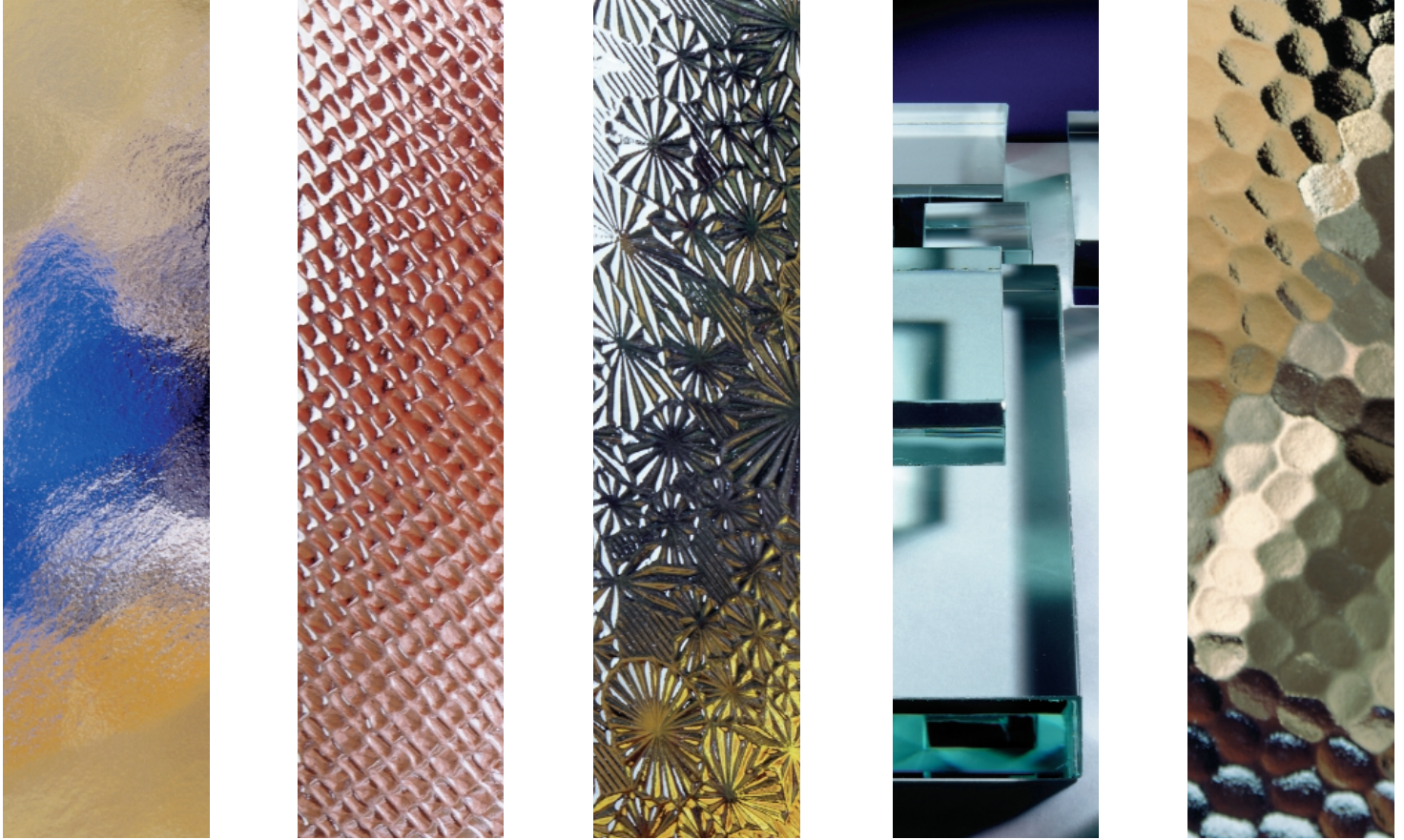


Illusions in Specialty Glass

from

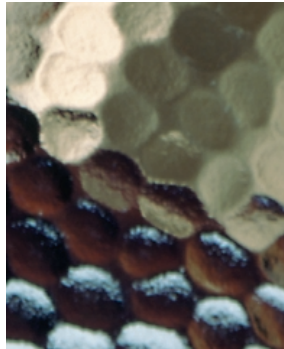
AFG Industries, Inc.



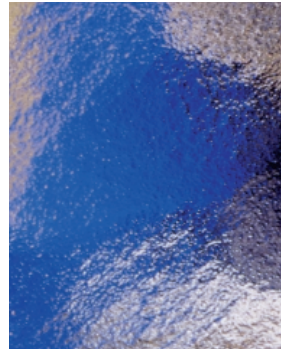
Specialty Glass *from AFG Industries, Inc.*

AFG Specialty Glass products are available in a variety of product types with varying degrees of thickness, transmission, obscurity, and diffusion. The wide selection of glass options offers architects, designers, manufacturers and builders flexibility and unlimited creative possibilities.

Patterned Glass



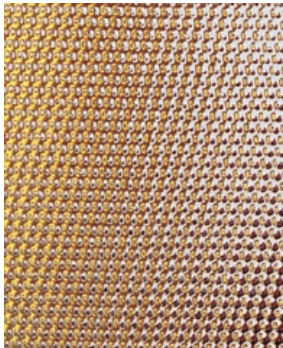
HAMMERED
5



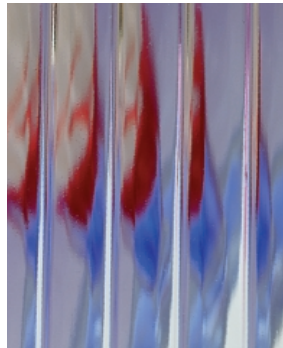
CLASSIC AQUATEX®
5



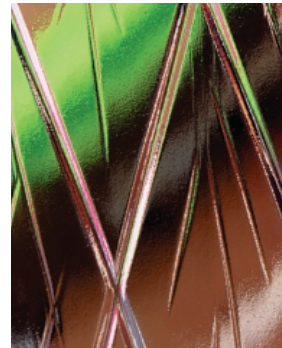
FLOREX®
6



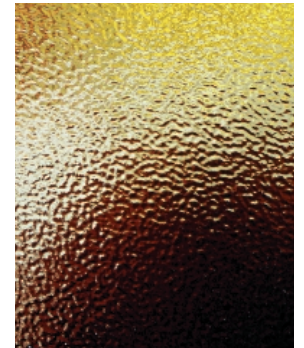
INDUSTREX®
8



KRYSTAL FLUTES®
8

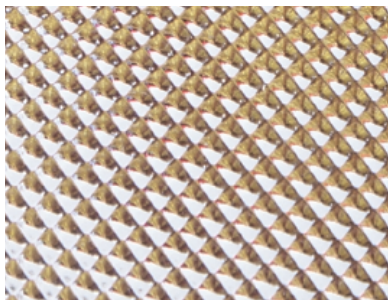


OLD ENGLISH
9

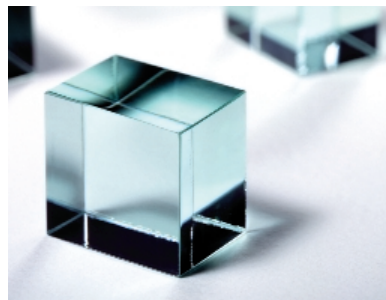


ORIGINAL PATTERN 62
9

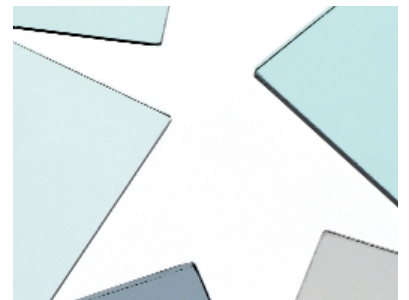
Specialty Glass



LIGHTING GLASS
13



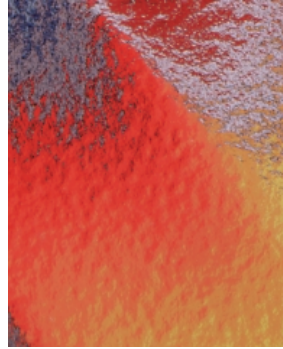
HEAVY GLASS
14



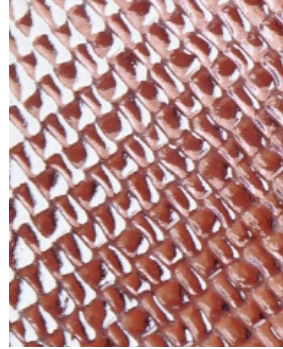
TINTED GLASS
15



OBSURE WIRE
6



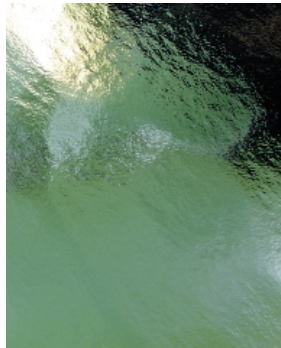
TEXTURED FLUTEX®
7



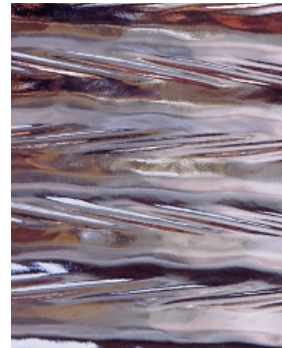
FLAX®
7



RAIN®
10



VELVEX®
10



WASHBOARD
11



NON-GLARE EXHIBITION
11



SOLAR GLASS
16-18

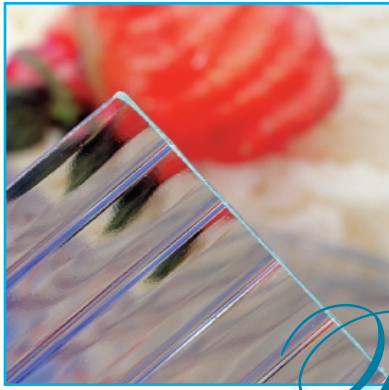


KRYSTAL KLEAR
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SPECIAL OFFERINGS
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Patterned Glass



AFG Industries is one of the leading manufacturers of patterned glass in the world. The company's production facility has over seventy years of experience in the art of manufacturing rolled glass products with the largest variety of patterned glass products in North America. AFG has the distinction of having textures with diffusion for virtually any application.

As the industry leader in patterned glass, AFG also has the capability to develop and produce new or custom patterns as required by our customers. Whether it is a classic look or a new, contemporary design, AFG offers a variety of patterned glass to meet your needs.

HAMMERED

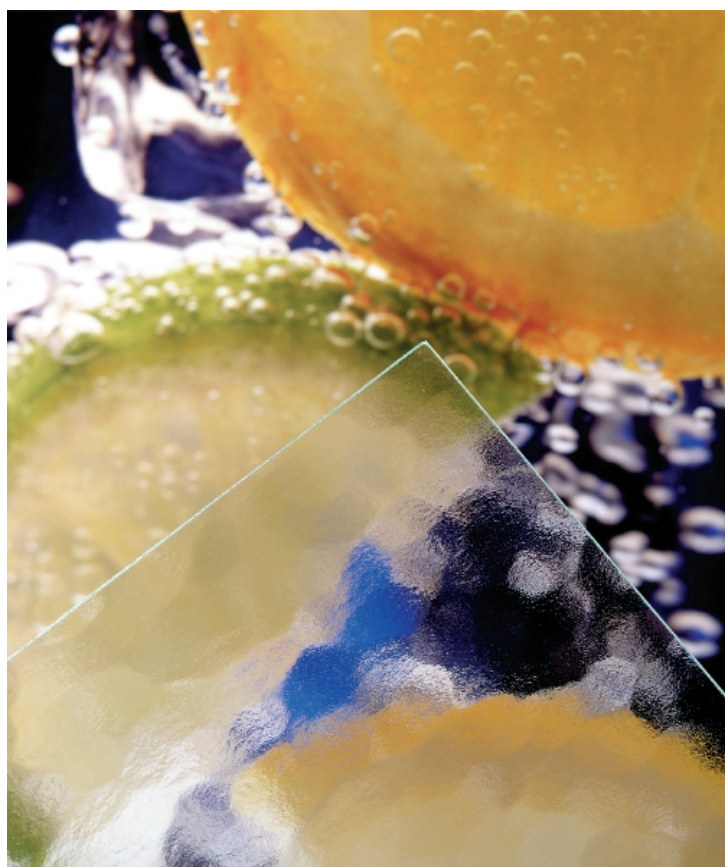


atterned Glass by AFG is available in varying degrees of obscurity or diffusion.



Thickness 5/32" Temperable No Lamination Max Size 60x132

CLASSIC AQUATEX®



Thickness 1/8"	Temperable	No Lamination	Max Size 60x84
Thickness 5/32"	Temperable	No Lamination	Max Size 60x132
Thickness 3/16"	Temperable	No Lamination	Max Size 60x132

FLOREX®



Whether it is a “one of a kind”

treatment for a foyer, doorway or the central focus of a tub and shower enclosure, the smart alternative is our patterned glass.



Thickness 5/32” Temperable No Lamination Max Size 60x132

Choose from more than a dozen patterns—all with the unique ability to separate space while sharing light.

Thickness 1/4” Non-temperable No Lamination Size 72x99
Contact us for certification data.

OBSCURE WIRE





Classic designs never go out of style. AFG has been producing some of its original textures for decades. With new applications being found for our patterns every day, AFG continues to manufacture signature patterns as well as new rolled products.

Thickness 5/32"	Temperable	No Lamination	Max Size 60x132
Thickness 3/16"	Temperable	No Lamination	Max Size 60x132



TEXTURED FLUTEX®

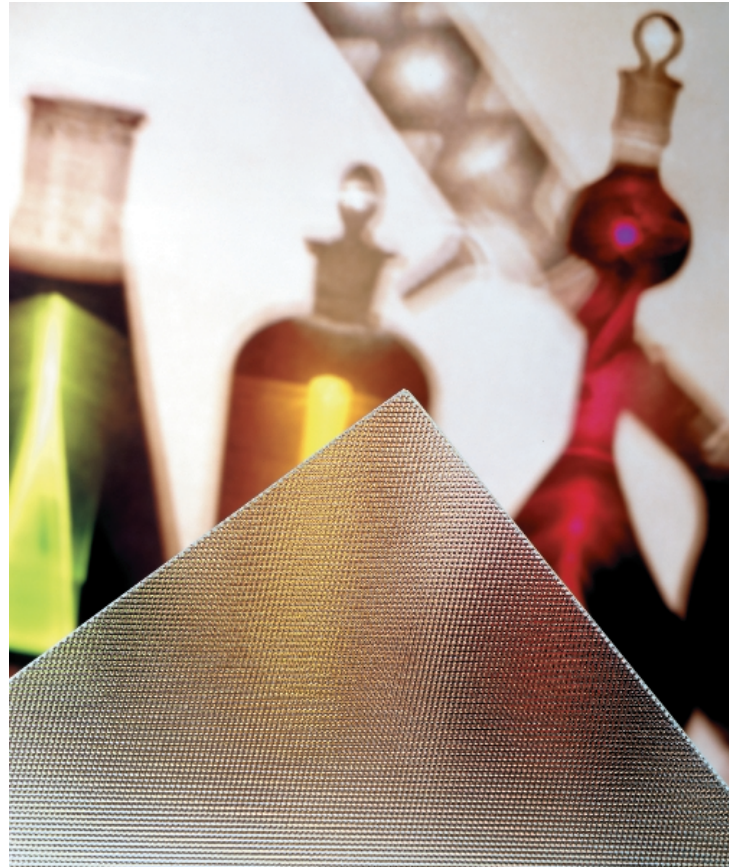


Frequently chosen for its decorative value alone, patterned glass can provide privacy while allowing light to create decorative accents in residential and commercial settings.



Thickness 3/16"	Temperable	No Lamination	Max Size 60x132
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No matter the application,
there's an AFG glass to meet your needs.



Thickness 5/32"	Temperable	No Lamination	Max Size 60x132
Thickness 3/16"	Temperable	No Lamination	Max Size 60x132

KRYSTAL FLUTES



Whether it is used for interior partitions, door treatments or decorative furniture, AFG's patterned glass adds texture and diffused color to any room.



Thickness 3/16"	Temperable	No Lamination	Max Size 56x84
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ORIGINAL PATTERN 62

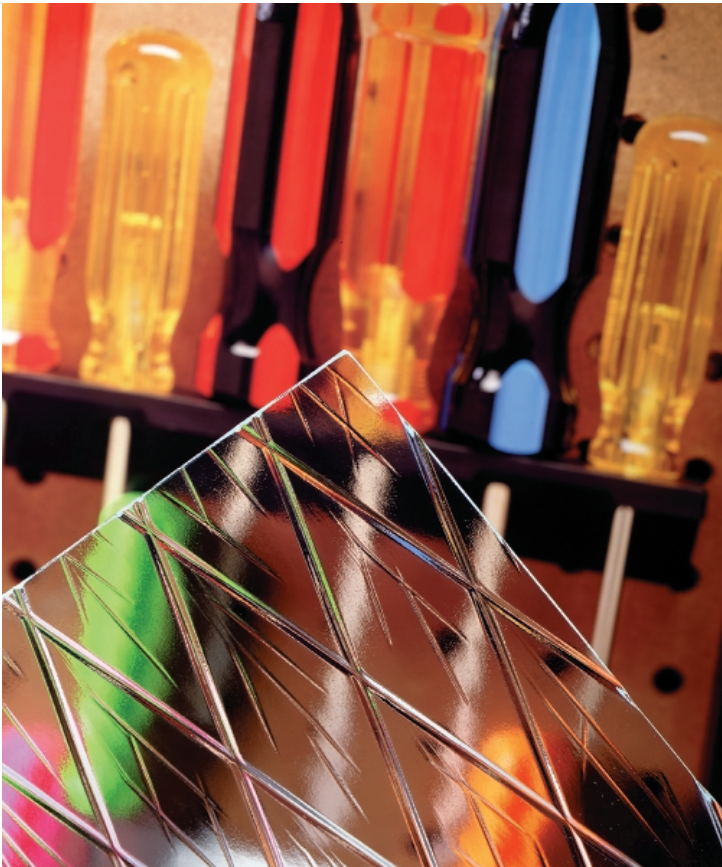


Bathrooms are the perfect place for patterned glass. Providing varying degrees of privacy, AFG patterned glass is widely used in both windows and in tub and shower enclosures.

Thickness Single	Non-temperable	Minimum	
Thickness DS	Non-temperable	.030" laminate	Max Size 48x60
Thickness 1/8"	Temperable	Lamination	Max Size 60x84
Thickness 5/32"	Temperable	Lamination	Max Size 60x84
Thickness 3/16"	Temperable	Lamination	Max Size 60x132
		Lamination	Max Size 60x132

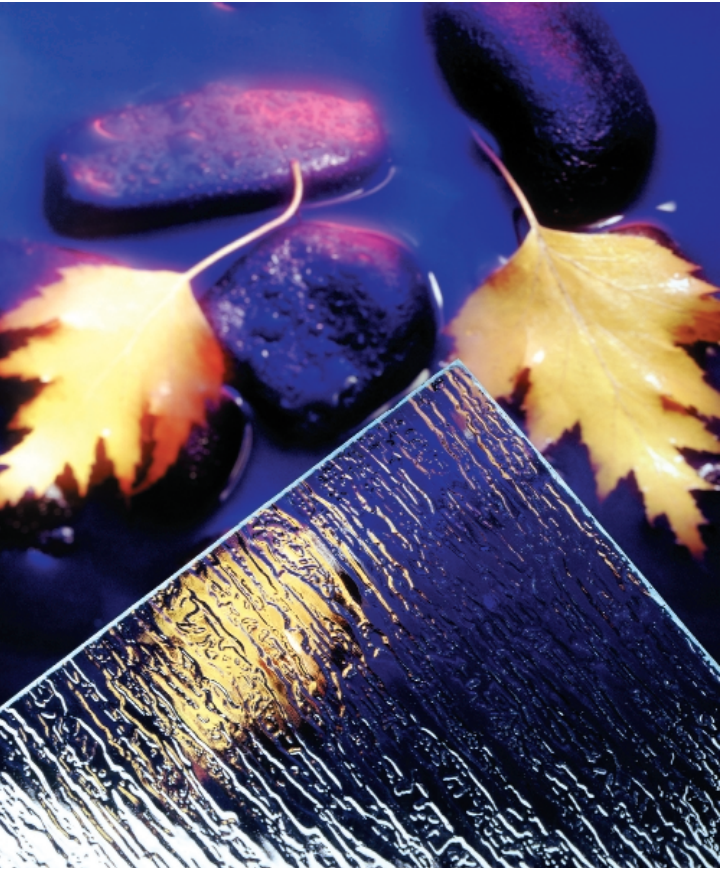
OLD ENGLISH

Palladian windows and lighting fixtures glazed with patterned glass provide an interesting play of light on foyer walls and can brighten dark vestibules.



Thickness 3/16" Temperable No Lamination Max Size 60x84

RAIN®



*B*eauty, versatility and performance...patterned glass by AFG Industries for your every need.

Thickness 5/32"	Temperable	No Lamination	Max Size 60x132
Thickness 3/16"	Temperable	No Lamination	Max Size 60x132

VELVEX®

Artists have turned to glass for its intrinsic beauty for centuries. Now AFG patterned glass offers architects, designers and builders the same freedom to create translucent works of art for a myriad of applications.



Thickness 1/8"	Temperable	No Lamination	Max Size 60x84
Thickness 5/32"	Temperable	No Lamination	Max Size 60x132
Thickness 3/16"	Temperable	No Lamination	Max Size 60x132

WASHBOARD

AFG patterned glass offers form with function. The durable textures allow designers and manufacturers to utilize glass even in household items.



Thickness 3/16" Temperable No Lamination Max Size 52x66

NON-GLARE EXHIBITION

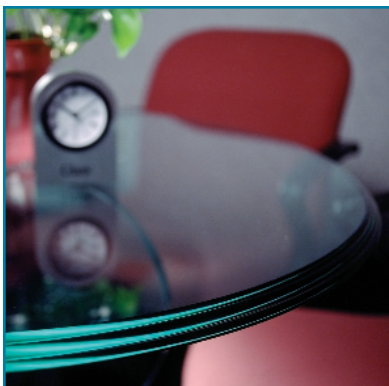
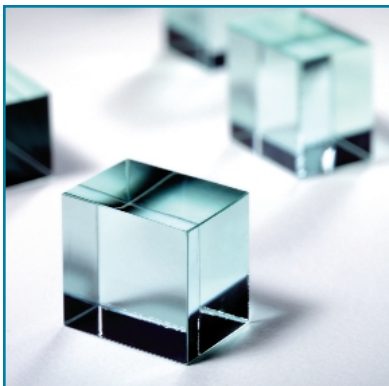


AFG offers a patterned glass picture frame product. Non-Glare Exhibition glass will enhance the finest photographs or paintings, while reducing glare and increasing protection against moisture and fingerprints. Traditional picture frame glass is also available from AFG.

This product is a high-quality, clear float glass available in many sizes.



Thickness 2mm Non-temperable No Lamination Max Size 24x36



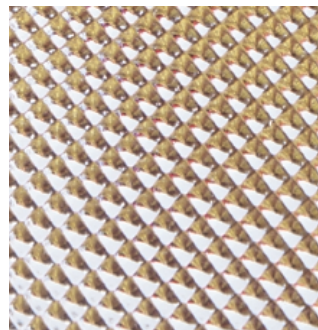
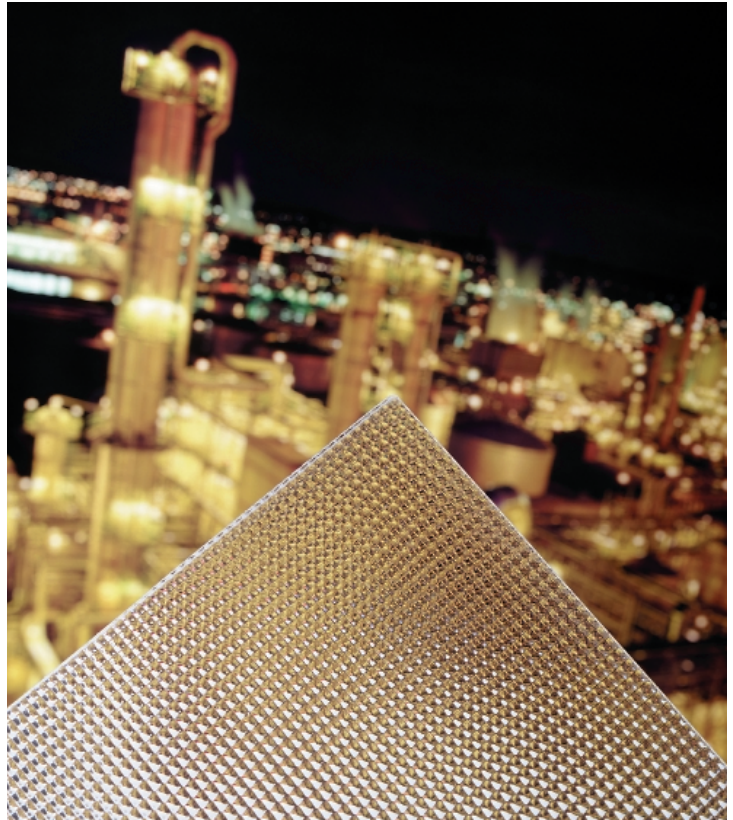
Specialty Glass

AFG is the recognized industry leader in specialty glass manufacturing. To complement the large variety of patterned glass products, AFG also produces many other innovative specialty glasses—each with unique characteristics. Whether the application is for shower enclosures or storefronts, partitions or lighting glass panels, AFG offers products with performance.

NO MATTER
THE APPLICATION...
THERE'S AN AFG GLASS
FOR YOU.

LIGHTING GLASS

*R*ugged, durable...that is AFG Lighting Glass. This amazing low-iron glass product offers maximum light transmission with minimum absorption but can be used for any number of applications—just like our other glass patterns. Abrasion-resistant and non-combustible, our glass is specially designed for commercial lighting applications.



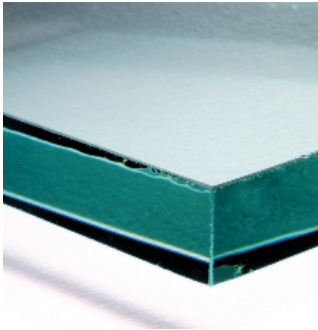
CRYSTAL 73

Crystal 73 effectively blends transmitted light down to the work area. And, best of all, AFG glass doesn't "yellow" over time like plastic. Our lighting glass panels can also be tempered for added protection against thermal differences and mechanical stress.



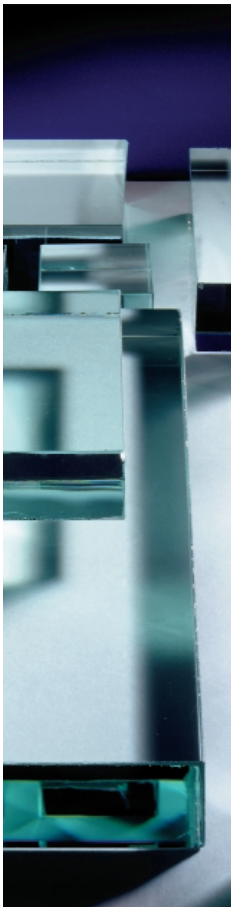
Thickness 5/32" Temperable No Lamination Max Size 48x102

HEAVY GLASS



Heavy float glass

made by AFG is ideal for applications from furniture to store fronts, display cases, shelving, interior partitions and hockey rinks. Beauty, versatility and performance provide an aesthetically pleasing product for both residential and commercial markets.



HEAVY GLASS - CLEAR

Thickness	U-Value		Shading Coefficient	Solar Heat Gain Coefficient		Transmittance %			Reflectance %	
	Winter	Summer				UV	Visible	Solar	Visible	Solar
5/16"	1.07	1.02	.93		.80	61	87	75	7	7
3/8"	1.06	1.02	.91		.78	58	86	72	7	7
1/2"	1.04	1.01	.87		.75	54	84	68	7	6
5/8"	1.02	0.99	.86		.74	54	84	67	7	6
3/4"	1.00	0.99	.77		.66	38	82	57	6	5

TINTED GLASS



Clockwise from top, left: Green; Green - HA43; Green; Bronze; Gray; and Forestgreen - HA26



AFG offers a variety of tinted glass products for commercial and architectural glazing and for automotive applications. The lower solar light transmission of AFG's bronze/gray glass helps reduce glare. By absorbing the sun's heat, it reduces energy consumption, creating a more comfortable interior without obscuring the view outside.

TINTED GLASS

Thickness	U-Value		Shading Coefficient	Solar Heat Gain Coefficient		Transmittance %			Reflectance %	
	Winter	Summer		UV	Visible	Solar	Visible	Solar		
SOLARSHIELD BRONZE										
Single	1.12	1.07	.89	.76	45	74	70	7	6	
1/8"	1.11	1.08	.83	.78	38	68	63	6	6	
5/32"	1.10	1.09	.79	.68	32	63	57	6	6	
3/16"	1.10	1.09	.75	.64	27	59	53	6	5	
1/4"	1.09	1.09	.71	.61	23	54	48	6	5	
SOLARSHIELD GRAY										
1/8"	1.11	1.09	.81	.70	37	62	61	6	6	
5/32"	1.10	1.09	.76	.65	32	56	54	6	6	
3/16"	1.10	1.10	.71	.61	28	50	48	5	5	
1/4"	1.09	1.10	.67	.58	24	45	43	5	5	
SOLARSHIELD GREEN										
Single	1.12	1.08	.87	.75	49	86	67	7	6	
1/8"	1.11	1.09	.81	.70	43	83	61	7	6	
3/16"	1.10	1.09	.73	.63	34	79	51	7	6	
1/4"	1.09	1.10	.70	.60	30	77	47	7	5	
SOLARSHIELD BLUE-GREEN										
Single	1.11	1.07	.88	.76	50	86	69	7	6	
1/8"	1.11	1.08	.84	.72	45	83	64	7	6	
5/32"	1.10	1.08	.79	.68	40	80	58	7	6	
3/16"	1.10	1.09	.76	.65	36	78	54	7	5	
1/4"	1.09	1.09	.72	.62	32	76	49	7	5	
FORESTGREEN or HA26										
Single	1.12	1.10	.79	.68	36	81	58	7	6	
1/8"	1.11	1.11	.72	.62	29	77	49	7	5	
3/16"	1.10	1.12	.71	.55	20	71	39	7	5	
1/4"	1.09	1.12	.60	.51	16	67	34	6	5	

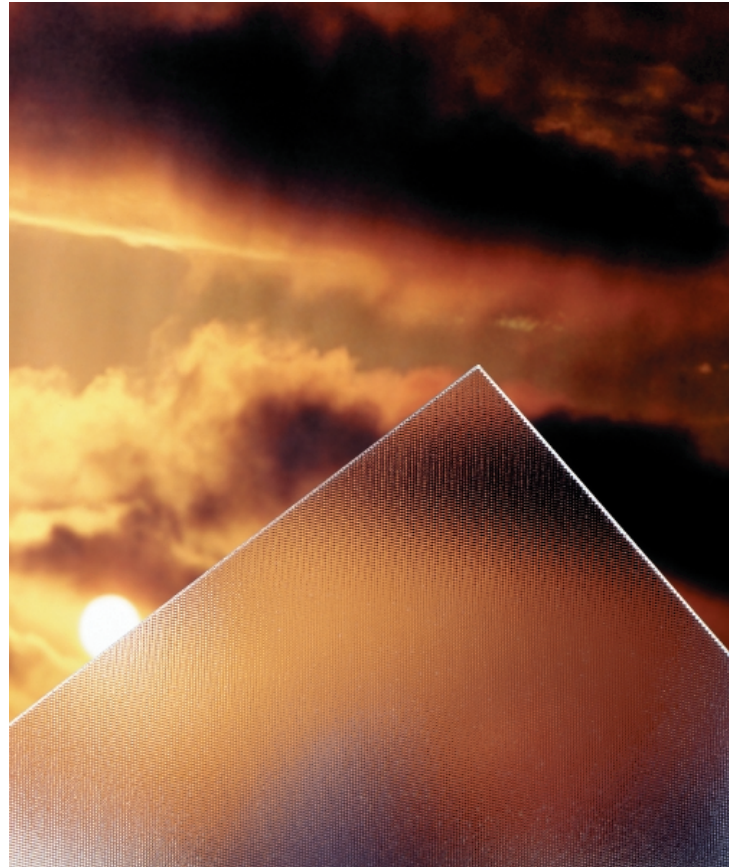


SOLAR GLASS



leader in the industry in solar glass development—AFG Industries, Inc. With low-iron properties, AFG Solar Glass is suitable for photovoltaics, commercial greenhouse glazing, and active or passive solar applications. AFG offers both low-iron patterned glasses, Solite® and Solatex®, low-iron float glass, Krystal Klear®, as well as a transparent conducting oxide glass, PV-TCO.

Active, passive or photovoltaics, the systems vary. The performance won't—with AFG solar glass products.



SOLITE®



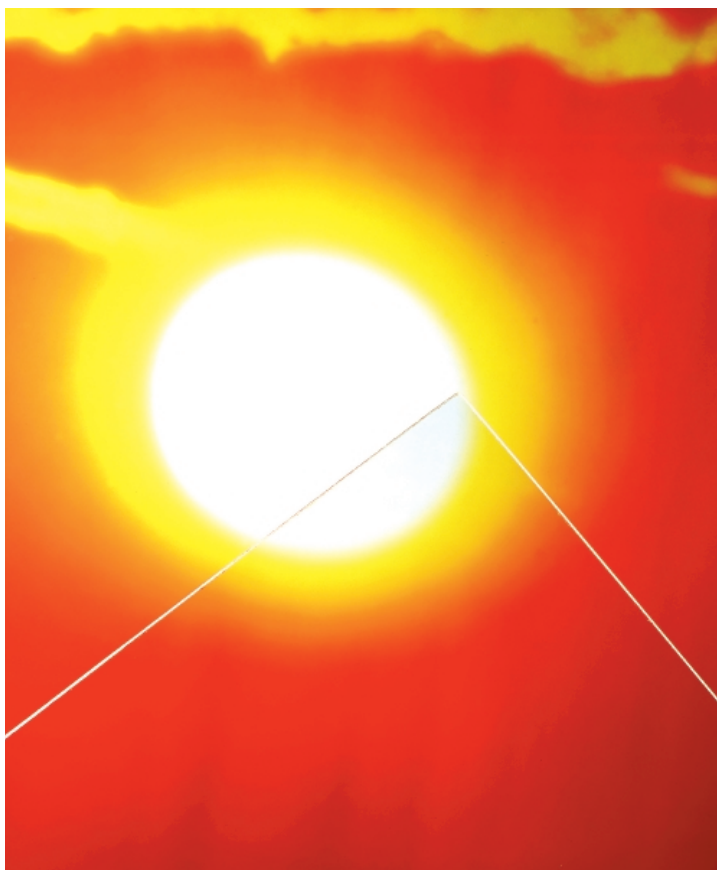
SOLATEX®

AFG has now been certified to offer 2.7mm tempered solar glass in addition to traditional tempered glass thicknesses. This new tempering capability provides customers with the option of a tempered solar glass that is thinner than products previously offered—a major benefit in applications where weight is a factor. The product is available in sizes

consistent with other AFG tempered solar glass products.



KRYSTAL KLEAR®



KRYSTAL KLEAR® is the newest of AFG's low-iron, high transmission products. A float glass, KRYSTAL KLEAR has the same transmission advantages as AFG's solar products. KRYSTAL KLEAR glass with its virtual colorless appearance offers exciting possibilities for a growing list of applications that now include:

- Passive and active solar
- Greenhouses
- Shelving
- Furniture
- Appliances
- Display Cases

Common Physical Properties of AFG Solar Glass (Statistics Follow)

Maximum Sizes				PAR	Approximate Net Weight Per Sq. Ft.	Approximate Solar Energy Transmitted
Nominal Thickness	Width	Length	Area Sq. Ft.			
1/8"	50"	120"	42	91.8%	1.6	91.0%
5/32"	50"	120"	42	91.7%	2.0	90.7%
3/16"	50"	120"	42	91.6%	2.4	90.4%

Mechanical Properties*

Hardness: Moh's Scale (Scratch hardness) (Diamond = 10, Sapphire = 9, etc.) Knoop Hardness Number (indentation hardness) indenter load - 500 grams		~6 470
Poisson's Ratio		0.22
Density		156 lb/cf 2.5 g/cc
(Young's) Modulus of Elasticity		10,600,000 psi 73.1 GPa
Tensile Strength (determined as Modulus of Rupture, ultimate)		6000 lb/in2 41.4 MPa
Specific Gravity at 70°F (21°C)		2.5
Approximate Weight		
Per Square Foot		Per Square Meter
1/8 = 1.6 lbs 5/32 = 2.0 lbs 3/16 = 2.4 lbs		3 mm = 7.8 kg 4 mm = 9.7 kg 5 mm = 11.7 kg



Common Properties of AFG Solar Glass...continued

Thermal Properties*

Hemispherical Emissivity at 0°-150° (-18° - 66°C)	0.84
Expansion Coefficient (Linear in the range of 25°C to 300°C)	per °C = 9.03×10^{-6} per °F = 5.02×10^{-6}
Specific Heat at 32° - 212°F (0° - 100°C)	0.2
Calculated Thermal Conductivity at 20°C in (watt/m²/K)	1.04
Softening Point	1332°F 722°C
Annealing Point	1025°F 552°C
Strain Point	932°F 500°C

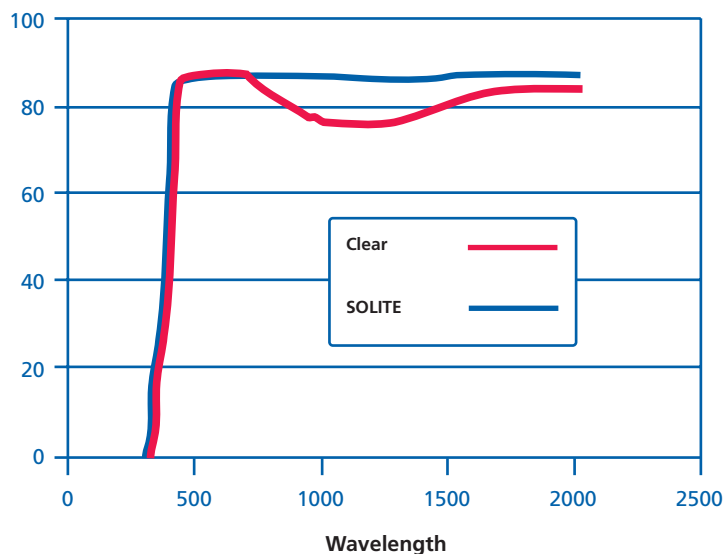
Chemical Properties

Approximate Chemical Composition:	
Silicon Dioxide	73%
Sodium Oxide	14%
Calcium Oxide	8.7%
Magnesium Oxide	3.9%
Trace Elements	0.4%

* Mechanical, Thermal and Chemical properties applicable to test samples under specific testing conditions.

Spectral Data

Percent Transmission



Spectral Data 3MM

Wavelength	Clear	SOLITE SOLATEX	KRYSTAL KLEAR
300	2.90	2.63	3.42
310	1.06	3.16	3.82
320	11.67	4.73	4.62
330	37.03	14.27	11.10
340	62.50	40.75	35.17
350	78.74	68.75	66.61
360	85.17	81.39	81.22
370	87.27	86.45	86.65
380	86.74	88.86	88.73
390	88.64	90.13	89.84
410	89.77	91.02	90.72
430	89.40	91.25	90.90
450	89.70	91.48	91.09
470	90.41	91.51	91.22
490	90.16	91.56	91.23
510	90.79	91.63	91.30
530	90.58	91.68	91.38
550	90.40	91.71	91.43
570	90.04	91.73	91.46
590	89.75	91.73	91.47
610	89.33	91.75	91.43
630	88.87	91.80	91.52
650	88.17	91.84	91.50
670	86.77	91.77	91.49
690	86.32	91.78	91.41
710	85.56	91.67	91.39
730	84.84	91.71	91.49
750	83.94	91.58	91.30
770	83.06	91.45	91.20
800	81.69	90.42	91.29
850	80.67	91.73	91.17
900	79.57	91.59	91.49
950	78.90	91.34	91.29
1000	78.22	91.32	91.36
1050	77.84	91.14	91.32
1100	77.90	91.28	91.41
1150	78.16	91.27	91.31
1200	78.49	91.17	91.31
1250	78.71	91.30	91.55
1300	79.62	91.32	91.45
1350	80.14	91.24	91.49
1400	81.11	91.77	91.68
1450	82.48	91.56	91.68
1500	83.49	91.82	91.90
1550	84.44	91.63	91.63
1600	85.01	91.60	91.68
1650	85.55	91.70	91.60
1700	85.53	91.75	91.73
1750	85.64	91.69	91.68
1800	85.39	91.73	91.72
1850	85.37	91.75	91.70
1900	84.87	91.65	91.65
1950	85.04	91.63	91.63



Design Considerations

Safety: Annealed glass must not be glazed in hazardous locations. These locations must be glazed with appropriate safety glazing materials. Please refer to the local applicable building code or the International Building Code/International Residential Code. In addition, some glazing situations not specifically addressed by the codes may require safety glazing. AFG will be happy to consult with your architect concerning special glazing situations.

Thermal Stresses: Tinted glass and tinted insulating glass require special architectural design considerations and extra care during manufacture and installation to prevent breakage from thermal stresses. Exterior shading, interior shading, HVAC outlets, drapery packets, etc., must be elevated along with the solar properties of the glazing.

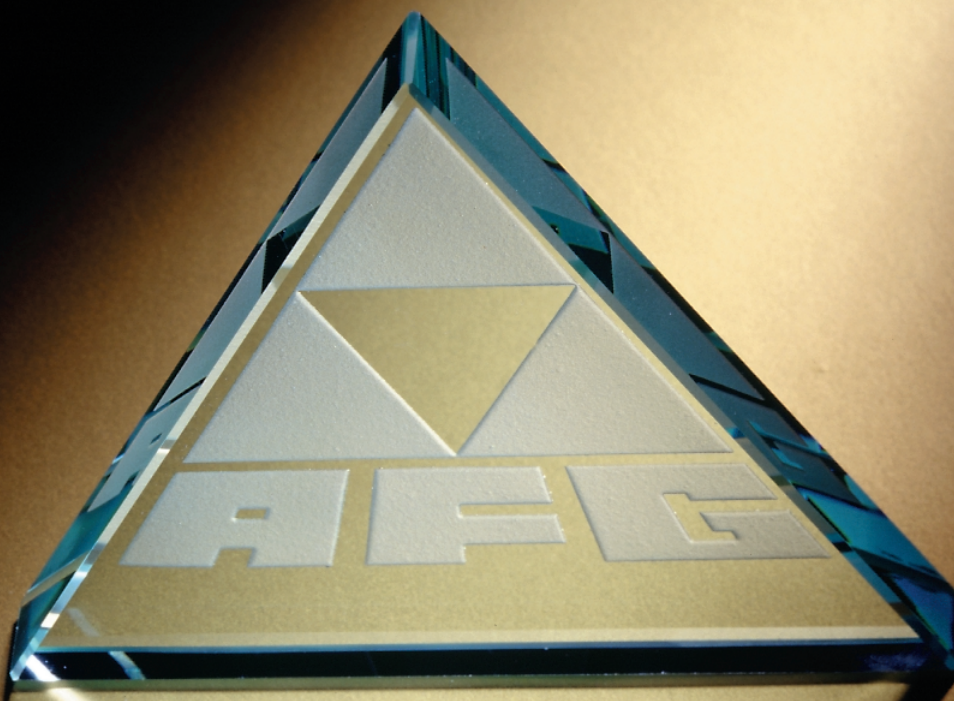
Glazing: The type of glazing system and the glazing material must be mutually compatible. See the Glass Association of North America's Glazing Manual for general information on clearances, setting blocks, shimming, sealing materials, handling, etc. Certain glazing systems (such as flush or stopless glazing and butt-joint glazing) require singular matching of system to glazing materials and must be approached with caution. Note that the AFG insulating glass warranty contains specific glazing restrictions and requirements, including weep systems. Consult with AFG Technical Services for recommendations.

Surface Damage: Although glass has an extremely durable surface, it may be damaged by alkaline or ferrous solutions, causing an etching or staining of the glass. This can be avoided by designing a "drip barrier" to prevent run-off from surrounding masonry or steel. Frequent inspection and cleaning during construction are also recommended. Protect glass from wall treatments such as sealing, waterproofing, sandblasting, acid treatments, plastering, etc.

Glass Breakage: Some risk of glass breakage from a variety of causes is always present. While this risk is very low, the designer should address the consequences of breakage and the ease of replacement. Note that AFG does not warrant against glass breakage for any reason.

Beauty, versatility and performance...
all brought to you by AFG Industries, Inc.

Notes



All AFG Products are offered subject to availability.

Additional information on AFG technical product specifications, design considerations, handling, storage and general terms and conditions is available from the AFG web site at www.afg.com or by contacting us using any of the following:

E-mail marketing@afg.com
Phone (423) 229-7200 or (800) 251-0441 - FAX (423) 229-7459
Marketing/Promotional Services (423) 229-7254
Technical Services (423) 229-7386