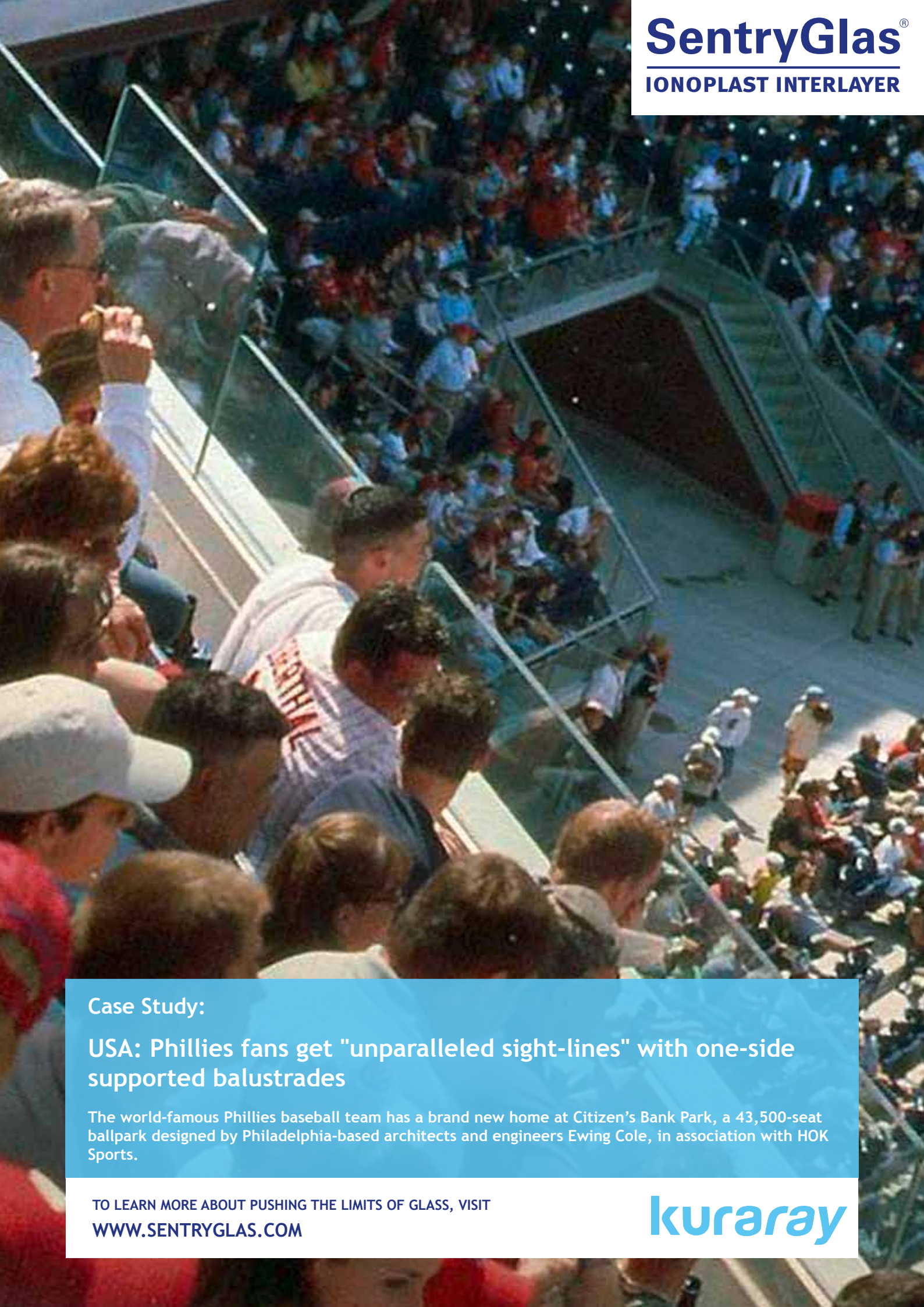

SentryGlas®
IONOPLAST INTERLAYER

Case Study:

USA: Phillies fans get "unparalleled sight-lines" with one-side supported balustrades

The world-famous Phillies baseball team has a brand new home at Citizen's Bank Park, a 43,500-seat ballpark designed by Philadelphia-based architects and engineers Ewing Cole, in association with HOK Sports.

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One of the major drivers of the design was creating unparalleled sightlines throughout the ballpark.

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Project principal Pradeep Patel said: "One of the major drivers of the design was creating unparalleled sightlines throughout the ballpark. The architecture, structural engineering and field geometry all contribute to an open yet intimate design with a clear view to the field from virtually anywhere. Continuing this concept inside the seating bowl required the design team to research several types of glass in place of traditional metal railings along the seating sections and walkways. We found the solution with one-side supported balustrades of laminated glass with SentryGlas® interlayer.

Exposed edges

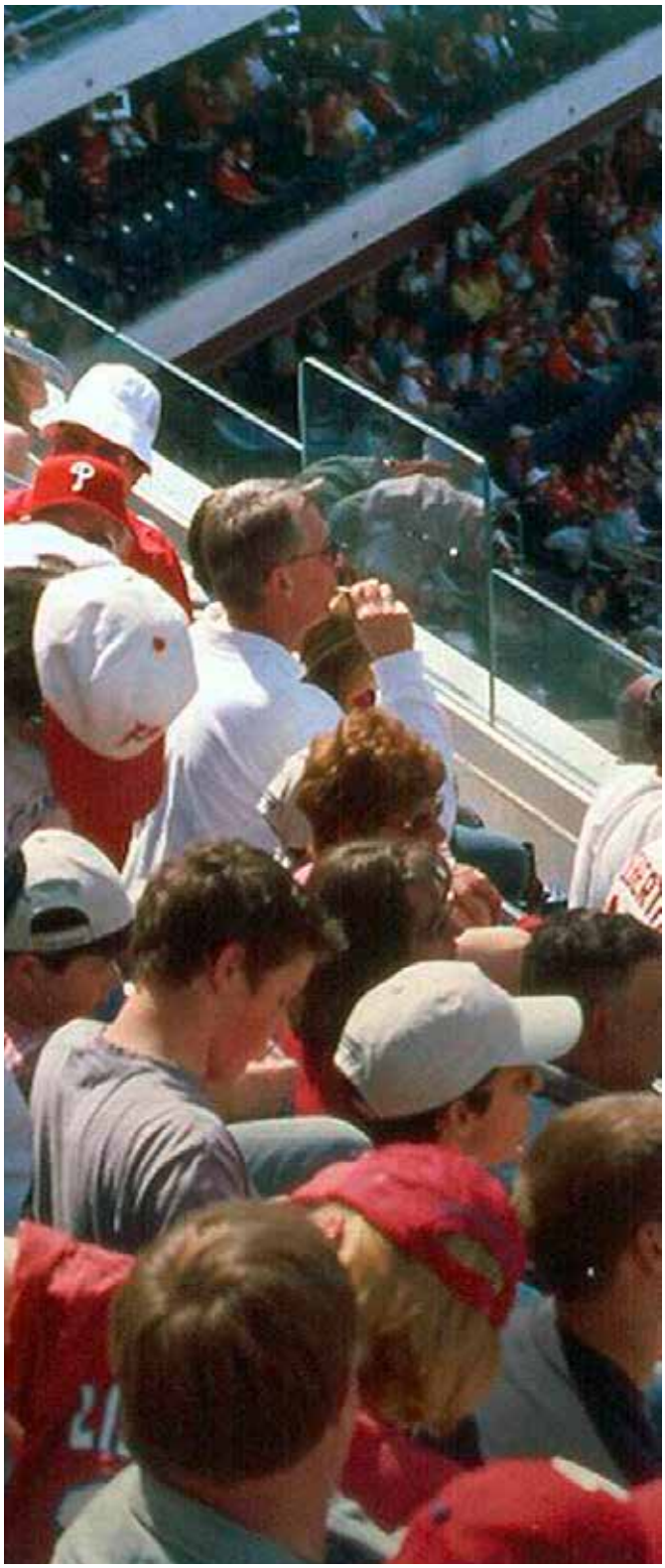
"The structural ionoplast interlayer provided a laminated glass construction that could be left exposed along the edges and eliminated the need to 'cap' the edges of the glass – leaving the views totally uncluttered. The design team was concerned with the

USA: Phillies fans get "unparalleled sight-lines" with one-side supported balustrades

long-term effects of allowing a PVB laminate to be exposed to the weather in a horizontal application. However, testing showed that SentryGlas® ionoplast interlayer effectively seals the edges and will not allow water or ice infiltration to reduce the life expectancy of the balustrades. The structural interlayer was strong enough to resist the impact of flying balls as well as other code-required loads."

"Edge stability over the long haul"

John Shultz III, managing director of laminator Oldcastle Glass of Telford, PA said: SentryGlas® provided the necessary edge stability required for an outdoor, exposed edge, decorative application. This, combined with its superior rigidity, its clarity and its long-life durability made it the ideal choice of laminated glass interlayer. Only SentryGlas® can show this sort of edge stability over the long haul in an open air stadium environment." The balustrades are made up of two lites of 3/8 inch tempered glass with a 0.90 mil structural interlayer.



Lighter façade panels enable more subtle supporting structures

For decades, interlayers made of polyvinyl butyral (PVB) have been the industry standard when producing laminated safety glass. Architects are well aware of the possibilities and limitations of such glass when used extensively in façade engineering, for roofing and window panels. In contrast, SentryGlas® enables an entirely new approach because the interlayer is over 100 times stiffer and five times stronger than PVB. As a consequence, there is an almost perfect transmission of load between two laminated sheets of glass, even at high temperatures, leading to the excellent flexural behavior of the glass when under load – also under direct sunlight in high summer. Accordingly, laminates with SentryGlas® show less than half the rate of deflection when compared to laminates with PVB, when under the same load, and thus almost the same behavior as monolithic glass of the same thickness.

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As well as improved strength and stiffness, other benefits of SentryGlas® include:

- **Safety:** In the event of breakage, glass fragments remain firmly bonded to the interlayer, reducing the chance for injury
- **Security:** SentryGlas® can be used in glazing that withstands bullets, hurricane-force winds and even bomb blasts
- **Durability:** SentryGlas® is extremely durable and resistant to clouding, even after years of exposure
- **Design Versatility:** SentryGlas® can be used in glass manufactured flat or curved, including annealed, toughened, heat-strengthened, spandrel, wired, patterned and color tinted glass
- **UV control:** SentryGlas® is available with or without UV transmittance

REGIONAL CONTACT CENTERS

Kuraray Co., LTD
Ote Center Bldg.
1-1-3, Otemachi
Chiyoda-ku, Tokyo, 100-8115, Japan
Phone: +81 3 6701 1508

Kuraray Europe GmbH
Glass Laminating Solutions
Philipp-Reis-Str. 4
65795 Hattersheim, Germany
Phone: +49 (0) 69 30585300

Kuraray Americas, Inc.
2625 Bay Area Blvd. #600
Houston TX 77058, USA
Phone: +1.800.423.9762

Kuraray Mexico S.de R.L. de C.V.
Homero 206, Polanco V seccion,
cp 11570,
Mexico City, Mexico
Phone: +52 55 5722 1043

For further information about SentryGlas®, please visit

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