



INGLAS Produktions GmbH

# Glass lamination with vacuum bags why and when?

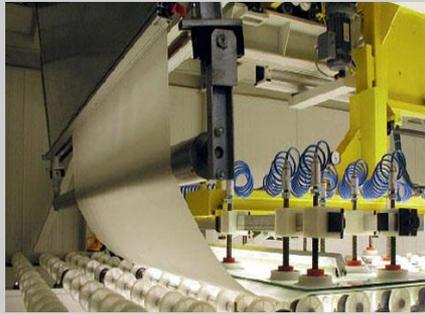
façade glazing with functional inlays

Standard processing glass lamination

pre-treatment  
and washing



sandwich  
folding



pre-lamination  
by roller pressing



lamination  
by autoclaving



de-airing  
peripheral sealing

high temperature  
high pressure

## Façade glazing with laminated safety glass



glass production: BGT Bischoff Glastechnik Bretten

Lord Norman Foster London / 1998

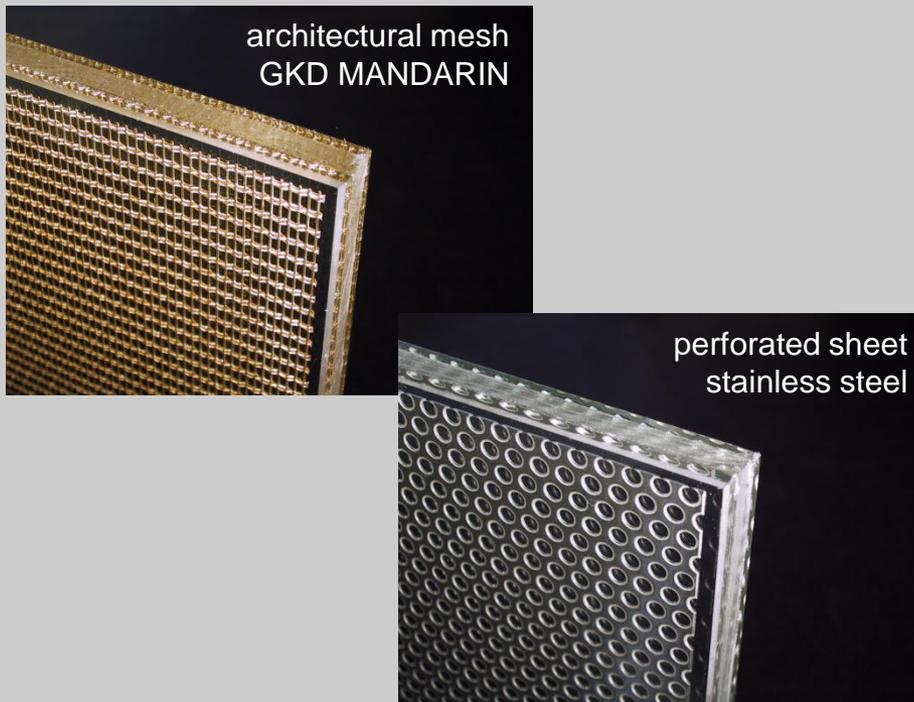
Glass dome of Reichstag Berlin

3.000 m<sup>2</sup> scale like glazing

24 mm laminated glass with  
step at long sides

glass size: 5.100 mm x 1.700 mm

## Why and when vacuum bag lamination?



Laminated glass with structured inlay

in standard pre-lamination  
insufficient de-airing



bubbles and delamination inside  
the laminate after autoclaving



active de-airing  
by vacuum exhausting

Glass lamination with vacuum bag

pre-treatment  
and washing



sandwich  
folding



vacuum  
bagging



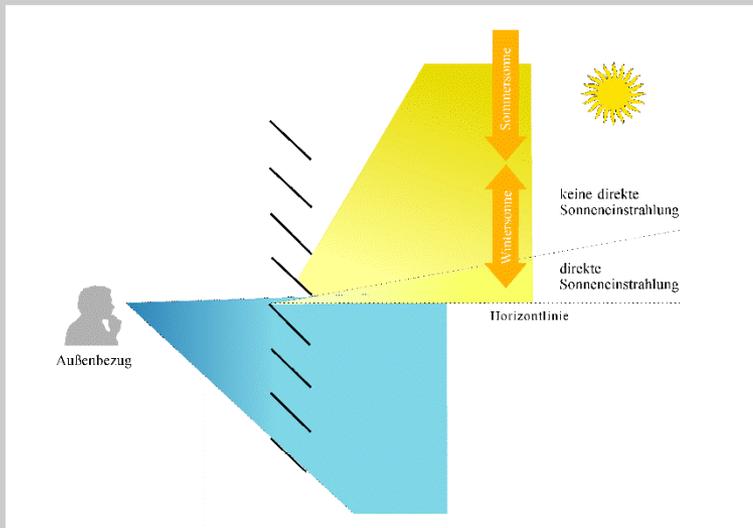
active de-airing  
by bag exhausting

lamination  
by autoclaving



high temperature  
high pressure  
permanent vacuum

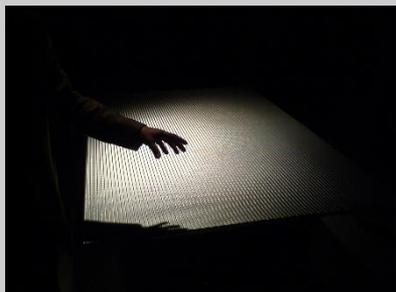
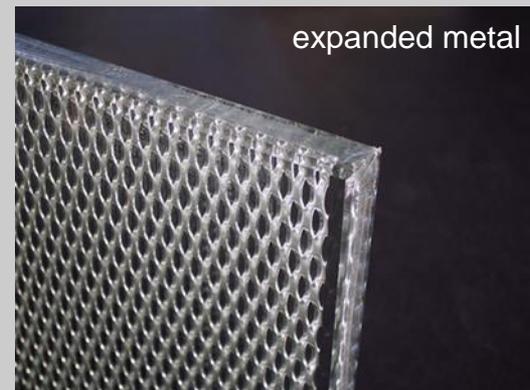
## Inlay expanded metal: angle dependent sun protection



Principle of angle dependent sun protection

expanded metal operates like a Venetian blind with sloped slats

sun-light from outside is shielded from inside a splendid view outside



## Façade glazing with functional inlay expanded metal



KFW Frankfurt revitalization  
with sun protection elements

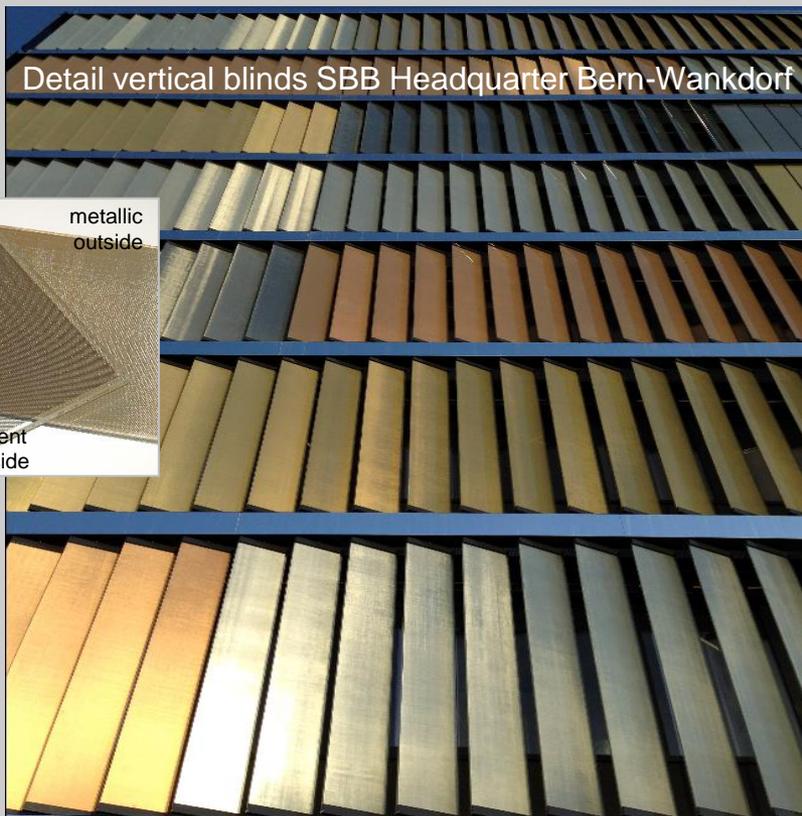
1.500 controllable elements

16 mm laminated glass with inlay  
and step at all sides

typ. size: 1.200 mm x 1.800 mm

RKW Architects Düsseldorf / 2005

## Inlay SEFAR-mesh VISION®: sun and insight protection



Lussi + Halter Luzern / 2013

### Architectural mesh SEFAR VISION®

black pigmented woven PET mesh  
one side metallically coated and/or printed

on outer side:  
bright metallic surface with high reflection

on inner side:  
black semi-transparent surface with perfect view outside

sun protection properties modified by open area of mesh type: 140/25, 140/50, 140/70, 260/25, 260/55

## Façade glazing with inserted sun protection mesh



David Chipperfield Berlin, Gigon - Guyer Zürich / 2012

Renovation Sihlpost areal Zürich

laminated glass with SEFAR-mesh  
for sun protection and façade design

4.000 m<sup>2</sup> sun protection  
2.500 m<sup>2</sup> constructive design  
laminated safety glass with  
coppery printed SEFAR-inlay  
type 140/70 and 260/55

## Inlay LED stripes: MEDIAGLASS® display for video presentation



MEDIAGLASS® a façade integrated video presentation system

laminated glass with inserted channels assembled with flexible SMD-LED stripes

from outside LED screen with video ability for day and night visibility, from inside high transparency even during operation

in-situ maintenance with easy replacement of defect LEDs

## Façade glazing with integrated display MEDIAGLASS®



James Cubitt + partners London / 2014

Al Sadd sport stadium with  
video glass façade MEDIAGLASS®

laminated glass with integrated  
LED display for video light show as  
component of an insulating double  
glazing

2 x 90 m<sup>2</sup> LED display (14.1 m x 6.4 m)

RGB pixel pitch: 50 mm x 46.5 mm

→ 288 x 140 = 40.320 pixel / display



Thank you for your attention



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