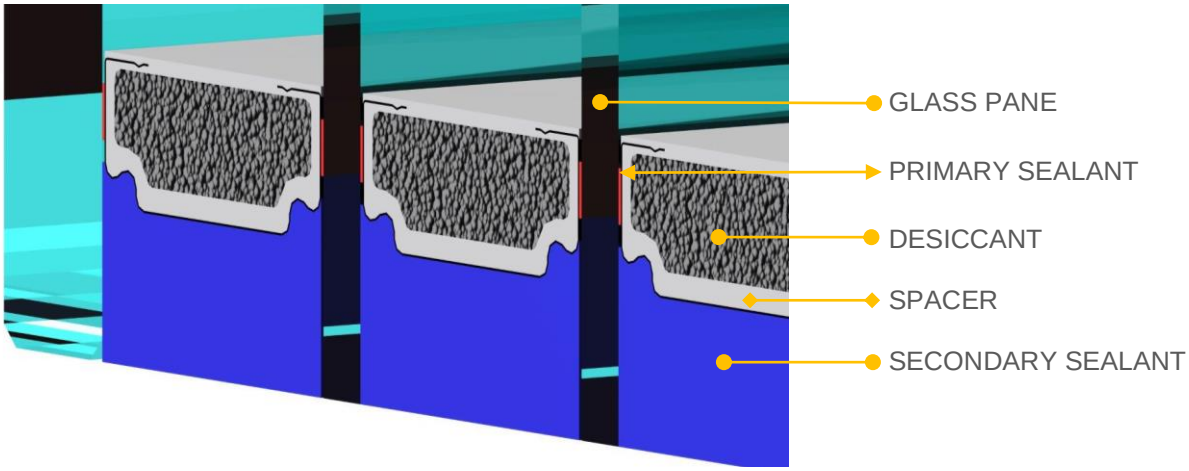
Up to 6 m. Fully glazed building will maintain superior energy performance.



Q-Air glass unit assembly



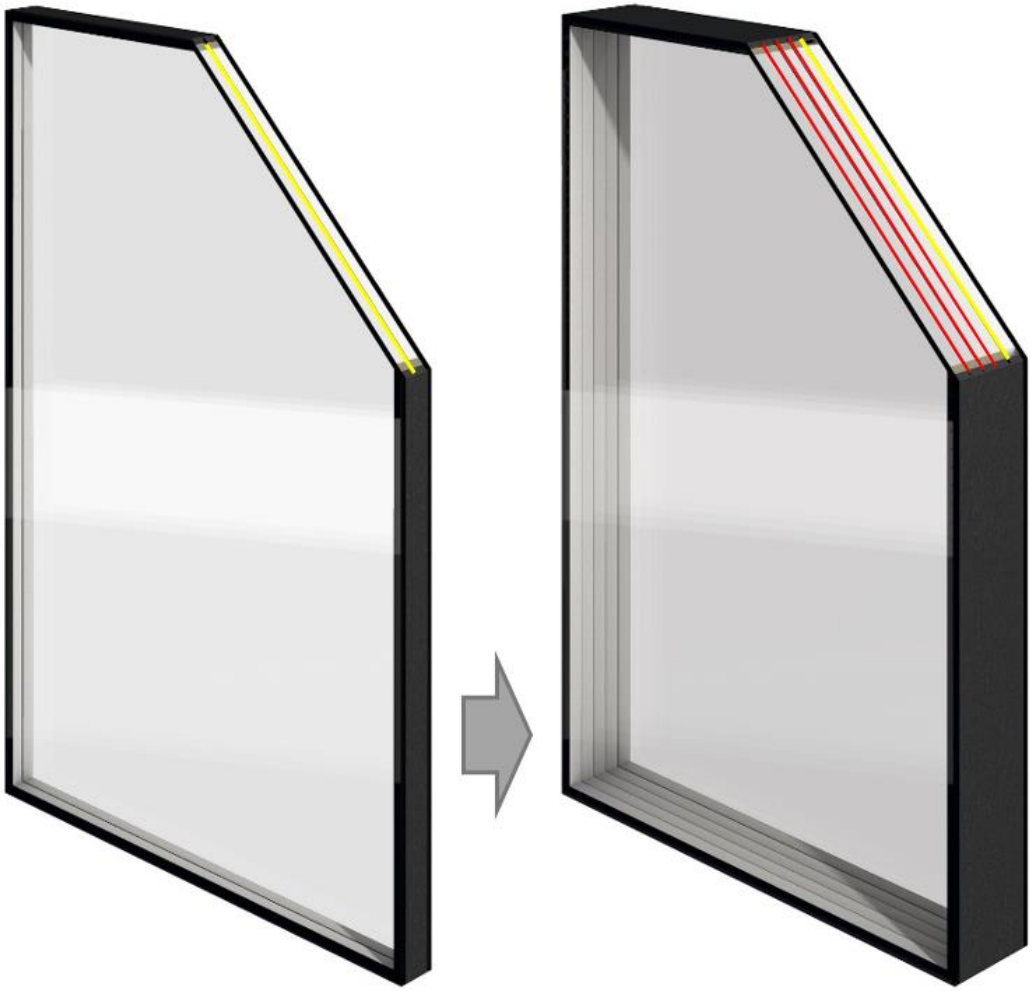




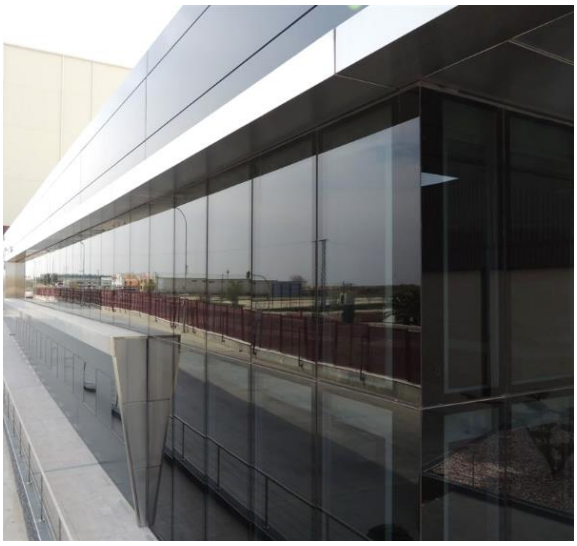
Q-Air economics in a nutshell

Imagine triple pane unit having:

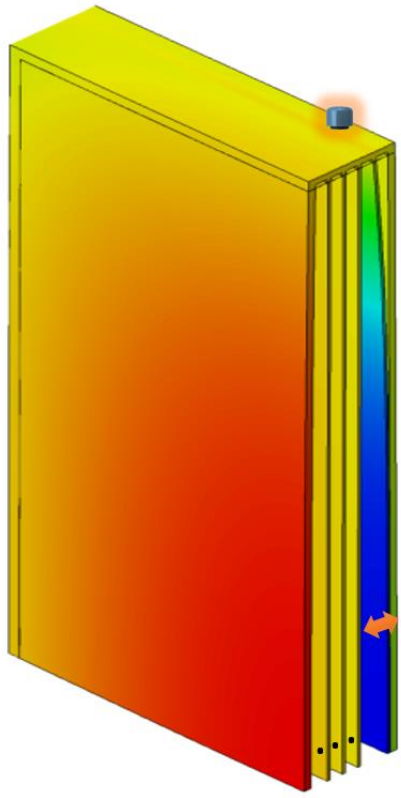
- exterior solar control pane,
- intermediate, toughened 4-6 mm pane,
- inner safety glass pane,
- with 3 added 2 mm float glass, Low-E panes.



Expansion chamber



Exterior glass flattens due to internal gas pressure, which is a known issue of thick multipane glass units.

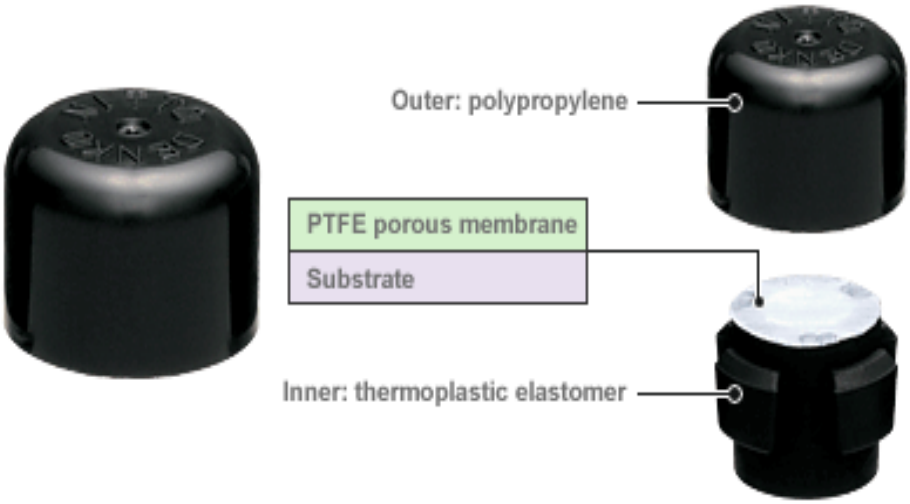


Q-Air is commonly equipped with a dedicated, flexing expansion glass and a breathable innermost chamber. In this way, climatic stress to the unit is reduced.

Insulating-gas filled chambers are connected through small holes to equalize the pressure.

All Q-Airs always use exterior solar control glass and intermediate Low-E coated glass panes spectrally matched to reduce the intermediate pane heating in the summer. Mitigating intermediate pane heating allows for the use of annealed intermediate panes and provides the unit with the expected longevity regarding the moisture permeation.

Breather



Q-Air breather is carry-over technology from the automotive headlamp industry where it is in use for 20 years on millions of units sold. Its purpose is to prevent entry of liquids through the pressure equalization pathways.

Complete Q-Air breather assembly is equipped with a lifetime microdust filter and a hydrophobic membrane equipped breather capseal.

Your next steps





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