



Film Installation Guide to Preventing Glass Failure





Wherever there is glass, we can *improve* it.

What Causes Glass Breakage?

Glass breakage is caused by stress on the glass. There are five types of stress which may cause glass to break:

1. Thermal Stress - from absorption of solar radiation
2. Tensile Stress - from the weight of the glass itself
3. Mechanical Flexing Stress - from wind pressure
3. Impact Stress - from flying objects such as hail or storm debris
4. Twisting Stress - from a building or window frame sagging or settling

The first type, thermal stress, is the only type affected by the installation of window film. The use of window film will increase thermal stress on sunlit glass. However, there are other factors which increase thermal stress such as partial shading of windows from overhangs, tightly fitted drapes or blinds, signs and decals on windows, and heating or cooling vents directed at glass. In addition, different types of glass (annealed or tempered, clear or tinted) have different solar absorption rates and will withstand differing degrees of thermal stress.

Warranty Coverage

Please refer to your Madico warranty for specific limitations and restrictions for certain situations and glass types.



Film Installation Guide

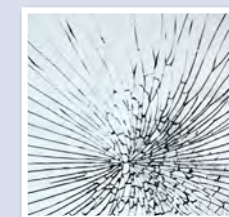
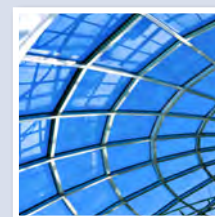
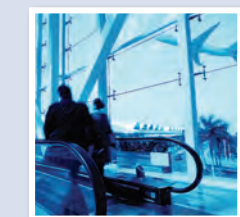
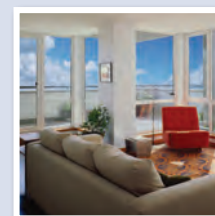
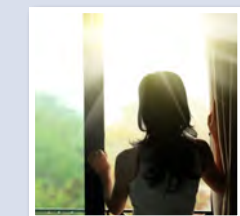
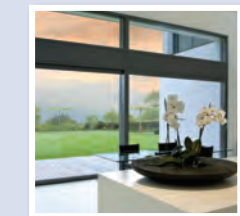
How to Use This Chart

The Madico Film Installation Guide is designed to help you choose the proper film and glass combinations in order to achieve the best performance for your customer and avoid costly glass breakage claims.

Use the table to find your glass type at the top, then move down to see what films are compatible with that glass type. If the film you are considering has a caution statement, please contact Madico for approval before installing this product.

Madico recommends using film-to-glass tables to make sure the product chosen for the installation will be safe for the type of glass being filmed. If you have any questions about this chart or encounter an additional film and glass combinations not shown here, please contact the Madico Technical Services department at 727-327-2544.

Reported solar performance values are typical properties and should not be used as a specification. Since only the user is aware of the specific conditions in which the product is to be used, it is the user's responsibility to determine whether the product is suitable for that intended use. If the specific conditions of use are critically dependent on any of the properties of the product, or if you need further information of any sort, contact Madico's Technical Services Department.



Product	Product Code	Visible Light Transmitted	Solar Energy Reflected	Solar Energy Absorbed	Single Pane					Dual Pane				Inboard/Outboard		Low E						Triple Pane				Laminated Clear or Tinted Any Size	Product			
					Clear Annealed		H/S Tempered	Tinted Annealed		Clear Annealed		Outboard Tinted		Inboard Tinted	Tempered		Standard		Plus or E2		Plus Plus or E3		Clear/Clear/Clear	Clear/Clear/Low E	Tinted/Clear/Clear			Tinted/Clear/Low E		
					1/8" - 1/4" Mono 1-40 sq ft	1/8" - 1/4" Mono 40-100sq ft	1/8" - 3/8" Mono 1-100 sq ft	1/8" - 1/4" Mono 1-40 sq ft	1/8" - 1/4" Mono 40-100sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft			1/8"-1/4" IG 1-30 sq ft	1/8"-1/4" IG 30-40 sq ft	
Nova																														
Nova 70	Nova 70 DA (PS) SR	69%	31%	19%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Nova 70
Reflective Silver																														
Reflective Silver 20	RS 20 DA(PS) SR	19%	53%	34%	✓	✓	✓	○	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reflective Silver 20
Reflective Silver 30	RS 30 DA(PS) SR	30%	42%	36%	✓	✓	✓	○	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reflective Silver 30
Reflective Silver 40	RS 40 DA(PS) SR	44%	29%	37%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reflective Silver 40	
Solar Bronze																														
Solar Bronze 20	SB 20 DA SR	23%	39%	46%	✓	✓	✓	✓	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Solar Bronze 20
Solar Bronze 35	SB 35 DA SR	35%	29%	45%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	○	○	○	○	○	○	○	○	○	○	Solar Bronze 35
Solar Grey																														
Solar Grey 20	SG 20 DA SR	19%	26%	56%	✓	✓	✓	✓	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Solar Grey 20
Solar Grey 35	SG 35 DA SR	35%	16%	52%	✓	✓	✓	✓	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Solar Grey 35
Solar Grey 55	SG 55 DA SR	58%	8%	37%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Solar Grey 55
Dual Reflective																														
Optivision® 5	Optivision 5 DA (PS) SR	8%	53%	37%	✓	✓	✓	✓	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Optivision® 5
Optivision® 15	Optivision 15 DA (PS) SR	14%	47%	39%	✓	✓	✓	✓	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Optivision® 15
Optivision® 25	Optivision 25 DA (PS) SR	27%	44%	44%	✓	✓	✓	✓	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Optivision® 25
Optivision® 35	Optivision 35 DA (PS) SR	38%	14%	44%	✓	✓	✓	✓	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Optivision® 35
Optivision® 45	Optivision 45 DA SR	45%	9%	40%	✓	✓	✓	✓	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Optivision® 45
Exterior																														
Reflective Silver 20	RS 20 E PS SR	17%	59%	28%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reflective Silver 20
Solar Grey 20	SG 20 E PS SR	24%	24%	53%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Solar Grey 20
Solar Bronze 20	SB 20 E PS SR	21%	51%	34%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Solar Bronze 20
Solar Bronze 35	SB 35 E PS SR	34%	37%	39%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Solar Bronze 35
CL 700	CL 700 E PS SR	89%	7%	13%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CL 700
Graffiti Free																														
Graffiti Free® 4 mil	Graffiti Free 400 PS SR	84%	10%	11%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Graffiti Free® 4 mil
Graffiti Free® 6 mil	Graffiti Free 600 PS SR	83%	10%	11%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Graffiti Free® 6 mil
Clear Safety																														
CL 400	CL-400 PS SR	90%	9%	7%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CL 400
CL 700	CL-700 PS SR	88%	9%	8%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CL 700
CL 800	CL-800 PS SR	88%	9%	8%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CL 800
CL 1400	CL-1400 PS SR	87%	8%	14%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	CL 1400
4 Mil Solar Safety																														
Reflective Silver 20 4 mil	RS 20 PS SR 4 mil	18%	53%	34%	✓	✓	✓	○	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reflective Silver 20 4 mil
Reflective Silver 40 4 mil	RS 40 PS SR 4 mil	44%	28%	38%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reflective Silver 40 4 mil
8 Mil Solar Safety																														
Reflective Silver 20 8 mil	RS 20 PS SR 8 mil	17%	52%	35%	✓	✓	✓	○	○	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reflective Silver 20 8 mil
Reflective Silver 40 8 mil	RS 40 PS SR 8 mil	44%	28%	38%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reflective Silver 40 8 mil
Neutral Grey 35 8 mil	NG 35 PS SR 8 mil	36%	15%	51%	✓	✓	✓	○	○	✓	✓	✓	✓	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Neutral Grey 35 8 mil
Neutral Grey 45 8 mil	NG 45 PS SR 8 mil	43%	12%	49%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Neutral Grey 45 8 mil
Specialty Films																														
UV Gard 200	UV Gard 250 PS SR	78%	8%	18%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	UV Gard 200
Amber 81	Amber 81	55%	8%	23%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Amber 81
Frost Matte 200	Frost Matte 200 PS	66%	12%	25%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Frost Matte 200
Black Out	Blackout PS	0%	7%	92%	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	Black Out
White Out	Whiteout PS	0%	37%	62%	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	White Out

Solar properties are typical values and should not be considered specifications. All solar measurements performed on 3mm glass.
 ✓ Recommended ○ Caution Recommended, Preapproval Required ✗ Do Not Use Under Any Circumstances

Founded in 1903, Madico has established itself as one of the world's foremost providers of glass films for the widest array of applications: architectural, safety and security, energy control, automotive, anti-intrusion/anti-vandalism, and view control.



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