



PANELITE

# CLEARSHADE™

High-Performance Exterior Glazing

Optimized Daylighting | Solar Heat Control | Transparency + Views | Design

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# PANELITE CLEARSHADE™ IGU HIGH-PERFORMANCE EXTERIOR GLAZING

Panelite creates materials that provide an unparalleled combination of aesthetics and performance for architecture. We are the inventors of ClearShade™ technology and the leaders in high performance energy saving honeycomb glazing. ClearShade™ glazing units have been performing successfully in the field for over 10 years.

## 1 Optimized Daylighting

ClearShade™ redirects light rays to transmit up to 70% daylight and substantially reduce glare, to reduce the energy required for electrical lighting and improve user comfort.

## 2 Solar Heat Control

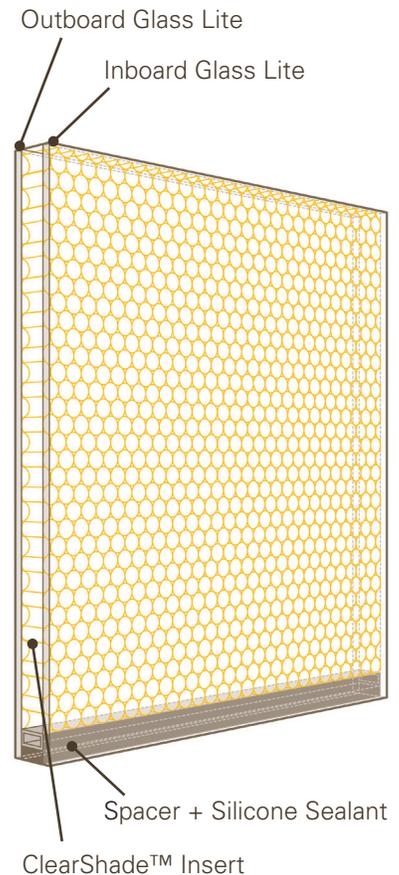
75% improvement in solar heat gain control over standard IGUs, with Solar Heat Gain Coefficients as low as 0.11 at midday to reduce HVAC requirements and improve energy efficiency.

## 3 Transparency + Views

ClearShade™ can be specified to provide more or less visual transparency as required by the program or building orientation to improve user experience, comfort and productivity.

## 4 Design + Performance Analysis/Certification

ClearShade insert and glass lite options are extensive and include custom colors, patterns, and precise performance requirements such as daylighting, acoustical, hurricane, etc. Please contact us for design development assistance, technical support, energy analysis or performance certifications. We look forward to helping you achieve your design, daylighting and sustainability goals.



### Double Glazed Panelite ClearShade™ Glazing Unit

- Triple glazed units available
- IGCC certified

#### IMAGE CREDITS

Cover: Henry Madden Library, California State University at Fresno, CA / AC Martin Partners / Photo Art Gray

Below: Jet Blue Terminal 5, JFK, NY / Gensler / Photo Nic Lehoux

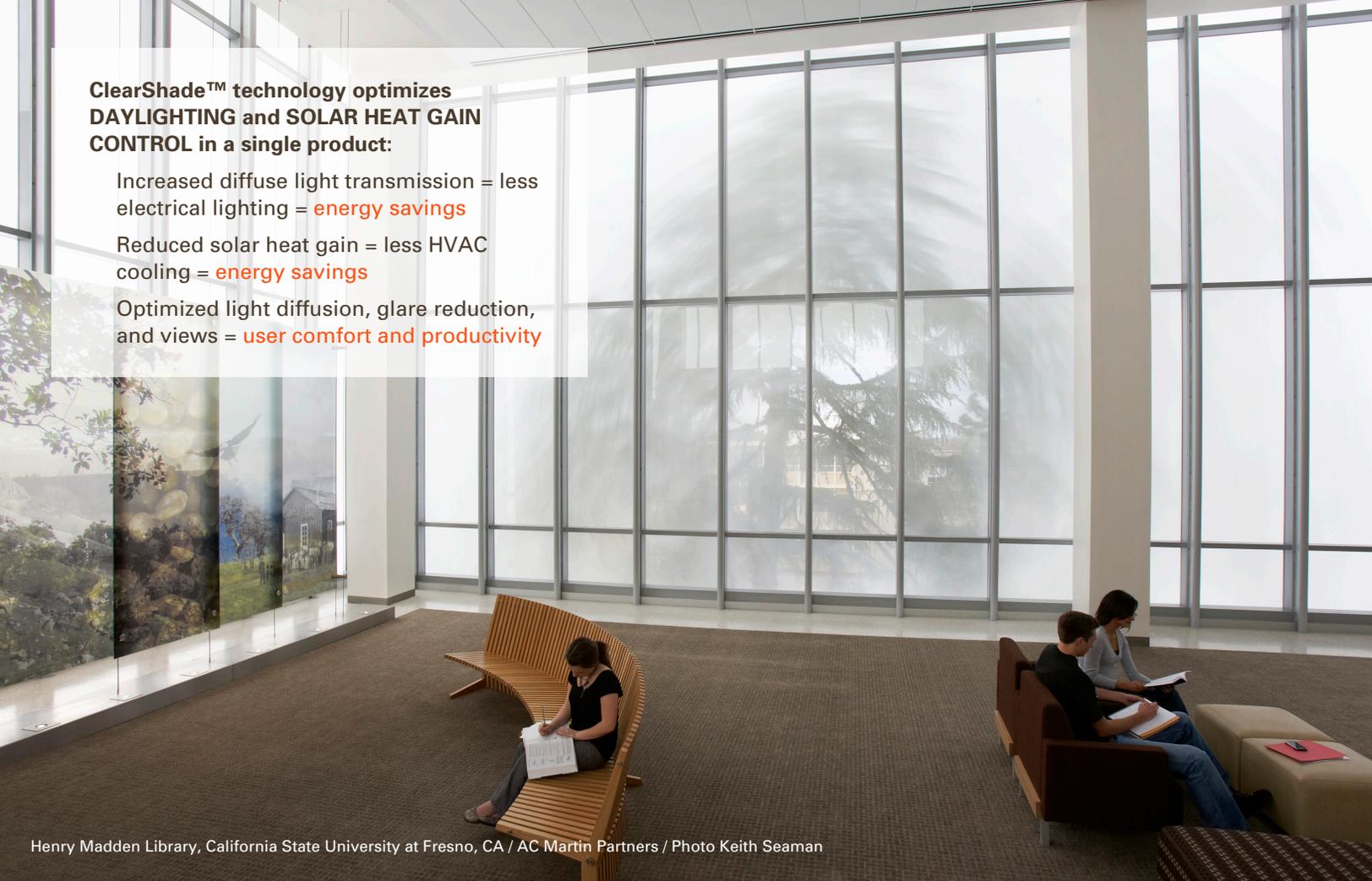


**ClearShade™ technology optimizes DAYLIGHTING and SOLAR HEAT GAIN CONTROL in a single product:**

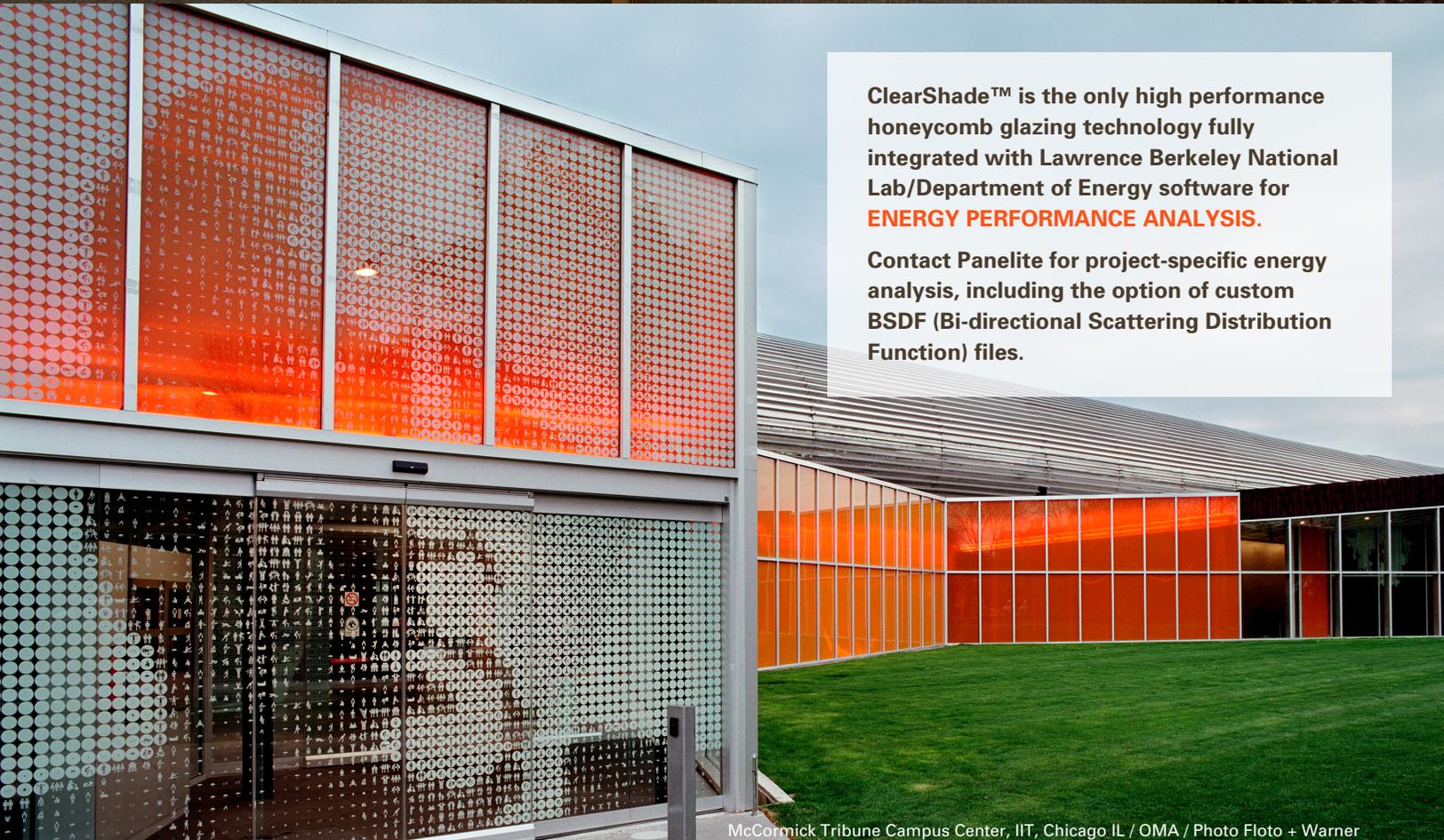
Increased diffuse light transmission = less electrical lighting = **energy savings**

Reduced solar heat gain = less HVAC cooling = **energy savings**

Optimized light diffusion, glare reduction, and views = **user comfort and productivity**



Henry Madden Library, California State University at Fresno, CA / AC Martin Partners / Photo Keith Seaman



**ClearShade™ is the only high performance honeycomb glazing technology fully integrated with Lawrence Berkeley National Lab/Department of Energy software for ENERGY PERFORMANCE ANALYSIS.**

**Contact Panelite for project-specific energy analysis, including the option of custom BSDF (Bi-directional Scattering Distribution Function) files.**

McCormick Tribune Campus Center, IIT, Chicago IL / OMA / Photo Floto + Warner

## PANELITE CLEARSHADE™ TECHNOLOGY: PROJECT-SPECIFIC ENERGY SAVINGS AND ANALYSIS

ClearShade™ technology optimizes DAYLIGHTING and SOLAR HEAT GAIN CONTROL in a single product, while most glazing solutions favor one of these goals at the expense of the other. Reduced lighting and HVAC loads result in significant energy and cost savings. The complexity and maintenance of add-ons such as light-shelves and shading devices are eliminated.

### ClearShade™ honeycomb insert = high performance raw material + patented production process

ClearShade™ polymer is a UV stabilized material engineered for spectral and thermal performance as well as IGU seal compatibility and durability

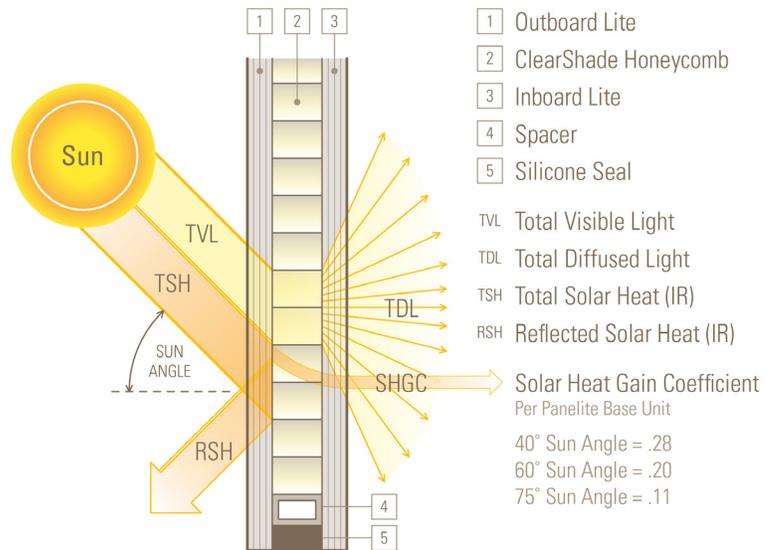
Honeycomb inserts are produced from this unique polymer in a patented co-extrusion and thermal fusion process to ensure a monolithic and adhesive-free insert with long term color, UV stability and technical performance.

Panelite ClearShade™ is the only high performance honeycomb glazing technology tested by Lawrence Berkeley National Laboratory (LBNL) and fully integrated with LNBL / US Department of Energy's building envelope performance analysis software. Contact a Panelite representative for project-specific energy analysis, including the option of custom BSDF files.

## CLEARSHADE™ PERFORMANCE: OPTIMIZED DAYLIGHTING

ClearShade™ increases diffuse daylight and significantly reduces glare, while maintaining views.

ClearShade™ BSDF (Bi-directional Scattering Distribution) files are executable in Radiance, Energy Plus and SketchUp.



MIT Daylighting Lab renderings, using LightSolve.

ClearShade diffuses wanted visible light inward, deflects unwanted heat.

## CLEARSHADE™ PERFORMANCE: SOLAR HEAT CONTROL AND LIGHT-TO-SOLAR GAIN

ClearShade™ is engineered to reflect more infrared wavelengths at higher sun angles, improving solar heat control while optimizing daylighting. Industry-leading Light to Solar Gain ratios improve energy efficiency, user comfort and productivity.

ClearShade™ IGU	Inboard Lite	Outboard Lite	Vision	Solar Angle	Double Glazed				Triple Glazed			
					Diffuse VLT	SHGC	U-Value	LSG Max	Diffuse VLT	SHGC	U-Value	LSG Max
CS-U-TC4	1/4" Glass	1/4" Low-E	Med	40	68%	0.33	0.33	3.29	54%	0.20	0.14	4.38
				75	46%	0.14			37%	0.08		
CS-U-TW8	1/4" Glass	1/4" Low-E	Low	40	34%	0.20	0.33	2.22	27%	0.13	0.14	3.20
				75	20%	0.09			16%	0.05		
CS-U-TW4	1/4" Glass	1/4" Low-E	Med	45	44%	0.24	0.33	2.18	35%	0.14	0.14	3.84
				75	24%	0.11			19%	0.05		
CS-U-TW3	1/4" Glass	1/4" Low-E	High	40	52%	0.28	0.33	2.45	38%	0.15	0.14	4.20
				75	27%	0.11			21%	0.05		

## PANELITE CLEARSHADE™ PERFORMANCE CERTIFICATION AND WARRANTY

ClearShade™ performance is backed by Panelite's "ClearShade™ IGU Performance Certification". Data is certified by independent testing labs and by the Windows 7 glazing performance technology software which is developed solely by Lawrence Berkeley National Laboratory, a division of the US Department of Energy. Units are IGCC certified and developed, manufactured and tested in accordance with ISO 9001:2000 Specifications. 10 year warranty.