THE LATEST INNOVATION IN STADIUM ROOF AND FACADE TECHNOLOGY

ViewScape is customizable to meet project-specific thermal performance requirements

Walter P Moore's National Sports Market Leader Bart Miller and Madico's Senior Director of Specialty Films Steve Sorrentino discuss what's next in the evolution of roofing and façade materials in sports venue design

In response to a growing demand for lightweight, transparent roofing and façade materials in stadium design, Madico, one of the world's leading manufacturers of laminating and coating solutions has collaborated with Walter P Moore, one of the world's premier long-span and stadium structural and enclosure engineers, to introduce ViewScape™, an innovative new enclosure material that has recently become available. ViewScape was developed specifically to address current and emerging trends in stadium design. Compared to conventional foil materials commonly used today, ViewScape offers superior clarity, improved mechanical strength, and enhanced solar performance.

What are the current trends or most frequent requests in stadium and arena design with respect to long-span roof and façade design?

Bart Miller: Many major stadiums today are being envisioned as multi-purpose, able to host a wide variety of events in a comfortable, often climate-controlled environment, while also providing an authentic, open-air game day experience with ample natural light and panoramic views of the venue surroundings.

The trend in stadium design to achieve each of those seemingly conflicting goals is to incorporate lightweight, transparent, or translucent materials for long-span roofs and façades. Consistently across the National Football League, Major League Baseball, and Major League Soccer, transparent and translucent foil membranes are becoming the material of choice for designers.

What materials are currently available for those application?

Bart Miller: Ethylene tetrafluoroethylene (ETFE) is commonly considered for nearly all new stadium designs. ETFE roof and façade applications can create that outdoor atmosphere in protected and temperature-controlled space, and in many cases—especially for long-span roofs—allow for lighter, less expensive, and often more elegant structures.

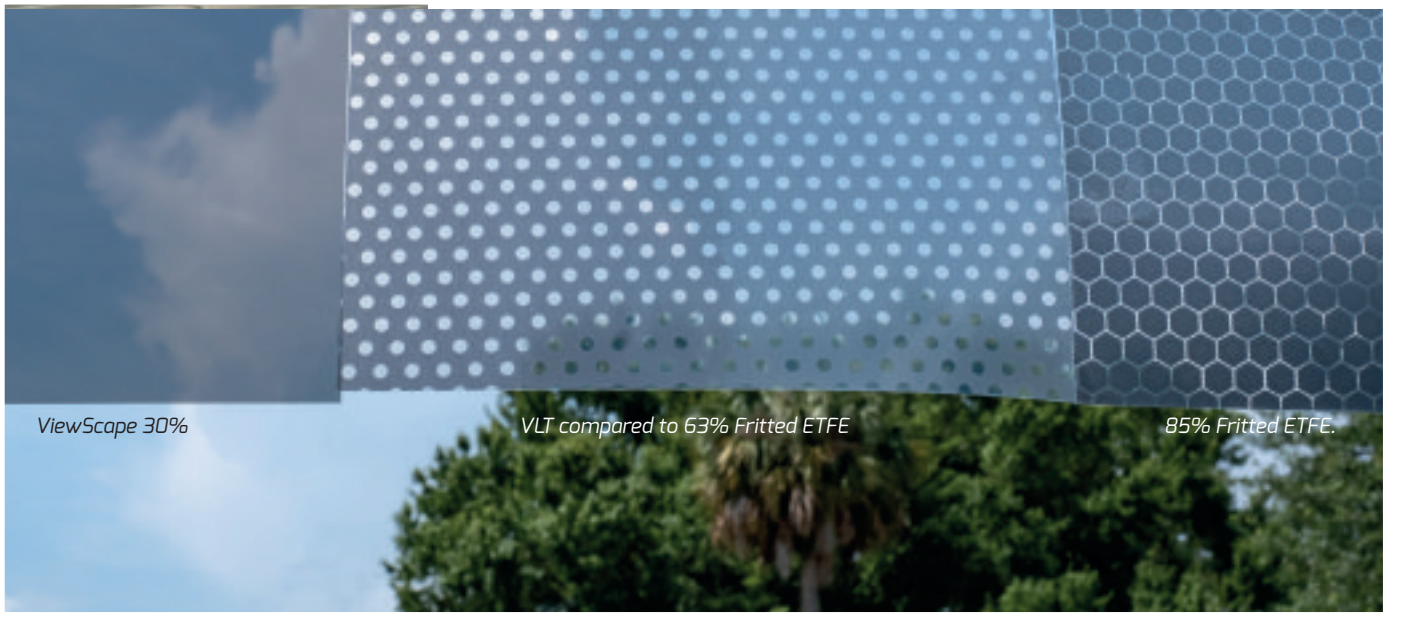
Unfortunately, conventional ETFE also has some significant limitations, including minimal mechanical strength, which limits its capacity to support environmental loads due to snow,

critical to building performance.

ViewScape is a transparent foil similar to ETFE, but its composite construction makes it robust enough to accept low emissivity ("low E") coatings, similar to what is commonly used on glass applications. These coatings give ViewScape solar performance never before seen in conventional transparent foil materials, superior even to ETFE with 85% frit.

ViewScape is at least four times stronger than ETFE and does not creep (stretch or relax) over time as conventional ETFE is prone to do. It can be used as a tensioned single layer or in a cushion system over much larger spans than is currently possible.

This added strength reduces the need for—and costs of—secondary structural supports and virtually eliminates reinforcing cables. ViewScape allows more degrees of freedom in the design of a structure.



high winds, and ponding water. ETFE also has poor intrinsic thermal properties which creates a need for multiple layers, inflated "cushion" assemblies and heavy frit patterns that compromise clarity. It has become very difficult—almost impossible—to give designers everything they want with materials currently available on the market.

How does ViewScape meet those design needs?

Steve Sorrentino: In short, with superior clarity, thermal performance and mechanical strength. No other product on the market is as clear as ViewScape especially when fan comfort and solar protection is critical for thermal performance, Visible Light Transmittance (VLT) and Solar Heat Gain Coefficient (SHGC), are completely customisable within the layered, composite construction of ViewScape. We can tailor the layers of the composite to achieve 5%, 20%, 30% and even 60% VLTs, which varies the reflectivity of the material from the outside, similar to a pair of sunglass lenses, while maintaining transparency from the inside.

The solar properties of ViewScape can be customised to meet the aesthetic vision and the energy performance goals of any project.

Madico also offers ViewScape Prism which is a patented coating that offers reflective ROYGBIV colour. It is great for façade applications where polycarbonate or coloured aluminium panels are being considered. ViewScape is extremely lightweight, and its colour will not fade over time.

Future developments within the ViewScape family of products are also already in the planning stages, leveraging the composite construction of the material as a platform or carrier of new technologies. As new challenges arise in stadium design, ViewScape will evolve to respond.

Is ViewScape customisable?

Steve Sorrentino: Absolutely, and that is one of its most distinctive and valuable attributes. The two characteristics of ViewScape that

How did Madico get involved in sports venue design and construction, and how does Walter P Moore fit in?

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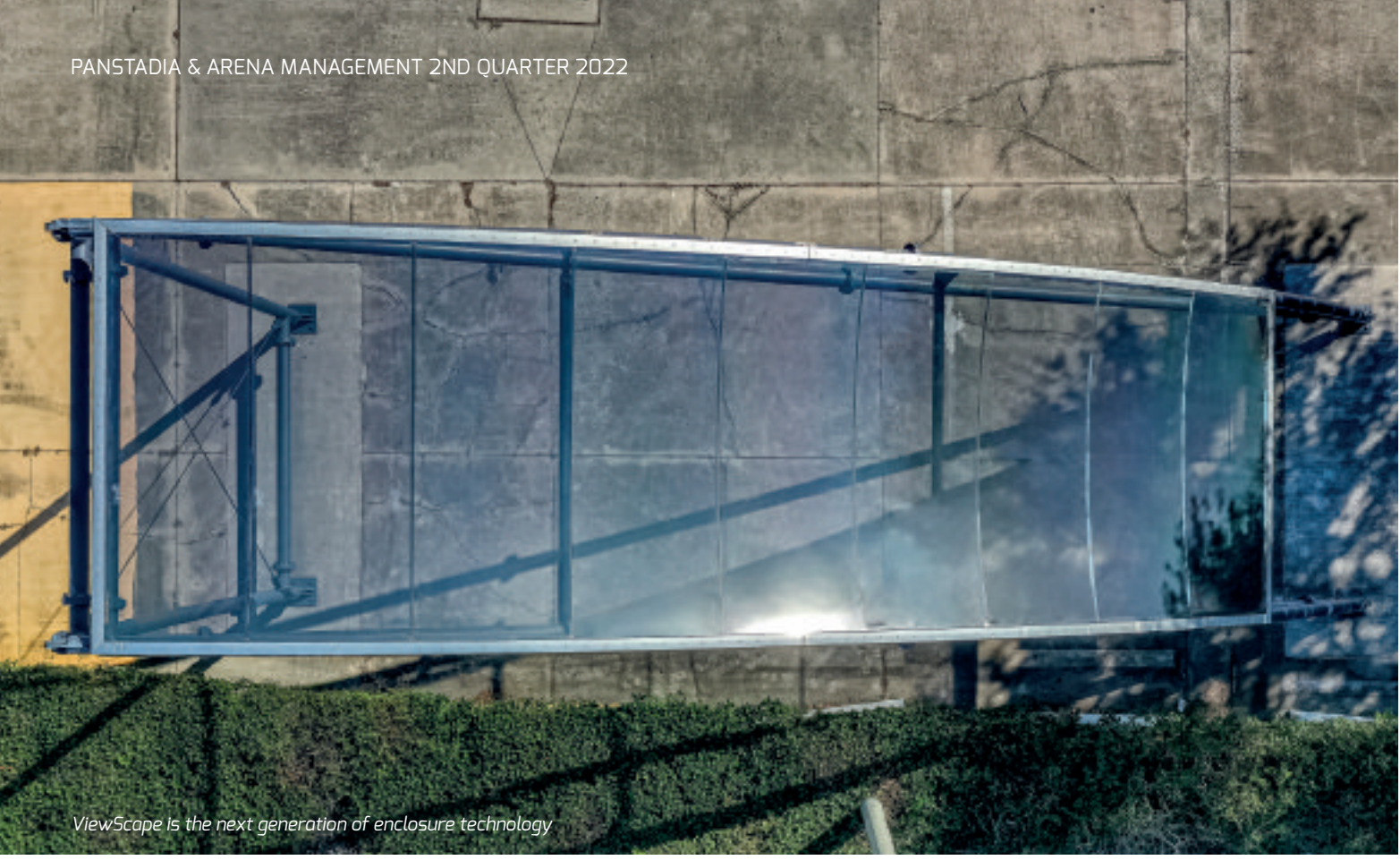

ViewScape is the next generation of enclosure technology

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Bart Miller: Walter P Moore strives to bring value to every project through innovation. As engineering consultants, we pioneer industry-advancing solutions on the most challenging projects through the experience and creativity of our people and through research and development of new materials and process that respond to specific needs in the industry. Walter P Moore created SC Innovations, a wholly-owned subsidiary of Walter P Moore, in 2016 to house our firm's growing collection of innovative product ideas and related patents, especially in the area of membrane solutions.

Over the last several years we have seen the need for a more robust and customisable transparent foil material. Once the idea for ViewScape was born, we sought a specialised research and manufacturing firm to bring this new product to life. We ultimately found Madico, an industry leader in laminating foil materials with a similar passion for innovation.

Steve Sorrentino: Both companies do what they do best. Walter P Moore has been a leader in the design of sports venues for decades, but they are not a product manufacturer. They approached Madico in 2016 with the idea for ViewScape and a plan to make the product a reality. Madico has a long history of innovation and working with companies to find revolutionary solutions to unique engineering problems.

From there, ViewScape was developed, tested, and brought to the marketplace. Each company sticking to their core competencies has provided something that is greater than the sum of its parts.

How does ViewScape enhance sustainability?

Steve Sorrentino: ViewScape was designed with sustainability in mind. ViewScape is lightweight and strong, so it requires significantly less secondary structure in the form of structural steel, reinforcing cables, and aluminium extrusions.

The clarity and solar properties of ViewScape reduce demand for lighting and cooling energy, making it an ideal product for clients who seek more environmentally responsible venues.

What types of projects provide the best opportunities to incorporate ViewScape?

Bart Miller: ViewScape may be the ideal solution for any project looking to maximise natural light or achieve an "outdoor" look and feel in a space that also must provide fan comfort and climate control. The most obvious opportunities in sports are long-span roof and façade applications in large, enclosed or partially-enclosed stadiums and ballparks. ViewScape is also useful for canopies where shading of the seating bowl is desired. Beyond these more expansive applications, ViewScape can provide cost savings or enhanced comfort in any canopy, covered courtyard, or outdoor assembly space.

ViewScape is currently available and is being explored on multiple sports venues in the United States. Material can be supplied in rolls for large panel fabrication or panelised inside aluminium extrusions for more conventional façade and skylight applications. ■

For additional information, visit viewscape.madico.com.