

IQ Glass®

swimming pool



Heating glass in my swimming pool: *ideal* !

Years ago, before the appearance of electrical heat radiating glasspanels of IQ Glass n.v., thermal comfort in swimming pools was non-existent. One had to make compromises with the maintenance of the building, the consumption of energy and the comfort of the swimmer.



Heating glass in my swimming pool: *Ideal!*

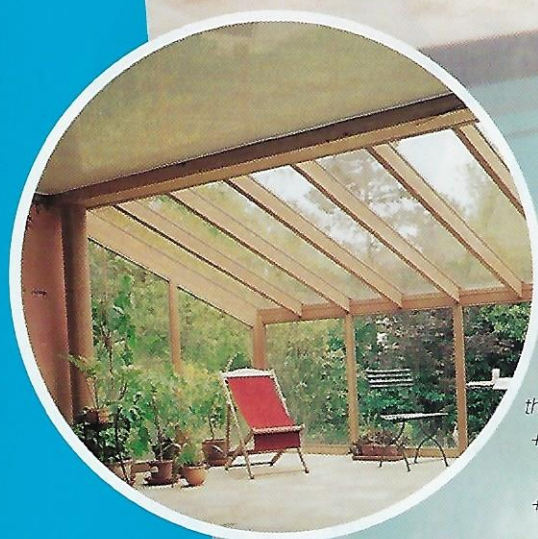
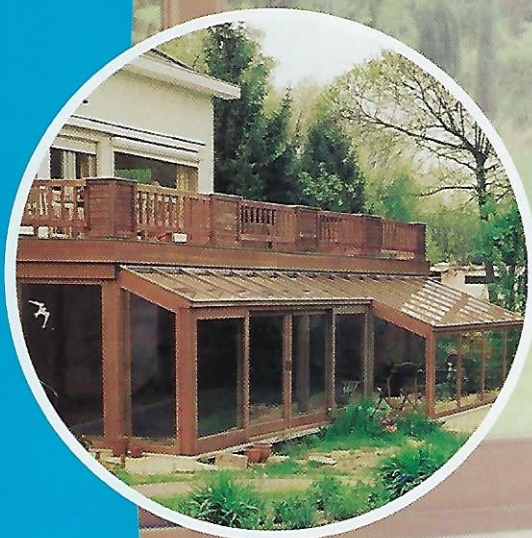


FIGURE 1

For the wet swimmer,
the comfort is equal at:
+ 28° C and 60% R.H.
or
+ 25° C and 70% R.H.

The swimmers comfort

The ideal relative humidity in an indoor swimming pool lies around 70 % (R.H.).

When the R.H. is too low, one gets a sense of cold, which is caused by a too quick drying of the skin.

When the R.H. is too high, this creates a disagreeable suffocating feeling, linked to the too high humid heat.

In winter double glazing gives off so much cold radiation, even when the indoor temperature in the pool is at +28° C, that the wet swimmer, when leaving the water, is shivering with cold.

Conclusion

Normal double glazing, a high temperature, high energy consumption and no comfort.

Solution

Heated IQ Glass, a lower temperature, low energy consumption and integral comfort.

Use of energy

The higher the R.H., the lower the condensation and the less energy you need to dry the air.

In order to realise the same thermal comfort, the air temperature can sink with increasing R.H.

Conclusion

Until now it was appropriate to adapt the R.H. in function of the outdoor temperature.

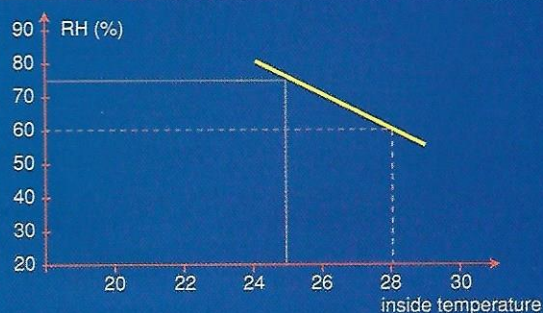
- In summer: 70 % R.H.
- Seasons in between: 60 % R.H.
- In winter: 50 % R.H.

We have to take into account that when the R.H. decreases with 10 %, the energy use will increase with 14 %.

Solution

With the IQ Glass® glasradiators the R.H. can be at 70 % even in winter, without any danger of condensation. On top of that we save almost 30 % on the energy bill and this while comfort is unprecedented. Not only will cold radiation be avoided, the cold radiation of the glass will be transformed into heat radiation.

Line of equal comfort



Building maintenance

When the R.H. is higher, there is a risk of condensation on cold walls, like glass.

This risk increases when the thermal isolation is less good and when the outdoor temperature is falling.

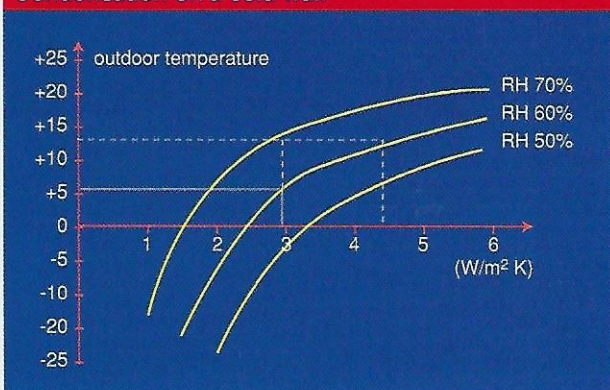
Condensation on double glazing begins at

70 % R.H. and an outdoor temperature of 12° C

60 % R.H. and an outdoor temperature of 6° C

50 % R.H. and an outdoor temperature of 0° C

Condensation on a cold wall



▲ FIGURE 2

Condensation is dependent on three factors:

1. Outside temperature
2. Relative humidity
3. Insulation value K:

single glass = 5.6W/m²k	wall insulation 2 cm = 1.3W/m²k
double glazing = 3.0W/m²k	wall insulation 5 cm = 0.6W/m²k
triple glazing = 2.0W/m²k	wall insulation 10 cm = 0.3W/m²k
Low-E glass = 1.3W/m²k	

Conclusion

When glass is all steamed over, the nice view on the magnificent garden becomes all watered down.

Condensation fluid can damage the window as well as the floor and it can even tarnish the double glazing.

Solution

At a 70 % R.H. rate and extreme low outdoor temperatures the IQ glass radiators remain condensation free.



Installation technique

When installing, the IQ Glass windows are linked with the cables that lead to the steering device. This steering device is preferably installed in the technical installation facilities of the swimming pool. These include the transformers that feed the glass.

These IQ glass panels fit in each window that can contain double glazing. Invisible connection systems for sliding as well as for revolving doors are available.

Next to the regulation of the indoor temperature through a programmable thermostat, IQ Glass developed a glass surface temperature regulation.

Through a small micro processor you can install the glass surface temperature continuously. Thanks to continuous small current impulses towards the glass, the glass remains at an agreeable temperature with a low consumption of energy.

The maximum power is 250 W/m², this gives a maximal surface temperature of 37° C.

Composition

Both inside and outside window are made of toughened (tempered) safety glass (5 times stronger than ordinary glass).

On both insides of the double glazing invisible metal oxide layers were applied. The metal layer on the inside of the inner window acts as resistance (heating element) and the metal layer on the inside of the outer window as a reflector. The thickness of the glass depends on the dimension of the window and the location of the building. (STS 38). The outer window is always a bit thicker than the inner one, in order to get better sound isolation.

Maximum glass dimensions are of 3.500 x 2.050 mm.

If necessary a sunshielding system can be incorporated in the outer window, and even an alarmsystem can be linked with it.

IQ Glass is the ideal partner for your indoor swimming pool

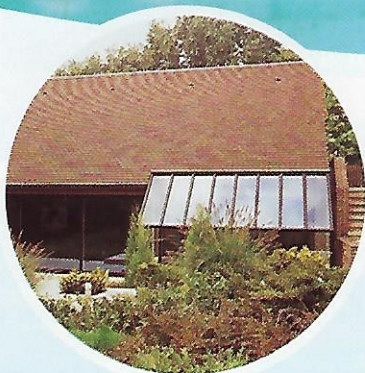
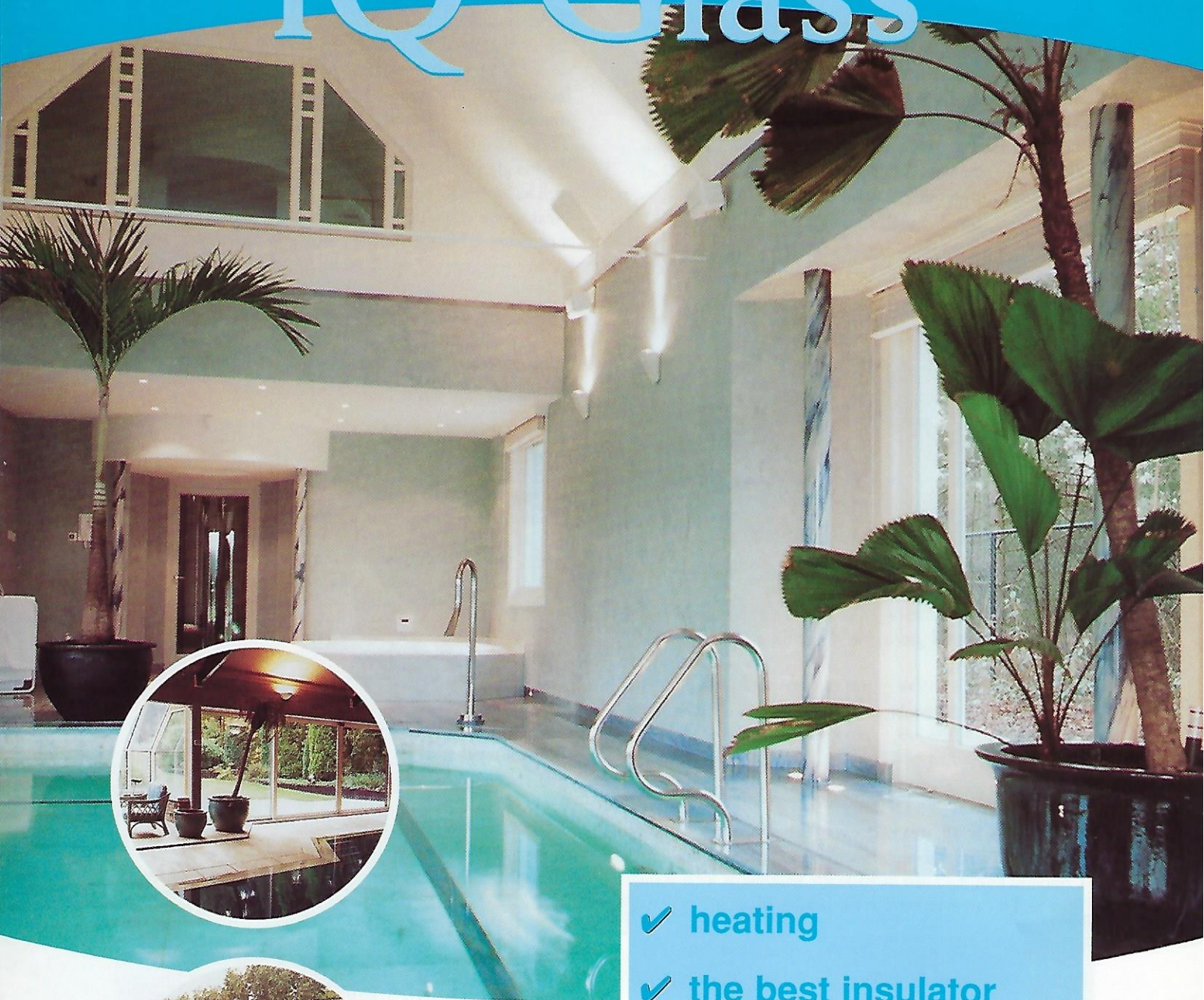
No compromises necessary.

General air temperature of the pool can be installed at a LOWER level with a higher R.H.

- No condensation problems, which is favourable for the building maintenance.
- An unequalled comfort because of the glass radiation panels at a lower ambient temperature which favours the energy consumption.
- An integral comfort for the swimmer, thanks to the exclusion of cold glass surfaces.

Approbations:
ATG
IPX 5
CEBEC
CE

IQ Glass®



- ✓ heating
- ✓ the best insulator
- ✓ safe
- ✓ sound deadening
- ✓ alarm securisation



the intelligent glass

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