



Since opening on June 9th, 2011 in Kansas City, Kansas, Livestrong Sporting Park has been awarded Best Venue for 2012. Livestrong was chosen above many entrants including Forsyth Barr Stadium of Dunedin in New Zealand, which hosted Rugby World Cup 2011 and the Mercedes-Benz Arena of Shanghai in China. During football matches, Livestrong Sporting Park can host up to 18,500 spectators, all of them comfortably seated below the biggest translucent polycarbonate canopy ever installed in the USA. The Duo-Gard canopy glazed with 25mm polycarbonate from Gallina USA allows a perfect natural light on the field. and amplifies the sounds of the crowd making the environment “an electric place to be”, as described by Jeff Spear, Lead Project Designer for Populous, and also responsible for the leading-edge design of Livestrong Sporting Park.

Location: Kansas City, KS - USA
Customer: A2MG
Design: Populous
Executive Project: Duo-Gard Industries Inc.
Installation: Turner Construction
Group of Owners: On Goal

Gallina USA - supplier of polycarbonate sheets
Surface: 5.000 m²
Used product: PoliCarb® 25 mm opal

Main features:
light transmission
light weight
wind and load resistance

THE CHALLENGE

Duo-Gard Industries Inc. was the company in charge of developing the project for the largest polycarbonate canopy ever produced and installed in the USA.

“Meeting the architect’s demands for this unique project was a function of understanding a multifaceted challenge,” said David Miller, Duo-Gard’s president. The engineers of Duo-Gard created a low profile, long-span system designed to meet the structural challenges of panels that exceeded 18m in length and between 7.5m and 21.5m in width. Crucial to the decision was the choice of Gallina PoliCarb® 25mm multiwall polycarbonate with reinforced structure, developed and supplied by Gallina USA exclusively for this project. This was the ideal compromise between strenght and weight allowing a cost-effective means for providing structural integrity, shading and lighting needs for the park spectators and players and overall value for the developer.

Which requirements and which goals did your customer have for this project?

“Our impetus for the canopy was to provide an intimate environment that would amplify the crowd’s noise; that’s why we covered every seat”, said Spear. “Another factor was shading the crowd without shutting off the sunlight we needed to maintain the natural grass that Major League Soccer prefers”.



What kind of importance does the canopy over the tribune have and, since we can appreciate its original and fundamental effect in the project, do you think you achieved your initial goals?

“The canopy is a very important part of the overall design, which wouldn’t have worked as well without it,” said Spear. “The players and the fans love it. It’s exceeding our expectations.”

Shuttling from one venue to another for 15 years, Kansas City Wizards can now call one of the world’s most sophisticated stadiums their home. The canopy has been defined as “dramatic” by mass media and has become one of the main topics of discussion of the new stadium.

PoliCarb® adds a sparkle that switches between the sunlight and the stadium lights that makes it more interesting

MATERIAL MAKES THE DIFFERENCE

The design team evaluated several alternatives. Fabric didn’t offer the required hard surface, ETFE pillows didn’t give the desired appearance, and the weight of glass panels at the desired spans would have required significantly more costly and heavy steel sub-structure. Therefore the design team decided for a translucent polycarbonate PoliCarb® as proposed by Gallina USA.

The project needed a material with light transmission, lightness and superior wind load resistance

The advantages of having selected PoliCarb® sheets are multiple:
(1) natural light is diffused through the canopy eliminating glare;
(2) the unique profile of PoliCarb® 25 mm sheets affords the possibility to design a light steel structure with outstanding wind and impact resistances;
(3) the canopy design and the flatness of the PoliCarb® sheets amplify crowd noise from the tribunes;
(4) the possibility to produce and install long sheets allowed for the installation and connections between different slopes.

“And aesthetics played a part too”, Jeff Spear explained, “With glass, you could see clouds and sky, but the translucent polycarbonate adds a sparkle that switches between the sunlight and the stadium lights that makes it more interesting.”

Once the choice of Gallina PoliCarb® was made, did you have any difficulty working together with Gallina USA to realize what you had in mind?

“At Duo-Gard’s request, Gallina USA collaborated by producing a standard sheet that was extruded with enhanced structural capacity while maintaining high light transmission, and satisfying wind load resistance that the custom design required. Gallina’s collaboration enabled us to reply to the canopy project requirements both in terms of performance and product certifications”, replied David M. Miller.



Did the long lengths of PoliCarb® sheets create any problem during installation?

“Definitely not. The system was engineered to minimize joints and typical substructure”.

Does the final product conform to the severe measures and applications’ tests made in the USA?

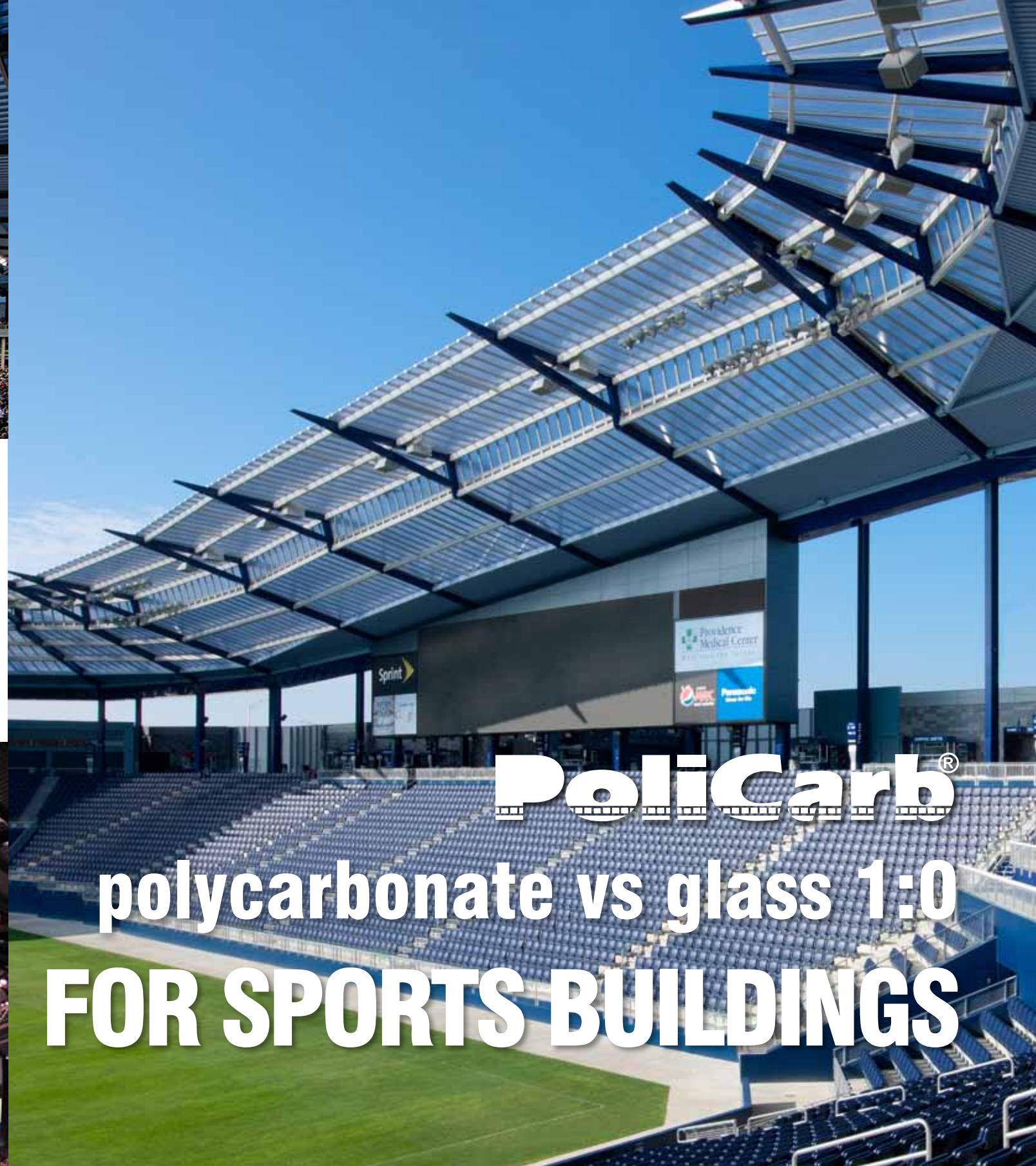
“The complete system of sheets and aluminium profile do indeed conform to stringent USA requirements”.



AND THE FINAL RESULT IS...

"The structure with such span and low slope realized with Polycarb® sheets manufactured in customized lengths, is definitely a unique solution", said Miller "and it can be considered a turn-key point in the design of translucent canopies of large dimensions".

The canopy successfully passed all required tests in terms of pression and depression. In some cases the results have achieved 150% of the expected values.



Polycarb®
polycarbonate vs glass 1:0
FOR SPORTS BUILDINGS



GALLINA USA
4335 CAPITAL CIRCLE
JANESVILLE, WI 53546
www.gallinausa.com



DOTT. GALLINA
Strada Carignano, 104
10040 La Loggia (TO)
www.gallina.it



POPULOUS
300 Wyandotte, Suite 200
Kansas City, MO 64105 USA



DUO-GARD INDUSTRIES SNC.
40442 Koppernick Rd. Canton MI USA

CASE HISTORY: **LIVESTRONG SPORTING PARK**
JUNE 2011



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gallinausa.com - info@gallinausa.com