

3M™ Window Film Selection Guide

JESTAC

3M

Sun Control Window Films

Whether you're concerned about excessive heat, faded furnishings, glare or daytime privacy, we have a window film just for you.



Block out heat and
improve comfort



Protect your furnishings
from fading



Protect against
skin cancer



Lower air-conditioning
costs



Enhance daytime
privacy



Reduce glare and
improve screen viewing

Areas of glass application



Windows



Skylights



Balcony Doors



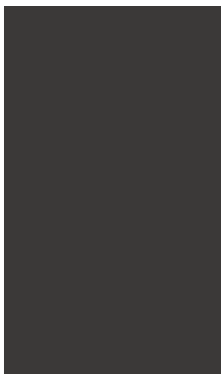
Car Porch Roofs



3M

Prestige Series

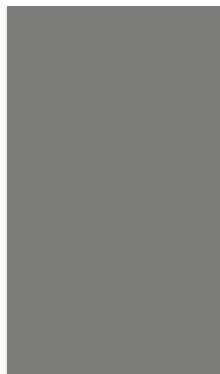
- These spectrally-selective films maximize natural light and outperform other darker films in terms of heat rejection
- The film uses metal-free nano-technology to create reflectivity that's lower than glass, so you get views with amazing clarity
- Up to 97% infrared rejection (IR) providing energy savings and enhanced comfort*



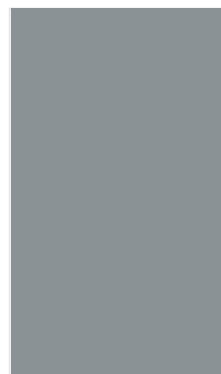
PR20
Exterior Series
available



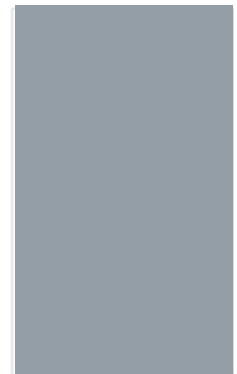
PR40
Exterior Series
available



PR50





PR60



PR70
Exterior Series
available

*IR Rejection as measured from 900-1000nm

Product Performance and Technical Data

| Glass Type (All 6mm) | Film Type | Visible Light | | | Total Solar Energy Rejected | | Solar Heat Gain Coefficient | U Value | UV Light Rejected | Glare Reduction |
|---|-----------|-------------------------|-------------------------|-------------|-----------------------------|--------------------|-----------------------------------|---------|----------------------|--------------------|
| | | Reflected (Interior) | Reflected (Exterior) | Transmitted | Normal | 60 Degree Angle | | | | |
| Clear  | PR20 | 5% | 6% | 21% | 62% | 65% | 0.38 | 1.02 | 99.9% | 76% |
| | PR40 | 7% | 7% | 40% | 60% | 66% | 0.41 | 0.99 | 99.9% | 55% |
| | PR50 | 7% | 8% | 51% | 56% | 63% | 0.44 | 0.99 | 99.9% | 44% |
| | PR60 | 8% | 7% | 61% | 52% | 61% | 0.48 | 0.99 | 99.9% | 31% |
| | PR70 | 8% | 8% | 69% | 49% | 59% | 0.51 | 0.99 | 99.9% | 22% |
| Tinted  | PR20 | 5% | 5% | 13% | 64% | 67% | 0.36 | 1.02 | 99.9% | 76% |
| | PR40 | 6% | 5% | 24% | 62% | 67% | 0.38 | 0.99 | 99.9% | 55% |
| | PR50 | 6% | 6% | 30% | 61% | 66% | 0.39 | 0.99 | 99.9% | 43% |
| | PR60 | 7% | 6% | 36% | 58% | 63% | 0.42 | 0.99 | 99.9% | 32% |
| | PR70 | 7% | 6% | 42% | 56% | 63% | 0.44 | 0.99 | 99.9% | 21% |

*Performance data is generated on a 6mm glass using applicable industry test methods and standards



3M

Ceramic Architectural Series

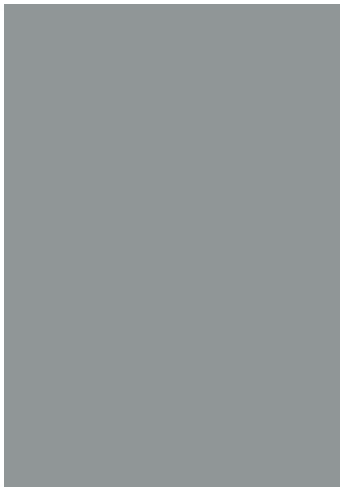
- High visible light transmission providing excellent aesthetics
- Non-metalized film with natural tone for amazing clarity
- Up to 91% infrared rejection (IR) providing energy savings and enhanced comfort*



| CA35





| CA45



| CA60

**IR Rejection measured in-house from 900-1000nm*

Product Performance and Technical Data

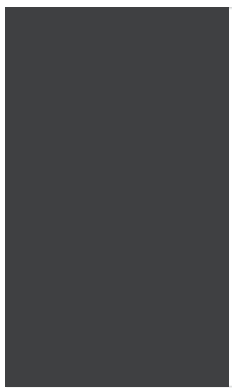
| Glass Type (All 1/4") | Film Type | Visible Light | | | Total Solar Energy Rejected | Solar Heat Gain Coefficient | U Value | UV Light Rejected | Glare Reduction |
|---|-----------|---------------|-----------|-------------|-----------------------------------|-----------------------------------|---------|----------------------|--------------------|
| | | Reflected | Reflected | Transmitted | | | | | |
| Clear  | CA35 | 6% | 6% | 37% | 55% | 0.45 | 1.02 | 99.8% | 58% |
| | CA45 | 6% | 6% | 45% | 52% | 0.48 | 1.06 | 99.8% | 49% |
| | CA60 | 7% | 7% | 62% | 48% | 0.53 | 1.06 | 99.7% | 30% |
| Tinted  | CA35 | 5% | 6% | 22% | 60% | 0.40 | 1.02 | 99.8% | 58% |
| | CA45 | 5% | 5% | 27% | 58% | 0.42 | 1.06 | 99.9% | 49% |
| | CA60 | 6% | 6% | 37% | 55% | 0.45 | 1.06 | 99.8% | 30% |



3M Supreme Series

3M Neutral Series

- These high performing reflective films provide high heat and glare reduction for more comfort
- They provide privacy so no one can see into your room or building during the day



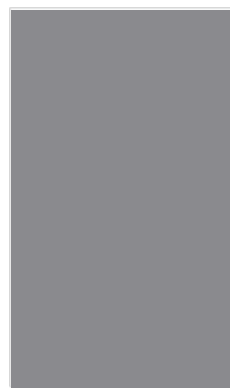
| RE20NEARL



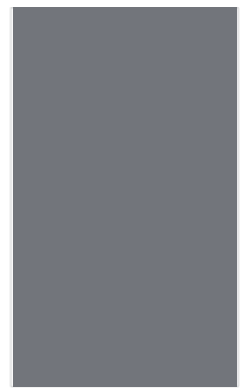
| RE35NEARL



| RE50NEARL





| LE35*



| P18ARL

*LE35 film has been tested to be effective at electromagnetic interference (EMI) shielding. Test reports are available upon request.

Product Performance and Technical Data

| Glass Type (All 6mm) | Film Type | Visible Light | | | Total Solar Energy Rejected | Solar Heat Gain Coefficient | U Value | UV Light Rejected | Glare Reduction |
|--|-----------|-------------------------|-------------------------|-------------|-----------------------------------|-----------------------------------|---------|----------------------|--------------------|
| | | Reflected (Interior) | Reflected (Exterior) | Transmitted | | | | | |
| Clear  | RE20NEARL | 20% | 21% | 19% | 67% | 0.33 | 0.99 | 99% | 78% |
| | RE35NEARL | 18% | 20% | 36% | 56% | 0.45 | 0.99 | 99% | 59% |
| | RE50NEARL | 11% | 12% | 52% | 43% | 0.57 | 1.03 | 99% | 41% |
| | LE35 | 62% | 58% | 26% | 77% | 0.23 | 0.84 | 99% | 70% |
| | P18ARL | 58% | 56% | 17% | 77% | 0.24 | 0.93 | 99% | 81% |
| Tinted  | RE20NEARL | 19% | 10% | 9% | 67% | 0.33 | 0.99 | 99% | 83% |
| | RE35NEARL | 18% | 10% | 21% | 60% | 0.40 | 0.99 | 99% | 60% |
| | RE50NEARL | 10% | 7% | 31% | 52% | 0.48 | 1.03 | 99% | 42% |
| | LE35 | 62% | 24% | 15% | 74% | 0.26 | 0.84 | 99% | 72% |
| | P18ARL | 58% | 23% | 10% | 73% | 0.27 | 0.93 | 99% | 82% |

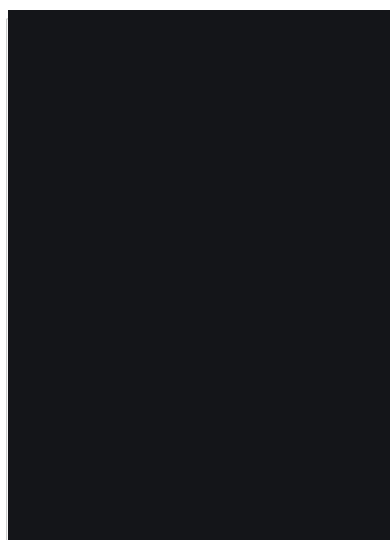
*Performance data is generated on a 6mm glass using applicable industry test methods and standards



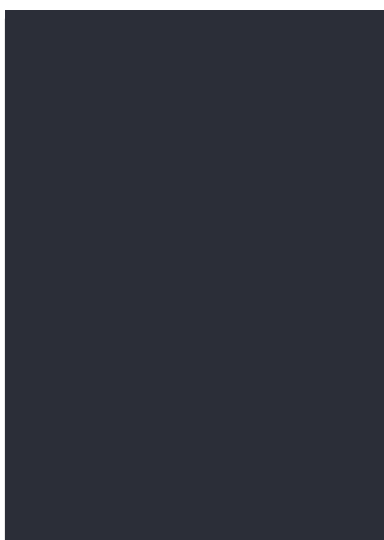
3M

Color Stable Series

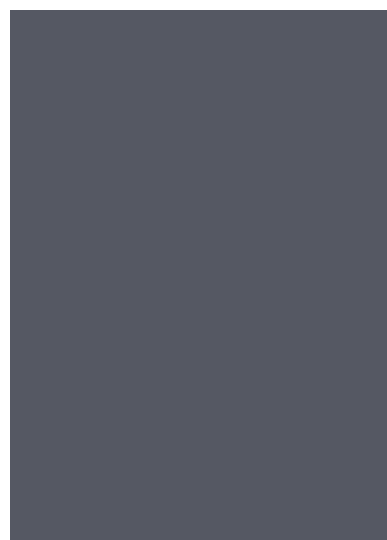
- These films significantly reduce glare from blinding sunlight so you can see better
- Its revolutionary nano-carbon polyester technology gives the film a stylish look with outstanding colour stability so it never turns purple



| CS5




| CS20



| CS35

Product Performance and Technical Data

| Glass Type (All 6mm) | Film Type | Visible Light | | | Total Solar Energy Rejected | Solar Heat Gain Coefficient | U Value | UV Light Rejected | Glare Reduction |
|---|-----------|-------------------------|-------------------------|-------------|-----------------------------------|-----------------------------------|---------|----------------------|--------------------|
| | | Reflected (Interior) | Reflected (Exterior) | Transmitted | | | | | |
| Clear  | CS5 | 4% | 5% | 9% | 57% | 0.43 | 1.03 | 99% | 90% |
| | CS20 | 5% | 5% | 19% | 51% | 0.49 | 1.03 | 99% | 79% |
| | CS35 | 6% | 5% | 39% | 40% | 0.57 | 1.03 | 98% | 56% |

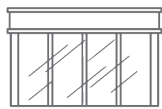
*Performance data is generated on a 6mm glass using applicable industry test methods and standards



3M Safety & Security Window Films

- Glass is commonly used in interior spaces and architectural designs but pose as one of the greatest dangers when it is broken – be it from human impact, spontaneous breakage, accidental explosions or bomb blasts
- 3M™ Safety & Security Window Films are designed to hold broken glass in place and reduce the risk of injury caused by flying glass shards
- They also extend the life of furnishings by significantly blocking out harmful UV rays, the largest cause of fading

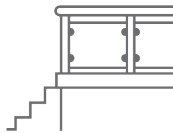
Areas of glass application



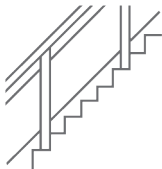
Entrances



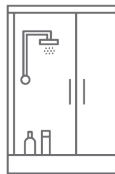
Windows



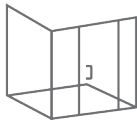
Balconies



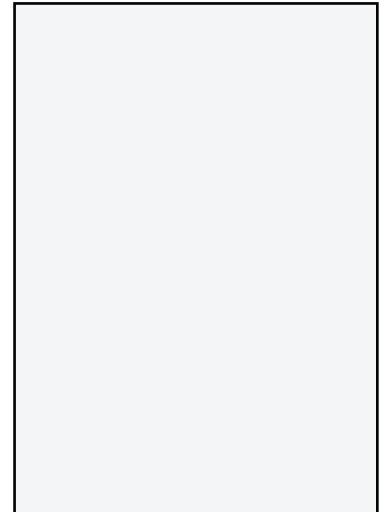
Balustrades



Shower Screens



Meeting Spaces



Safety S40

Exterior Series available



Upgrade Existing Glass to Code

- 3M Safety Window Films & Attachment Systems can help to meet safety glazing impact requirements quickly and easily without having to replace windows
- Keep people safe and upgrade to code with 3M's strong, micro-layered, tear-resistant films



Protect Against Spontaneous Glass Breakage

- Tempered safety glass is routinely used because it's stronger than standard glass, but it also presents the risk of spontaneous glass breakage
- Use 3M Safety Window Films & Attachment Systems to secure the broken glass within the frame and prevent glass fragments from falling from windows and balconies



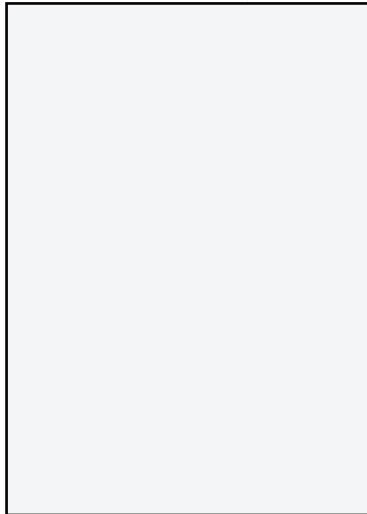
Shield Against Blasts and Explosions

- Flying glass shards are one of the most common causes of blast related injuries and fatalities
- The 3M Ultra Series is specifically designed to help provide additional protection from blasts

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Safety Series

- ▶ These clear, single layer polyester films rely on thickness to provide additional security benefits
- ▶ They help provide protection to people and property from flying glass shards
- ▶ You can improve the overall performance of 3M™ Safety & Security Window Films with the addition of 3M™ Impact Protection Attachment Systems



Safety S40

Exterior Series
available



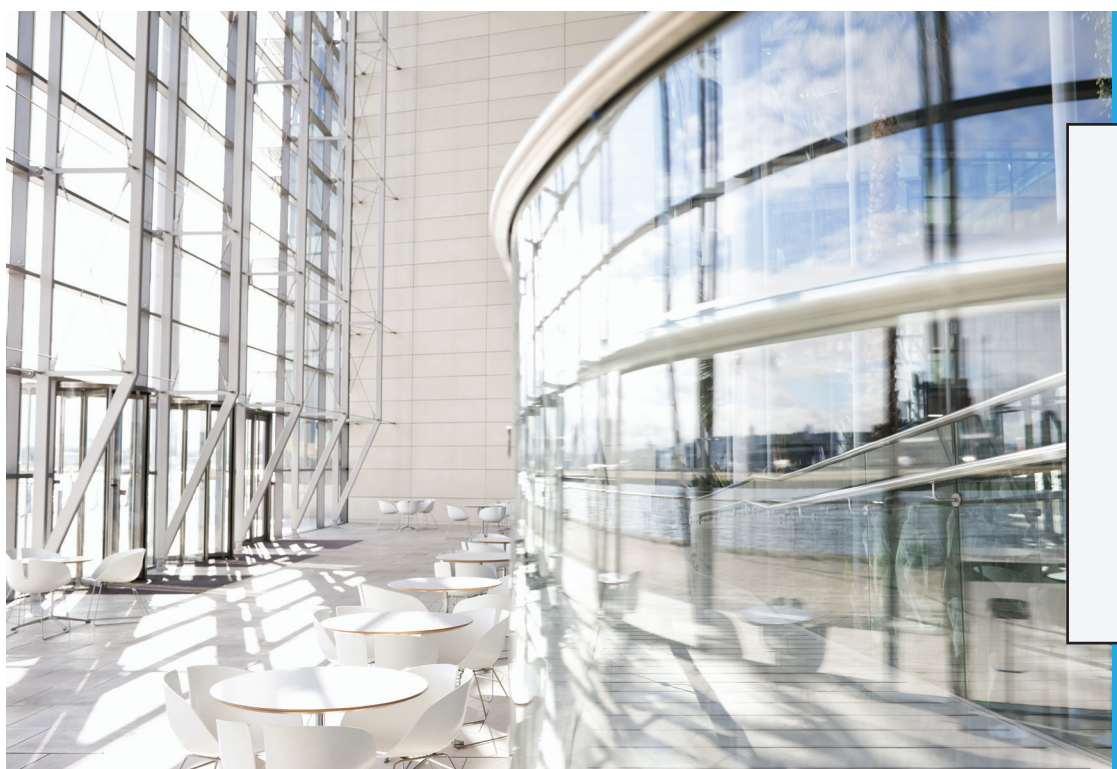
Film Properties (nominal)

| Film Type | Film Thickness | Construction | Tensile Strength | Break Strength | Elongation at Break | Abrasion Resistance |
|------------|----------------|--------------|------------------|----------------|---------------------|---------------------|
| Safety S40 | 4 mil (0.10mm) | Single ply | 25,000 psi | 100 lbs/in | >125% | <5% haze increase |
| Safety S70 | 7 mil (0.18mm) | Single ply | 25,000 psi | 175 lbs/in | >125% | <5% haze increase |
| Safety S80 | 8 mil (0.20mm) | 2-ply | 25,000 psi | 200 lbs/in | >125% | <5% haze increase |

**Please refer to the latest 3M Technical Data Sheet for more detailed product information and specifications.*

3M Ultra Series

- ▶ The first of its kind, the 3M™ Ultra Series films are made from clear, tear-resistant film
- ▶ These films deliver superior performance over standard polyester films in blast and impact events; yet still maintain a high level of optical clarity
- ▶ You can improve the overall performance of 3M™ Safety & Security Window Films with the addition of 3M™ Impact Protection Attachment Systems



Ultra S800

Film Properties (typical)

| | |
|---------------------------------------|------------------------------|
| Film Thickness | 8 mils (203 μ) nominal* |
| Film Construction | Micro-layered |
| Tensile Properties (ASTM D882) | |
| Tensile Strength | 31,500 psi |
| Break Strength | 253 lbs/in |
| Elongation at Break | 135% |
| Yield Strength | 15,000 psi |
| Elongation at Yield | 8% |
| Modulus | 520 kpsi |

*Total thickness with adhesive is 9mils (230 μ)

| Other Physical Properties | |
|--|----------------------------------|
| Graves Area Tear Resistance (ASTM D1004) | 1,100 lbs% (MD) /1,050 lbs% (TD) |
| Puncture-Propagation-Tear Resistance (ASTM D2582) | 9 lbf (MD) /11 lbf (TD) |
| Puncture Strength (ASTM D4830) | 190 lbf |
| Abrasion Resistance (ASTM D1044) | 2.3% haze increase |
| Peel Strength (ASTM D3330) | 9 lb/in |
| Flammability (ASTM E84) | Class A |
| Solar Properties - film applied to 6mm clear glass | |
| Visible Light Transmitted | 87% |
| UV Light Rejected | 99% |

*Please refer to the latest 3M Technical Data Sheet for more detailed product information and specifications.

Why Choose 3M Window Films



Best Window Film Adhesive

Fast drying, optically clear, durable and allows for clean removal



Tested and Proven

3M Window Films have been rigorously tested and certified to meet international window film standards



Peace of Mind

Enjoy a comprehensive warranty of up to 15 years directly from 3M Singapore

3M Window Film Certifications



EXCELLENT



The Skin Cancer Foundation recommends many 3M Window Film products as effective UV Protectants.



3M Authorized Distributor & Certified Window Film Applicator

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