



**Product Description**

3M FASARA Glass Finishes (the “Products”) are decorative glass and window films available in over 50 designs. These decorative Products can be used in vertical applications in commercial buildings to control both light and privacy through a building’s interior glass, including the interior of an outside glass wall (the “Interior Applications”). Two of the Product designs can be used on the exterior of an outside glass wall (the “Exterior Applications”). The current Product line can be found in the *3M™ FASARA™ Glass Finishes Product Catalog* (the “Catalog”).



**Featured Benefits**

Expected Performance Life is 10 years for indoor, vertical applications on non-perimeter glass.

**Product Characteristics**

The values in this table are typical, and are based on test data deemed reliable but are not warranted.

Characteristic		Value
Material	Film	Polyester
	Adhesive	Pressure-sensitive acrylic, permanent
	Release Liner	Silicone-coated polyester
Thickness	Film + Adhesive	3 mils (75 microns) (approx.) See Table A.
	Release Liner	1 mil (25 microns)
Roll Size		50 inches x 98.4 feet (1270mm x 30m)
Weight		35 lb. (16 kg) (approx.) 50 in. x 98.4 ft. roll

**Product Performance**

The values in this table are typical, and are based on test data deemed reliable but are not warranted.

Characteristics	Value
Adhesion 24 hours after application*	Glass: 1.6 lb./in. (7.0 N/25 mm)
Tensile Strength	45 - 90 lb/in. (200 - 400 N/25 mm)
Fire Resistance	When used in Interior Applications on glass, most Products have the National Fire Protection Association Class A (as defined in NFPA 101 “Life Safety Code” Test Method ASTM E84).
Heat Transmission Coefficient	6 W/m <sup>2</sup> K, all products
UV Blocking	Blocks at least 99% of UV light to reduce the discoloring (fading caused by sunlight) of furniture and other items.

\* Test specimens were applied to the substrate and conditioned at 68 F (20 C), then peel tested at 180 degree at a tensile speed of 12 inches (300 mm) per minute.



**Optical Performance Characteristics Definitions**

**Shading coefficient:** Measurement of sun-blocking effect, based on the percentage of sunlight entering a room when the Product is applied to 0.24 inches (6mm) thick transparent glass and the value “1” is used for the amount of sunlight passing through 0.12 inches (3mm) thick transparent glass.

**Transmittance, reflectance and absorbcency:** Measurement of the respective rates at which UV (ultraviolet), brightness (visible light), and heat (sunlight) are transmitted, reflected, or absorbed.

**Heat transmission:** Measurement of the ease of heat escape caused by a temperature difference between interior and exterior, based on the amount of heat that would escape in 1 hour from a surface area of 10.8 square feet (1m<sup>2</sup>) when there is a temperature difference of 34°F (1 °C).

The values in these tables are typical, and are based on test data deemed reliable but are not warranted. The optical data are calculated as theoretical values and compiled with existing data.

**Table A. Optical Performance Characteristics for All Product Designs**

The optical data are calculated as theoretical values and compiled with existing data. In patterned Product designs, the value is an average across the pattern. The values in this table are typical, and are based on test data deemed reliable but are not warranted.

	Product Design	Thickness Film+adhesive (microns)	Shading Coefficient	Solar Heat (%)			Visible Light (%)		UV (%)
				Reflectance	Transmittance	Absorbance	Reflectance	Transmittance	Transmittance
2015 New Designs	Sabrina (SH2FGSB)	90	0.93	9	77	14	10	83	0.0
	Illumina Black (SH2BKIM)	79	0.52	6	19	75	6	20	0.0
	Mare (SH2FGMR)	90	0.91	9	74	18	10	78	0.0
	Opaque Black (SH2BKOP)	79	0.39	5	1	94	5	0.4	0.0
Gradation	Illumina (SH2FGIM)	83	0.72	16	53	31	20	51	0.0
	Illumina g (SH2FGIM-G)	81	0.83	13	66	21	14	66	0.0
	Illumina-P (SH2FGIM-P)	83	0.72	16	53	31	20	51	0.0
	Illumina Silver (SH2SIIM)	77	0.44	50	33	17	59	36	0.0
	Aerina (SH2FGAR)	81	0.91	12	76	13	13	79	0.0
	Venetian (SH2FGVN)	85	0.73	18	55	27	23	54	0.0
	Robe (SH2FGRB)	85	0.59	23	39	38	31	35	0.0
	Lontano (SH2FGLO)	81	0.74	20	57	23	22	61	0.0
Tsurugi (SH2FGTG)	81	0.75	19	58	23	21	61	0.0	
Stripe	Nokto (SH2SCSNK)	81	0.44	7	12	81	7	13	0.0
	Radius (SH2CSRD)	81	0.40	7	7	86	7	6	0.0
	Shutie (SH2FGST)	81	0.77	17	60	24	22	59	0.0
	Shutie Black (SH2BKST)	81	0.70	21	53	26	29	51	0.0
	Arpa (SH2FGAP)	79	0.78	17	61	22	22	67	0.1
	Arpa Black (SH2BKAP)	81	0.54	8	25	67	8	22	0.0
	Seattle (SH2DGST)	81	0.85	16	70	14	22	74	0.0
	Seattle Fine (SH2DGST-F)	80	0.85	16	71	13	25	68	0.0
	Fine (SH2FGFN)	81	0.65	22	46	32	27	48	0.0

	Product Design	Thickness Film+adhesive (microns)	Shading Coefficient	Solar Heat (%)			Visible Light (%)		UV (%)
				Reflectance	Transmittance	Absorbance	Reflectance	Transmittance	Transmittance
Border / Horizontal	Lattice g (SH2FGLT)	79	0.80	13	62	26	14	60	0.0
	Lattice (SH2FGLT-G)	84	0.60	22	41	37	28	36	0.0
	Slat (SH2FGSL)	88	0.60	22	41	37	28	36	0.0
	Slat g (SH2FGSL-G)	83	0.77	14	58	28	16	56	0.0
	Pixela (SH2FGPX)	81	0.78	16	62	22	18	60	0.0
	Paracell (SH2FGPR)	80	0.71	17	53	30	20	50	0.0
	Leise (SH2FGLS)	81	0.96	9	81	11	9	88	0.0
Prism / Dot	Prism Noir (SH2CSPN)	78	0.67	7	42	51	7	42	0.0
	Prism Silver (SH2CSPS)	78	0.64	28	49	24	31	53	0.0
	Astral Silver (SH2CSAS)	82	0.42	44	28	28	51	30	0.0
	Cielo (SH2FGCE)	81	0.74	19	58	23	26	56	0.0
	Luna 6 (SH2PCL6)	76	0.68	17	48	34	22	46	0.0
	Luna 9 (SH2PCL9)	83	0.63	19	43	39	24	39	0.0
	Aura 9 (SH2PCA9)	81	0.96	8	89	3	8	87	0.0
	Vista (SH2FGVI)	81	0.83	15	67	18	17	72	0.0
	SHIZUKU (SH2FGSK)	81	0.84	13	68	19	16	71	0.0
	KANON (SH2FGKN)	79	0.88	13	73	14	14	78	0.0
Fabric/Japan Paper	Linen (SH2FGLN)	78	0.79	17	64	19	23	65	0.0
	Altair (SH2FGAT)	86	0.77	17	60	22	23	60	0.0
	Vega (SH2FGVG)	86	0.77	16	60	24	21	60	0.0
	SAGANO (SH2PTSA2)	89	0.83	14	66	20	18	68	0.0
	SAFU (SH2PTSF)	95	0.72	20	54	26	27	54	0.0
	YAMATO (SH2PTYA)	89	0.89	12	74	14	15	79	0.0
	KEN-UN (SH2PTKU)	97	0.70	21	53	26	28	51	0.0
	RIKYU (SH2PTRK)	103	0.86	7	67	26	8	72	0.0

	Product Design	Thickness Film+adhesive (microns)	Shading Coefficient	Solar Heat (%)			Visible Light (%)		UV (%)
				Reflectance	Transmittance	Absorbance	Reflectance	Transmittance	Transmittance
Frost / Matte	ESSEN (SH2EMES)	120	0.67	23	50	27	26	55	0.1
	LAUSANNE (SH2EMLA)	113	0.94	8	78	14	9	84	0.1
	OSLO (SH2EMOS)	119	0.92	8	76	16	9	83	0.1
	OSLO-P (SH2EMOS-P)	119	0.92	8	76	16	9	83	0.1
	CHAMONIX (SH2EMCH)	120	0.67	26	51	23	35	47	0.0
	Opaque White (SH2MAOW)	142	0.30	46	13	41	57	10	0.0
	Glace (SH2MAGL)	85	0.77	14	58	28	18	56	0.0
	Fine Crystal (SH2FNCR)	113	0.94	8	78	14	9	84	0.1
	Mat Crystal-i (SH2MACR-I)	95	0.94	8	78	14	9	85	0.1
	Mat Crystal 2 (SH2MACRX2)	126	0.95	7	79	14	8	86	0.2
	Milky White (Milano) (SH2MAML)	77	0.75	17	57	26	21	59	0.0
	Milky Milky (San Marino) (SH2MAMM)	105	0.44	34	25	41	43	21	0.0
	Milky Crystal (SH2MACRX)	126	0.40	31	18	51	42	19	0.0
	Luce (SH2FGLU)	85	0.59	23	39	38	31	34	0.0
	Silver 1 (RE1SAIR)	74	0.08	78	0	21	91	0	(0.0)
Transparent Glass Substrate *	-	1.00	8	86	6	8	90	71	

\* All product designs were applied to a 3 mm transparent glass substrate to calculate the values in this table.

## Product Use

### For Exterior Applications Only

**Anti-reflection effect:** When used in Exterior Applications, the Mat Crystal 2 and Milky Crystal Product designs scatter sunlight to reduce reflected light. No other Product designs are recommended for an Exterior Application.

**NOTE:** When used for an Exterior Application, the Mat Crystal 2 and Milky Crystal Product designs are not warranted.

## Application and Removal Guidelines

Avoid scratching, denting, or stretching the Product during installation. The values in these tables are typical, and are based on test data deemed reliable but are not warranted. See the 3M FASARA Glass Finishes Installation Guide for additional information.

Characteristic	Value
<b>Application Surface Type</b>	Flat
<b>Application Surface Material</b>	Use only glass substrates. Illumina-P (SH2FGIM-P) and OSLO-P (SH2EMOS-P) product designs are for use on plastic substrates on a user test and approve basis.
<b>Application Location</b>	Mat Crystal 2 and Milky Crystal Product designs can be applied to Exterior Applications. All other Product designs are only for Interior Applications.
<b>Application Temperature</b>	60°F - 100°F (16°C - 38°C) air and application surface
<b>Application Method</b>	Wet application
<b>Applied Product Shrinkage</b>	Nominal
<b>Applied Product Exposure Temperature</b>	Exterior Applications: -40°F - +149°F (-40°C - +65°C) Interior Applications: maximum 176°F (+80°C)
<b>High Humidity Environments</b>	Products are not recommended for Interior Applications where condensation consistently occurs.
<b>Product Removal</b>	Low heat or 3M Adhesive Remover Citrus Base and scraper

**NOTE:** Removing the Product too quickly can result in excessive adhesive left on the substrate. If necessary, heat a small section of the film with a heat gun to soften the adhesive, peel back slowly, then heat and remove the next section.

## Processing Options

Processing of the Product is on a user test and approve basis only. The user is responsible for results in all processing applications.

### Printing

The Products are not designed for surface printing and have various surface textures. Printing is on a user test and approve basis only. No warranty is made for the quality or durability of printed Product.

### Cutting

Electronic cutting, weeding and application tape with the Product is on a user test and approve basis. The user should consider the following: (1) the type of liner used for the Product is not intended for electronic cutting; (2) there is currently no recommended application tape that adheres properly to the face of the Product to hold cut shapes in place.

## Shelf Life and Storage

### Shelf Life

Apply the Product within 1 year of the date of purchase. The storage conditions specified in this document must be maintained for full shelf life.

### Storage Conditions

- 40°F - 90°F (4°C - 32°C)
- Away from direct sunlight and high humidity
- Clean, dry area
- Original container with end caps, in the plastic sleeve, stored horizontally, a maximum of 6 cartons high
- Bring the Product to room temperature before application

## Cleaning and Maintenance

**NOTE:** The Product may be cleaned beginning 30 days after installation.

Regular cleaning will help maintain the Product's appearance. Use only clean, nick-free tools and wipe gently only in one direction. Do not use ammonia, chlorine, or organic-based cleaning products, polishing or cleaning compound, sponges, brushes or electric polishing equipment

- If there is dust and grit, wipe it off with a soft, damp cloth.
- If it is soiled, but not gritty, use water and squeegee.
- If there is heavier soil, use a mild liquid detergent and water solution, then clear water, and wipe gently with a cloth wipe.

## Health and Safety



### CAUTION

When handling any chemical products, read the manufacturers' container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information. To obtain SDS sheets for 3M products go to [3M.com/SDS](http://3M.com/SDS), or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.



## WARNING: Risk of Glass Breakage Due to Thermal Expansion

Glass surfaces exposed to sunlight will absorb heat. A glass surface covered by a film with high opacity or dark-colored ink, including films with small areas of high opacity or dark-colored ink, will absorb more heat. Heat absorption can create thermal stress that results in glass breakage, or thermal cracking. This can cause personal injury and property damage. 3M specifically does not recommend using a film with high opacity or dark-colored ink on glass surfaces with significant exposure to sunlight.

## Technical Information

Technical information and data, recommendations, and other statements provided by 3M are based on information, tests, or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed. Such technical information and data are intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. The typical values shown should not be used for the purpose of specification limits. If you have questions about this Product, contact the Technical Service helpline at 1-888-650-3497.

For more information or to order samples, please visit [3M.com/FASARA](http://3M.com/FASARA).

## Change History

### Rev F (15-SEPT-2015):

- Added Expected Performance Life under Features and Benefits
- New "Shelf Life and Storage" section

### Rev E (23-JUN-2015):

- Minor updates to Product Description, Featured Benefits, and Product Characteristics
- Added 2015 New Designs
- Updated Warranty language, adding "3M Basic Product Warranty" and other changes
- Added revision and doc type to footers.

**WARRANTY**

**Products**

3M FASARA Glass Finishes (the “Product(s)”) are decorative films for use only in vertical interior glass applications in commercial buildings (“Interior Applications”).

**3M Basic Product Warranty**

The Product(s) specified in this document are warranted to be free of defects in materials and manufacture (“3M Basic Product Warranty”) on the date of shipment (“Warranty Period”) by 3M or its authorized distributor.

**Limited Warranty**

- For Products used in Interior Applications in the continental United States, 3M makes the following warranty (the “3M Limited Warranty”) for the applicable time period stated below (“Warranty Period”), which will begin on the earlier of: (a) Product installation date; or (b) six months after 3M’s Product shipment date.

The Product will have no significant discoloration, cracking, swelling or other similar visual defects for the applicable time period below:

Application		Warranty Period
Interior Applications	Excluding building perimeter glass	5 years
	Building perimeter glass	3 years
Exterior application surfaces		3M Basic Product Warranty only (see above)
Plastic application surfaces		

- For a buyer’s convenience, 3M may provide engineering or technical information, recommendations, installation instructions, and other information or materials relating to Product (“Other Product Information”), but 3M makes only the 3M Basic Product Warranty and the 3M Limited Warranty and does not warrant any Other Product Information.
- 3M has no obligation under the 3M Basic Product Warranty or the 3M Limited Warranty as to Product that has been: (a) modified, altered or processed in any manner; (b) stored, applied,

installed, or used in a manner other than that 3M recommends in this document and in all Other Product Information; (c) damaged through contact with a person or thing, misuse, accident, neglect, or other action by anyone other than 3M; (d) improperly installed, including, without limitation, installation after the expiration the Product’s shelf life or installation without proper surface preparation, or (e) exposed to excessive heat, humidity, dirt or UV light.

- EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, THE 3M BASIC PRODUCT WARRANTY AND 3M LIMITED WARRANTY ARE MADE IN LIEU OF ALL OTHER WARRANTIES, RIGHTS OR CONDITIONS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE AND THOSE ARISING FROM A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. THE BUYER IS RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR ITS PARTICULAR PURPOSE AND ITS APPLICATION METHODS.
- 3M must receive any 3M Basic Product Warranty or 3M Limited Warranty claim in writing no later than 10 business days after (a) the end of the Warranty Period or (b) the discovery of the 3M Warranty claim, whichever is earlier.

**Limited Remedy**

If any Product is proven not to have met the 3M Basic Product Warranty or the 3M Limited Warranty within the applicable Warranty Period, then THE BUYER’S EXCLUSIVE REMEDY AND 3M’S SOLE OBLIGATION, WILL BE AT 3M’S OPTION, TO REPLACE THAT PRODUCT QUANTITY OR REFUND THE APPLICABLE PURCHASE PRICE.

**Limitation of Liability**

3M WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO A BUYER FOR DIRECT (other than the Limited Remedy stated above), SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS) IN ANY WAY RELATED TO A PRODUCT, THIS DOCUMENT, OR OTHER PRODUCT INFORMATION, REGARDLESS OF THE LEGAL OR EQUITABLE THEORY ON WHICH SUCH DAMAGES ARE SOUGHT.

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