



# Technical Handbook

Information System



mepfilms

# Introduction.

Welcome to the MEP Films “Technical Handbook” Information System.

The MEP Films “Technical Handbook” information system has been designed to provide an easy reference format that delivers key information on products, services and the industry.

MEP Films represents the largest manufacturer of window film in the world. LLumar Performance\* Films is the only manufacturer worldwide that undertakes all processing ‘In House’ ensuring total control of the entire manufacturing and quality process.

LLumar Performance\* Films products are distributed throughout Australasia by Martin Energy Products (Australia) Pty Ltd and Martin Energy Products (NZ) Limited. Martin Energy Products (Australia) Pty Ltd is a quality assured company meeting the stringent quality standards of ISO 9002 and comes approved with License No. QEC 2776. LLumar Performance Films are also Quality Assurance to ISO9001 and this is your assurance of quality support and a quality level of service.

If business assistance of any kind is required - simply call the local Order and Information Hotlines. MEP Films are committed to providing businesses with maximum support and service.

*\*Formally known as CPFilms. The new name is now LLumar Performance Films.*

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# 1.0

## Solar Definitions

### Solar Transmittance (ST)

The percent of ultraviolet, visible and near infrared energy (300 – 2400nm) that is transmitted through the glass.

### Solar Reflectance (SR)

The percent of solar radiation reflected by the glass surface.

### Solar Absorption (SA)

The percent of solar radiation absorbed by the glass.

### Visible Light Transmittance (VLT)

The percent of visible light (380-780nm) that is transmitted through the glass. The higher the percentage, the greater the amount of light that enters through the glass. Clear glass has a Visible Light Transmission of approximately 88%.

### Visible Light Reflectance (VLR)

The percent of light reflected by the glass that can be seen.

### U Value (W/M<sup>2</sup>K)

Measures the heat gain or heat loss due to difference between indoor and outdoor air temperatures. The lower the U-Value, the better the internal insulating performance. Measured as W/m<sup>2</sup>K – Watts per square metre, degree Kelvin.

### Ultraviolet Transmittance (UV)

The percent of total ultraviolet light (300 – 380nm) to be passed through the glass.

### Shading Coefficient (SC)

A measure of efficiency of the glazing system to control solar energy. As the shading coefficient number decreases, heat gain is reduced, which means a better performing product.

### Total Solar Energy Rejected (TSER)

Equals solar reflectance plus solar absorption (approx 75%) that is conducted and reradiated outwards.

### (IRER)

It is a more complete measurement of heat experienced from solar infrared radiation (780-2500nm). In essence, “TSER” of the IR range from 780nm-2500nm. Including absorbed and re-radiated infrared energy

### (SIRR)

A measurement of solar infrared radiation (780-2500nm) not directly transmitted through glass. Absorbed and re-radiated infrared energy is not included.

### Estimated Fade Reduction

This factor is calculated by adding the Performance factor of Ultra Violet, Visible Light and Infrared Rays expressed as a percentage figure.

### Luminous Efficacy (LE)

Indicates how effective a glazing product is at reducing unwanted solar heat gain without significantly altering visible light transmission. That is, the ratio of VLT vs SC.

### Emissivity

Refers to a materials ability to emit radiated energy (from 2,500 – 60,000 nm). The lower the emissivity of a coating the better the glass performs in reducing heat transfer.

### Solar Heat Gain Coefficient (SHGC)

The portion of directly transmitted and absorbed solar energy that enters into the building’s interior. The higher the SHGC, the higher the heat gain.

# 2.0

## Understanding Solar Energy.

### Solar radiation is a form of electromagnetic radiation.

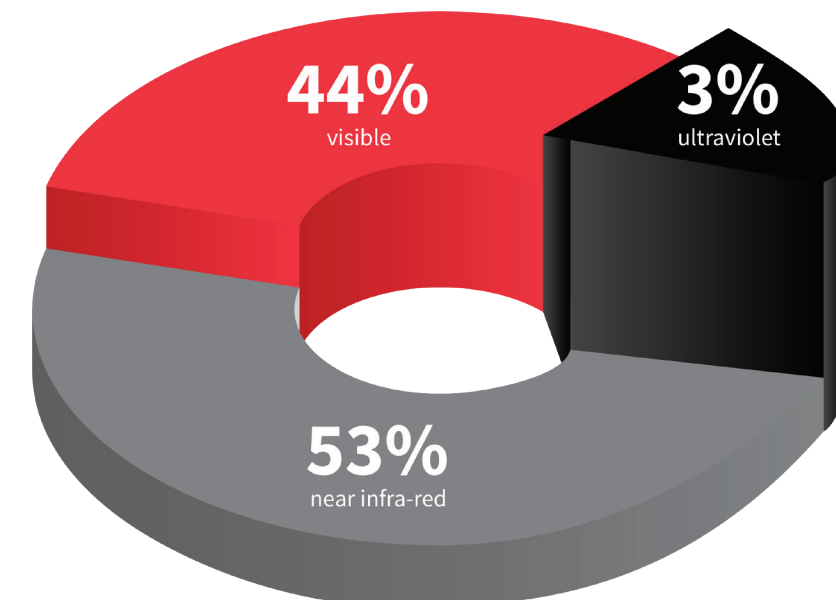
All forms of energy can be expressed as a wavelength, which is the measure of the length of a full cycle in a repeating electromagnetic curve. The electromagnetic spectrum of solar energy as it bombards the earth is split into three bands by wavelength; the ultraviolet (UV) band, the visible (VIS) band, and the near infra red (NIR) band.

The UV Band (100-380 Nanometres\*) is the part that is most responsible for fading out of carpets, drapes, fabrics and paint. The UV band is the part that tans the skin and can cause certain types of medical problems (such as skin cancers) with excessive exposure. This makes up 3% of the solar spectrum.

The Visible Band (400-780 Nanometres\*) is the only part of the solar spectrum actually seen with our eyes. The solar intensity is strongest in the visible band, and it peaks in the green wavelength - the colour of most things on earth. 44% of solar energy is visible energy.

The Near Infra Red Band (780-2500 Nanometres\*) we do not see it, but we are aware of it as heat - 53% of solar energy is in the Near infrared Band.

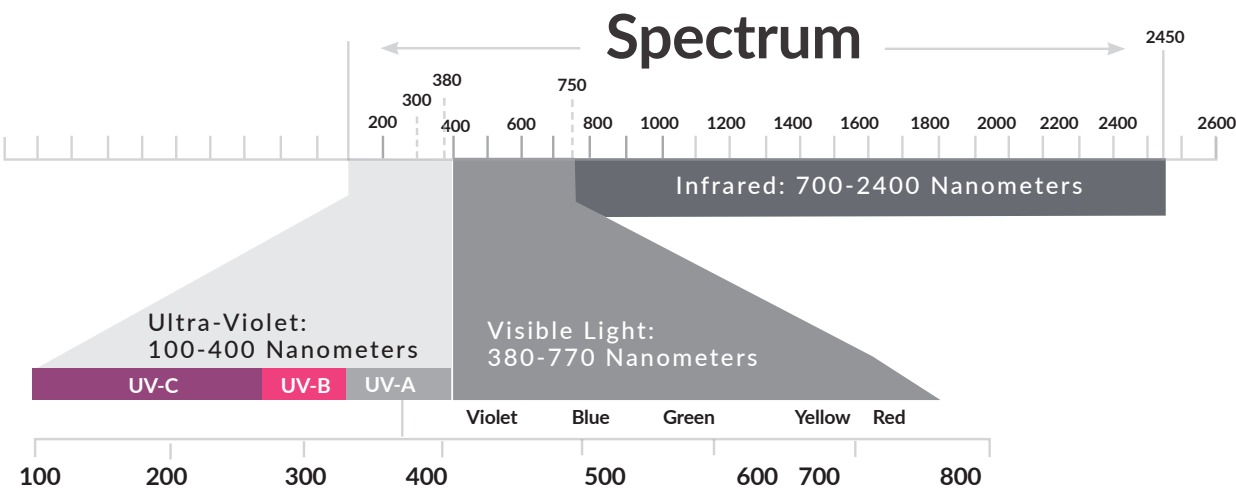
### Solar Spectrum



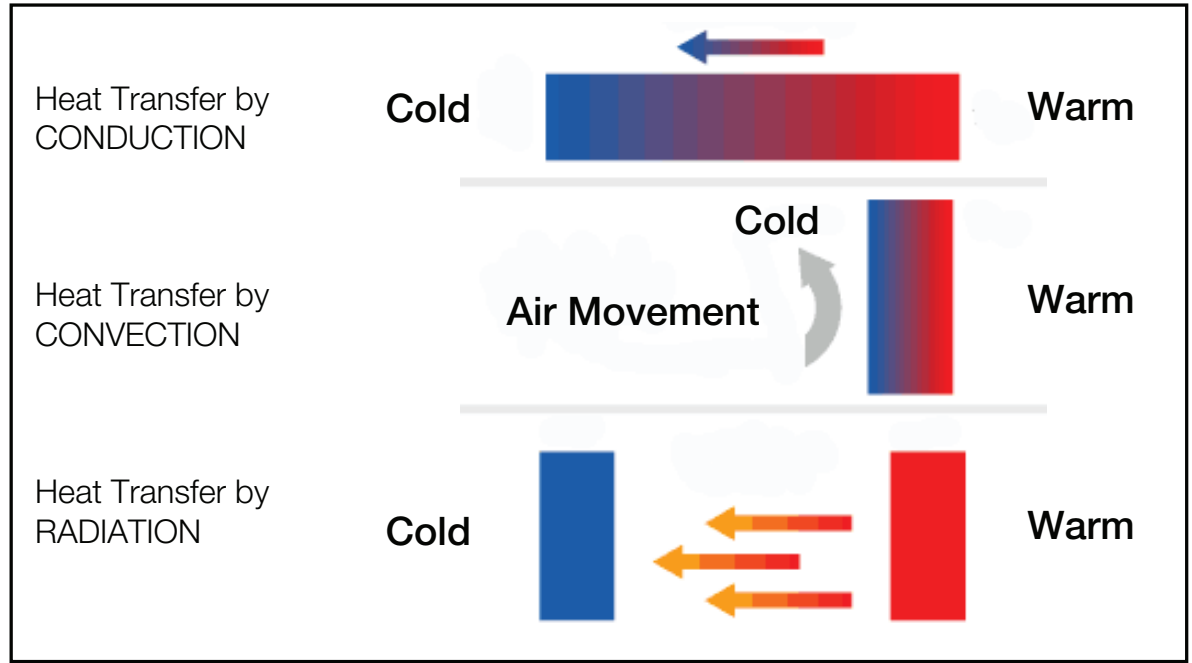
\* A nanometer is a measurement of a wavelength. 1 nanometer = 1 billionth of a metre

### 3.0

#### Solar Radiation.



#### Heat Transfer by Conduction, Convection and Radiation

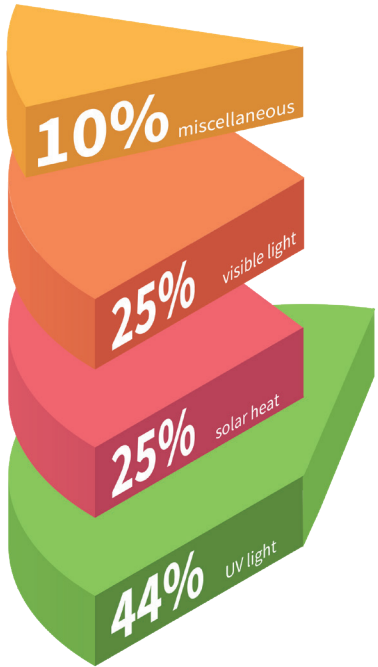


### 4.0

#### UV Rays - Fading.

**It is generally accepted that UV Radiation can be responsible for approximately 40% of all fading.**

Fading is a complex issue because each and every material has a different propensity to degrade from exposure to ultra violet radiation, solar heat, visible light and other contributory factors. For example, wood is extremely vulnerable to fading from sunlight (both visible and invisible light affect fading). Different types of hardwood floors have varying tolerance levels to fading from exposure to sunlight.



**In addition to ultra violet radiation, other factors that cause fading include:**

- Solar Heat.
- Indoor artificial lighting.
- Visible light.
- Humidity/Moisture.
- Poor Dye Fastness in the Fabric/Coating.
- Chemical Vapours in the Air.

*Note: It is important to stress that no window film or glazing product will totally prevent or stop fading*  
*\* MISCELLANEOUS – Indoor artificial lighting, humidity and poor dye anchorage*

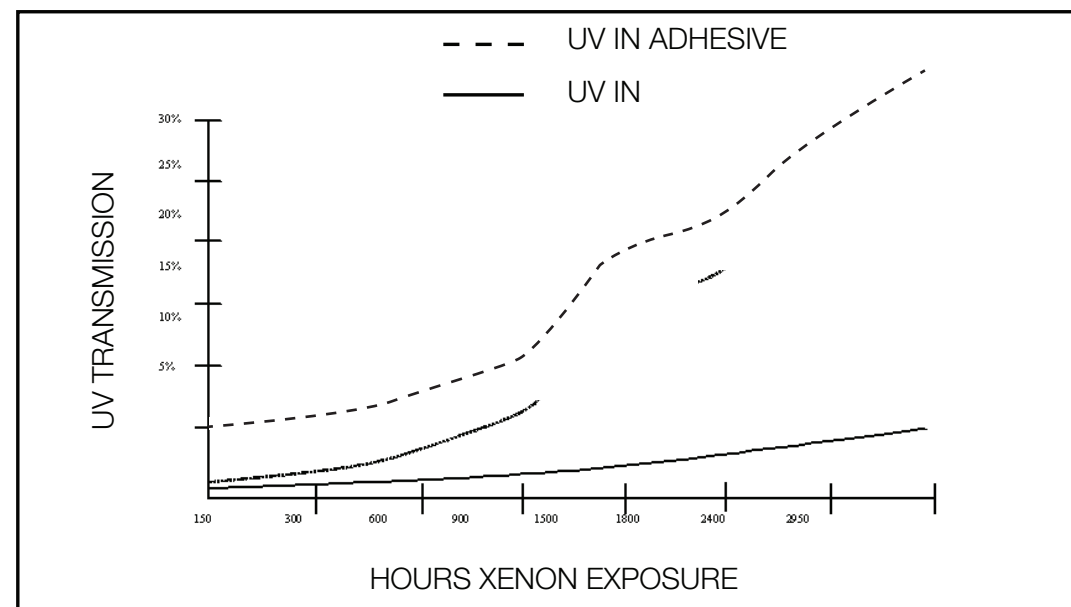
## 4.1

### UV Absorbers and Their Impact on Fading.

1. Ultraviolet light is stopped at the film by the use of ultraviolet absorbers in the film. Absorbers function by absorbing UV energy.
2. All ultraviolet absorbers decrease in effectiveness over time. The type, amount, and location - in the film structure - of the UV absorbers determine the relative stability of these absorbers.
3. Many companies put ultraviolet absorbers into their adhesives instead of the film itself. It has been found that absorbers embedded in adhesives to be much less stable than absorbers embedded in the film.
4. MEP Films embed the film structure with UV absorbers so that the films absorb 99% of all ultraviolet radiation between 280nm and 380nm.

MEP Films accelerated testing indicates films are still rejecting 98% of the ultraviolet radiation after 2000 hours of exposure to xenon accelerated test chamber. This roughly equates to 3-5 years of normal exposure, depending on location.

Similar testing has shown that films with absorbers only in the adhesive absorb between 96% and 98% of the radiation at installation and have dropped to as little as 93% after only 900 hours of the exposure. After several years of exposure, there is very little ultraviolet protection left in these films. MEP Films film products, will still be protecting against UV energy, long after other products have lost their ability to screen UV.



### UV Absorbers and Their Impact on Fading.

5. Films do not eliminate fading – they reduce fading. Fading is only eliminated in a cool, dry, totally dark environment.
6. Most experts agree that the same amount of damage will be produced whether by high radiant light over a short period or a weak light over a longer period. Installing film alters the time it takes for the damage to occur.
7. Certain fabrics and colours (dyes) are more susceptible to damage than others. Fade rates vary from item to item.
8. Some fabrics and chemical dyes may be more susceptible to fading at wavelengths of light than others.
9. Ultraviolet light, visible light, and heat are all significant contributors to fade. The most effective installation decreases all three of these elements.
10. Museum Curators are generally much more knowledgeable about their needs than the average home owner.
11. Museums are willing to exist in a much darker environment than the average individual, to protect their items, including the installation of special absorbing films for screening ultraviolet radiation from light fixtures.
12. Papers, inks, natural plant dyes, and natural fibers are much more susceptible to fading and chemical breakdown than synthetics.
13. Standard interior lighting can fade papers, inks and fabrics due to emitted ultraviolet radiation.

*\* A nanometer is a measurement of a wavelength. 1 nanometer = 1 billionth of a metre*

## 4.2

### UV Protection Factor.

Skin that is subject to continuous or extensive exposure to sunlight can develop premature aging as well as skin cancer.

Ultraviolet light in the Window Film and Glass Industry is measured between 300-380nm\*

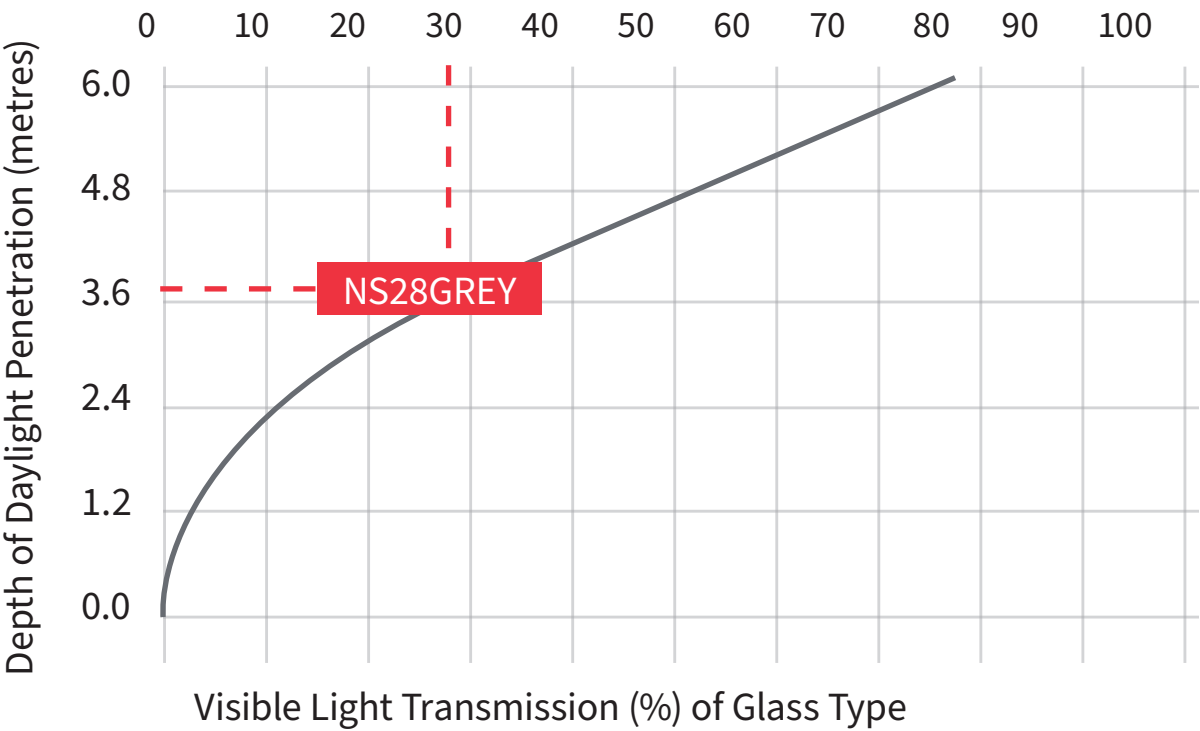
Under the grouping of Ultraviolet, there are three distinct rays, these are:

- UV-A (315-400nm) which cause skin to tan.
- UV-B (280-315nm) which cause skin to burn.
- UV-C (100-280nm) which is absorbed by the ozone layer before reaching the earth's surface.

Current investigation surrounds UV-A rays which are now suspected of causing more skin problems than previously thought. More glass in modern vehicles combined with more hours spent in those vehicles increase the potential dangers.

## 5.0

### Glass Light Transimission & Daylight Penetration.



The graph indicates that NS28G applied to clear glass allows an occupant a distance of almost 3.6 metres from the source of light before artificial lighting is required to maintain the 'lighting' level prior to the application of NS28G.

\* nm is the abbreviation for 'nanometre' which is the term used to describe a 'billionth of a metre'.

\*The example above is approximate and may vary under different conditions and individuals circumstances.

# 5.1

## Glare Guide.

- Glare is light.
- Glare affects different people in different ways and is therefore very difficult to quantify, non scientifically.
- Glare can be calculated using the following formula

$$\frac{\text{VLT}^* \text{ OF GLASS} - (\text{VLT}^* \text{ OF GLASS AND FILM}) \times 100}{\text{VLT}^* \text{ OF GLASS}}$$

If the VLT\* of the glass was 88% and the VLT of the glass and film was 35%, the glare reduction would be as follows

$$\frac{88\% - 35\% \times 100}{88\%} = 60\%$$

In recent years glare has become a major concern to computer operators. Films like NS10 Grey, R15 Grey and V14 Sky Blue provide an excellent reduction of glare.

\*VLT = Visible Light Transmission.

# 6.0

## Visual Acuity.

- Visual Acuity is the level of ability of the human eye to see under various lighting circumstances.
- This ability to see is affected by the response of the eye to various light levels.
- Film on glass for example may reduce the visible light transmission by 70%(mechanically), however, the ability of the eye to see may have been reduced by only about 7%.
- Visual Acuity requires a detailed explanation, if customers have concerns about too much natural light being cut out by the film. A Visual Acuity Graph is on the following page and should be used to ensure customers understand the real impact.  
Note: The Visual Acuity Graph is a guide and the data derived by using the graph should not be misrepresented.
- The Visual Acuity impact is the same for Auto, Residential & Commercial films.

Example:

PRODUCT CODE	Combined Film/Glass (VLT) (Mechanical Reading)	% of estimated Customer Seeing Ability (using Visual Acuity Graph)	% of estimated Loss of Customer Seeing Ability (using Visual Acuity Graph)
NRM.M(3) Black-Out	0	0	100
R15 Grey	7	80	20
V14 Sky Blue	12	87	13
NS18 Grey	16	87	13
R20 Silver	15	88	12
N1020 Neutral	24	90	10
NS28 Grey	27	93	7
V28 Sky Blue	27	93	7
N1035 Neutral	37	94	6
N1050 Neutral	48	96	4

# 6.1

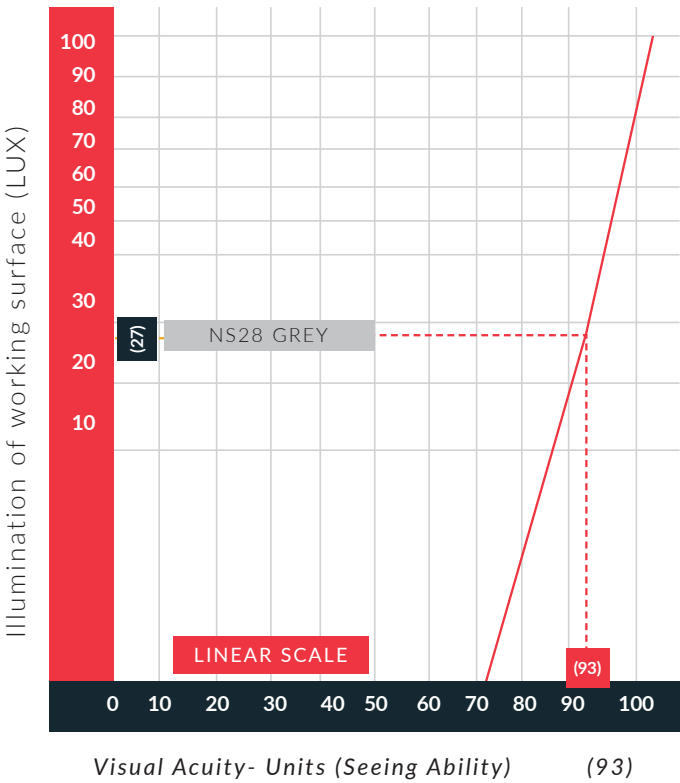
## Visual Acuity Graph - A Guide.

Visual Acuity is the level of ability of the human eye to see under various lighting circumstances.

This ability to see is affected by the response of the eye to various light levels. Film on glass for example may reduce the visible light transmission by 70%, however, the ability of the eye to see may have been reduced by only about 7%.

Visual Acuity requires a detailed explanation, if your customer is concerned about too much natural light being cut out by the film. A Visual Acuity graph is on the following page and should be used to ensure your customers understand the real impact.

The Visual Acuity impact is the same for Auto, Residential & Commercial films.



### GRAPH EXAMPLE:

Visual Acuity (Seeing Ability) is affected by the eye's logarithmic response to light.

On assumption that 100 LUX on working surface through a sheet of clear glass represents 100% lighting with 100 units of Visual Acuity, the SP56LIR/SHADOW/AS12 will give 27% lighting with approximately 93% units of Visual Acuity. Reduction is therefore only 7%.

*NOTE: The example is approximate, and may vary under different conditions and individual's circumstances.*

*Graph adapted from research quotes by R.G. Hopkinson in "Architectural Physics: Lighting."*

# 7.0

## Glass Types Residential & Commercial.

Note : If in doubt, call the local MEP Films Representative.

### Float Glass (Standard Glass)

Sometimes referred to as annealed, plate or sheet glass. Used widely in both homes and commercial buildings.

\* Most films can be used on this glass type. Glass thicker than 6mm and larger than 9m<sup>2</sup>, will need a thermal stress analysis.

### Laminated Glass

Two or more sheets of glass bonded together by means of a plastic inter-layer of polyvinyl/butyl (PVB). Either glass or plastic inter-layer may be clear or tinted. Laminated glass is used as a safety glazing in doors and areas adjacent to doors. It is also used as a security glazing, and in certain applications can be used, as an acoustic insulation.

\*Only Specific films only may be used on this glass type

### Factory Tinted Glass

Often referred to as heat absorbing glass or as body tinted glass. This is made by colouring clear float glass at the manufacturing stage. There are for main colours – Grey/Bronze/Green/Blue. This glass is fitted to architectural designed buildings and up-market homes.

\*Only specific films may be used on this glass type.

### Toughened Safety Glass

Available in both clear and tinted forms. Toughened glass is gaining in popularity in the residential market, and is used in high people traffic areas, such as glass doors and foyer areas of commercial buildings. Toughened glass when broken smashes into popcorn size glass particles preventing/reducing human injury. Because of this feature it is often referred to as safety glass. It is widely used on all motor vehicles, passenger trains and boats. Toughened glass has approximately 4 times the strength of annealed/float glass. This glass type is prone to the 'nickel sulphide' problem.

\*Most films may be used on this glass type.

### Heat Strengthened Glass

This glass is produced in the same manner as Toughened Safety glass except that the cooling process is slower. Heat strengthened glass is two times stronger than annealed float glass, and has more resistance to heat fracture and wind loading. It's not a safety glass as when it breaks it fragments into larger pieces which could cause injury.

\*Most films may be used on this glass type.



#### **Chemically Toughened Glass**

Produced by dipping the glass in a molten salt bath process. Optically the equivalent to float Glass with the equivalent strength to Heat Strengthened Glass.

#### **Reflective Coated Glass**

This glass is made in float, laminated, heat strengthened chemically toughened, or toughened glass. Colours & coatings as well as constructions can be tailored to suit a specific project. Because of its higher cost it is usually always found on commercial buildings and up-market homes.

\*Only specified films may be fitted to this glass type.

#### **Low-E Coated Glass**

Can be manufactured in annealed or toughened glass. This glass type works most efficiently in double glazed units (insulated glass units). Low-E is a metalised coating applied to the glass to reduce heat transfer (heat loss) in warmer and colder climates, whilst maintaining high visible light transmissions

\*Films should not be applied directly over the Low-E Coating.

#### **Acrylic/Polycarbonate Sheeting**

Marketed under many brands it is essentially a plastic sheeting and because these products continue to give ‘out-gas’ over a long period of time that can cause the bubbling of the film. Furthermore, if exposed to the sun these products can expand up to 7 times more than glass which causes the mounting adhesive to be subjected to great stress. This product is widely used in skylights, commercial domes and boats etc.

\*Films are not recommended nor warranted for usage on the Acrylic/Polycarbonate sheeting.

#### **Decorative Glass**

Usually referred to as patterned or rolled float glass with a rough surface on one or both sides. Often found in bathroom, toilet and glass enclosed patios.

\*Specific films may be fitted to the smooth side – at times this may involve the glass being turned around, or alternatively, having an external film fitted.

#### **Double Glazed Units (Insulated Glass Units - IGU's)**

Usually referred to as thermopane or IGU'S – insulating glass units. This is a system, which incorporates two or more panes of glass separated by an airspace that can be airtight or filled with a special gas, typically Argon. These units can consist of clear, tinted, toughened and laminated combinations of glass depending on the design parameters including having a Low-E coating to one or more of the glass surfaces. These units are installed to prevent “heat loss” in colder climates and to provide acoustic installation.

\*Only specified films may be used on these units.

## **7.1**

### **Glass Identification - Type & Thickness.**

#### **Glass Identification.**

The best method to determine the identification of a glass type and it's thickness, is by using a gauge such as a Merlin (brand) meter.

#### **Glass Type.**

##### **Float Glass**

A visual examination will determine if glass is clear or factory tinted or reflective. To determine a very light factory tint, slide one pane slightly over the other and view through both panes and compare with the single pane. A difference will indicate tinted glass. If the glass is fixed, place a sheet of white paper on the outside of the pane, this will show any tint in the pane. Factory reflective glass is usually very distinctive with a low to a high mirror coloured exterior.

##### **Heat Strengthened and Toughened Glass**

Both heat strengthened and toughened glass carry ceramic type stamps to identify the glass. In some cases, Polaroid sunglasses will show the stress marks (manufacturing process) in these types of panes.

##### **Laminated Glass**

Clear float glass and clear float laminated glass are difficult to identify by visual observation.

On some commercial installations clear laminated glass is also stamped with a ceramic marking. Recent changes within the glazing industry will result in more laminated glass being identified by STICK ON decals. This will be of assistance, however, tinters must be aware that these stick on type decals can be easily removed by the building owner once building inspection has been completed. One way to help identify laminated glass is to tap the glass with a 20 cent coin. A dull flat sound indicates laminated glass where as a high ring sound will indicate clear float, toughened or heat strengthened. This method requires a lot of experience by the installer.

##### **Acrylic/Polycarbonate**

Both clear and tinted panes can be identified by a dull sound when tapped. It also has a waxy feel and will bend when pushed on. As a last resort if still unsure find an inconspicuous area and using a trimming knife attempt to score the surface – ensure owner permission is given prior to this process.

# 7.1

## Glass Identification - Type & Thickness Cont.

### Glass Thickness.

The best method of determining glass thickness is to use a ‘glass thickness’ gauge such as a Merlin (brand) meter.

An alternative, if no meter is available is to use a glass thickness card/ruler to measure the thickness of the glass. The use of a 20 cent coin tapped gently on clear float glass will also give some indication - a high ring indicates thin 3 mm to 4 mm glass whereas a duller ring will usually indicate thicker glass. However, this will vary according to the type of glazing installation and the pane size, eg a small pane of 4mm clear annealed glass may give a duller sound compared to a much larger pane.

- Standard clear float glass thickness are: 3, 4, 5, 6, 10 & 12 mm.
- Standard laminated glass thickness are: 6.38, 8.38 & 10.38 mm.
- Standard factory tinted glass thickness are: 3, 4, 5, 6, 10 & 12 mm.
- Factory reflective glass thicknesses are: 6 mm.
- Heat strengthened/toughened glass can be made in any of the clear float glass sizes.
- Standard doubled glazed units are: 4mm +12mm airspace + 4mm, 6mm +12mm airspace + 6mm.

WARNING: The above ‘tap’ tests work for straight forward glazing installations, however, unusual installations will require the glass details from the glazing contractor in order to make a recommendation. It is recommended that salespersons/installers practise the ‘tap’ tests on known glass samples, so as to become proficient at identifying glass – or better still, by the correct Merlin gauges or similar.

# 7.2

## Glass Performance - Residential & Commercial.

		Heat Rejected	Ultra-Violet Rejected	Visual Light Transmittance (VLT)
		%	%	%
Clear Float	3mm	12	30	90
Clear Float	4mm	14	30	89
Clear Float	6mm	18	35	88
Clear Float Laminate	6.38mm	20	96	87
Clear Float Laminate	8.38mm	22	97	84
Clear Float Laminate	10.38mm	25	97	82
Clear Heat Strengthened	6mm	18	35	88
Clear Toughened	6mm	18	35	88
Grey Factory Tinted Float	4mm	32	65	55
Grey Factory Tinted Float	5mm	36	70	48
Grey Factory Tinted Float	6mm	39	75	43

Special Note:  
There are several grades of factory tinted glass and there are numerous combinations of tinted laminated/tinted toughened/tinted reflective coated glass. Each with differing solar performance data. If in doubt contact a reputable glass merchant for assistance in determining accurate performance details.

## 7.3

### Thermal Stress.

- The ability of glass to resist thermal stress breakage is determined by the edge strength of the glass.
- Thermal stress is caused when the temperature difference between the centre and the edge of the glass pane becomes greater than the edge strength of the glass.
- Glass Breakage by thermal stress is most often caused by edge damage done to the glass pane during cutting, handling, transportation and installation by the glazing contractor. A poor glass edge reduces the overall strength of the pane.

### Situations which require careful examination prior to film recommendation / application.

1. Clear float glass thicker than 6.0 mm.
2. Tinted float glass thicker than 6.0 mm.
3. Clear float glass (single pane) larger than 4.6 sq. metres.
4. Tinted float glass (single pane) larger than 4.6 sq. metres.
5. Double glazed clear flat glass larger than 3.7 sq. metres.
6. Double glazed tinted flat glass larger than 2.8 sq. metres.
7. Laminated Glass.
8. Direction of shading on glass.
9. External shading from awnings, buildings, columns, pillars, tress, etc - Current & potential in the future.
10. Colours of glass framing.
11. Partial shading (internal) from painted signs/labels on glass, tight fitting blinds, air-conditioning vents, window framing systems of concrete, solid aluminum, or solid steel, pocket ceilings.
12. Glass where sealant or glazing compound has hardened.
13. Visibly brittle, chipped cracked or otherwise damaged glass.
14. Building with more than 1% previous glass breakage over the last 2 years.
15. Reflective, wired, textured or patterned glass.
16. Windows where frame is damaged.
17. Applications of more than one tinted or reflective film to glass.
18. Partial applications of film to glass.
19. Building orientation.
20. Low E coating on existing glass.

## 7.4

### Film-To-Glass Guide - To Be Used In Conjunction With 'Thermal Stress' Examination Requirements.

Due to weather variations this guide is divided into two distinct sections. Select the location that suits the particular area before proceeding.

Because of the many variations between glass, shading, blinds, frame, colour, aspect, etc, it is not possible to provide a simple 'yes' or 'no' answer to every situation within this technical handbook.

The situations listed on the following pages are for Standard Form meaning that the frames are Light Coloured, there is less than 20mm in the overhang and less than 20mm mullion (frame set back with no shadow cast from any other source).

Special Note:

Several films marked 'X' (not recommended) may in fact be safe to use (from causing glass fracture) provided the glass is installed in DARK COLOURED frames. (Dark coloured frames offer a better margin of safety from thermal stress fracture than light coloured frames).

Contact the MEP Films Representative for verification.

### Assumptions (in the film to glass guide)

1. All glass to which film is to be fitted has been glazed in accordance with:
  - Australia – AS1288-2006 Glass in Buildings
  - New Zealand – NZS 4223 Glazing in Buildings Part 1 & 2 – 1985 Part 3-1993
2. Vertical external glass.
3. Clean cut edges.
4. No shading on glass from overhead or sides.
5. Double or triple glazed units, often referred to as Insulated Glass Units (I.G.U's) should be referred to the MEP Films Representative for evaluation.
6. Annealed glass is referred to as float glass.
7. Light coloured frames include:
  - Anodised Aluminium
  - White
  - Light green
  - Primrose
  - Cream
  - Light Grey

## Edge Stress Analysis Report

For difficult glazing situations contact the MEP Films Representative for further details. Specific and detailed information is required.

## Disclaimer

Due to the many varied types of glass constructions and widely different glazing practices/ installations (many not always done by qualified glaziers) it is impossible to cover every situation. Consequently, the recommendations have been produced from engineering computer programs and MUST ONLY BE TAKEN AS A GUIDE. Any glass breakage resulting from the use of these recommendations shall not constitute a warranty, nor be considered the responsibility of Martin Energy Products (Australia) Pty Ltd or Martin Energy Products (NZ) Limited.

Important note: The Film-to-Glass guide is just that. a **Guide**.

## Film to Glass Guide.

- Residential and Commercial.
- Location: Brisbane, Darwin, Sydney, Melbourne, Hobart, Perth, Auckland, Wellington, Christchurch.

	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (G Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
SOLAR											
R 15 G	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
R 20 S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
R 35 S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1020	✓	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗
N 1020 B	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✗
N 1035	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
N 1035 B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1050	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1065	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	= Safe in "Standard Form" and when used with a thermal stress analysis										
✗	= Not Recommended in "Standard Form"										



Film to Glass Guide.

- Residential and Commercial.
- Location: Brisbane, Darwin, Sydney, Melbourne, Hobart, Perth, Auckland, Wellington, Christchurch

	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (IG Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
SOLAR											
NS10	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
NS18	✓	✗	✗	✓	✗	✗	✓	✓	✓	✗	✓
NS28	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓
V14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
V28	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
V38	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
✓	= Safe in "Standard Form" and when used with a thermal stress analysis										
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Film to Glass Guide.

- Residential and Commercial.
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	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (IG Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
DECORATIVE FILM											
NRM (2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NRM M (3)	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
NRM W (3)	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
EXTERNAL FILM											
RHE (20)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SAFETY/SECURITY FILM											
SCL SR (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL SR (7)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL SR (8)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL (13)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSI (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
N 1035 (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
N 1050 (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1050 (8)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	= Safe in "Standard Form" and when used with a thermal stress analysis										
✗	= Not Recommended in "Standard Form"										

Film to Glass Guide.

- Residential and Commercial.
- Location: Canberra and Adelaide.

	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (IG Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
SOLAR											
R 15 G	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
R 20 S	✓	✓	✗	✗	✓	✗	✓	✓	✗	✗	✗
R 35 S	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✗
N 1020	✓	✗	✗	✗	✗	✗	✓	✓	✓	✗	✓
N 1020 B	✓	✓	✗	✗	✗	✗	✓	✓	✓	✗	✓
N 1035	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✓
N 1035 B	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✓
N 1050	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1065	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓ = Safe in "Standard Form" and when used with a thermal stress analysis ✗ = Not Recommended in "Standard Form"											

Film to Glass Guide.

- Residential and Commercial.
- Location: Canberra and Adelaide.

	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (IG Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
SOLAR											
NS10	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
NS18	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
NS28	✓	✗	✗	✗	✓	✗	✓	✓	✓	✗	✓
V14	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✗
V28	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✓
V38	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓
✓ = Safe in "Standard Form" and when used with a thermal stress analysis ✗ = Not Recommended in "Standard Form"											

Film to Glass Guide.

- Residential and Commercial.
- Location: Canberra and Adelaide.

	Clear Float up to 6mm - Less than 4.6 Sq. metres	Clear Float up to 6mm - Dual Pane (IG Units)	Factory Body Tint Grey Float up to 6mm - Thick - Less than 4.6Sq Metres VLT 43%	Factory Body Tint Bronze Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 51%	Factory Body Tint Green Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 78%	Factory Body Tint Blue Float up to 6mm - Thick - Less than 4.6 Sq Metres VLT 56%	Toughened Clear & Body Tinted	Heat Strengthened Clear & Body Tinted	Clear Float Laminated up to 6.38mm Thick - Less than 4.6 Sq Metres	Factory Body Tint Laminated Solar Grey VLT 44% & Solar Bronze VLT 53% up to 6.38mm thick - Less than 3.7 Sq metres	Factory Body Tint Laminated Solar Blue VLT 58% & Solar Green VLT 73% up to 6.38mm thick - Less than 3.7 Sq Metres
PRODUCT CODE	1	2	3	4	5	6	7	8	9	10	11
DECORATIVE FILM											
NRM (2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NRM M (3)	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
NRM W (3)	✓	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
EXTERNAL FILM											
RHE (20)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SAFETY/SECURITY FILM											
SCL SR (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL SR (7)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL SR (8)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCL (13)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSI (4)	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✗
N 1035 (4)	✓	✓	✗	✗	✓	✗	✓	✓	✓	✗	✓
N 1050 (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N 1050 (8)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓ = Safe in "Standard Form" and when used with a thermal stress analysis ✗ = Not Recommended in "Standard Form"											

8.0  
Glass Types Automotive.

All automotive glass must meet the safety code and therefore must be either laminated or toughened. The following glass types are the most common types used in automotive applications:

- Clear Toughened
- Factory Tinted Toughened (Green/Bronze/Blue/Grey)
- Clear Laminated
- Factory Tinted Laminated
- Factory Metal Coated Reflective Toughened

Present day automobile manufacture normally uses glass in the following locations on an automobile,

Front Screens

Laminated Factory Tinted 75% VLT with optional graduated tinted visor strip.

Laminated Clear 88% VLT with optional graduated tinted visor strip.

Side Glass

Clear toughened or factory tinted toughened glass with a VLT range of 70 – 88% VLT.

Rear Screen

Clear toughened or factory tinted toughened glass with a VLT range of 70-88%.

Tinted laminated rear screens are found on some imported vehicles such as top of the range Mercedes.

Note: Many imported vehicles have privacy glass from the ‘B’ pillar rearwards. This glass type has no restriction on VLT.

# 8.1

## Glass Performance - Automotive.

		Heat Rejected	Ultra-Violet Rejected	Visual Light Transmittance (VLT)
		%	%	%
Clear Auto Toughened	4mm	18	35	88
Tinted Auto Toughened (Dark Green)	4mm	34	65	78
Clear Laminated Glass	4.38mm	20	96	88
Tinted Laminated Glass	4.38mm	24	99	75

# 9.0

## Scratch Resistant (SR) Coating.

- The scratch resistant coating is applied to the facing side of the film to protect it against damage.
- The tough scratch-resistant coating is formed using patented acrylics and, cured by ‘ultra violet light’.
- The scratch resistant coating protects against abrasion during installation, normal wear and tear and cleaning throughout the normal life span of the product.
- Abrasion tested to ASTM D1044.

Performance Films SR coating is a “patented product process” developed in 1984.

- NEW generation external films have a specially designed ‘SR’ Coating whilst other external films such as RHE and NHE product range have a Helios Coating.



## 10.0

### Adhesives.

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#### Solar Films

##### CDF Adhesive (Clear and Distortion Free)

- Is LLumar Performance Films patented dry adhesive system, which forms a chemical bond between film and glass.
- Allows for easier and quicker installation. Squeegeeing is easier as less water or slip solution remains between the film and glass.
- Is thinner than PS type adhesives and as a result provides perfectly clear distortion free vision.
- Has less static and 'stickiness' during installation resulting in less dust and fibres under film.
- There have been no recorded failures of CDF adhesive since its introduction in 1975.
- More than 200 million square metres of films has been installed worldwide incorporating the CDF adhesive system.

#### Safety / Security Films

##### PS Adhesive (Pressure Sensitive)

- Pressure Sensitive adhesives are designed to provide a high strength bond to the glass. This adhesive system is also patented by LLumar Performance Films.
- Matte & Decorative films (including vinyl films) use Pressure Sensitive adhesives which allow tinters a workability factor when cutting in designs by hand or computer cutting, leaving flat edges.

#### Automotive Films

##### HPR Adhesive (High Performance Resin)

- Is LLumar Performance Films patented adhesive system used on all automotive films.
- More than 25 million cars have been tinted worldwide with films incorporating HPR adhesive.
- Designed to bond over ceramic 'micro-dots' on auto glass.
- Suitable for use with the 'heat shrinkage' process.

## 11.0

### Flat Glass Application Solutions & Special Installation Instructions.

---

#### Flat Glass Film with C.D.F. Adhesive

- Cleaning Slip-Eez with X-100 (A100) is the recommended process for all glass types.
- Slip Solution
  - a. Slip-Eez with X-100 (A100) is recommended for all CDF adhesive films with the exception of Bronze "N" Series and 'Low E' film types.
  - b. For Bronze 'N' series and 'Low E' film types, either Film-On (A101) or Slip G (A103) should be used to provide quick drying and prevent electrolysis.

#### Flat Glass Film with Pressure Sensitive Adhesive

- Cleaning Slip-Eez with X-100 (A100) is the recommended process for all glass types.
- Slip Solution Film-On (A101) is recommended OR Slip-G (A103) can be used provided quick drying is NOT a problem.

#### Installation Instruction for N1020B and N1035B

Due to the properties and metals used in these films, it is mandatory that the following instructions be strictly adhered to.

Failure to comply will result in NO WARRANTY for either FILM or LABOUR.

1. Use a maximum of 5ml "Film-On" (A101) to 1 litre of de-ionised water for the slip solution.
2. ONLY de-ionised water to be used with these films in the slip solution.
3. Tap water should only be used with - if necessary - the cleaning solution used during the window cleaning/squeegeeing process.
4. Slip-Eez with X-100 (A100) solution is NOT to be used with these films.
5. After cleaning the glass, apply the pre-mixed solution of 'Film-On' (A101) with de-ionised water onto the glass. Ensure sufficient, mounting solution is applied to glass if the 'flick' method is used for film installation.

6. Use a 150mm Squeegee (T100) with a T113 Squeegee blade with clean, sharp, unmarked edge to squeegee the maximum amount of water from under the film. On the final squeeze pass, ensure each squeegee pass overlaps the previous pass by at least 50% and always:
  - a. POWER SQUEEGEE ON FINAL PASS
  - b. DO NOT PULL – ALWAYS PUSH
7. Trim blades must be sharp so film edges are cut clean and smooth to allow film edges to lie flat on the glass without puckering. DO NOT USE RUSTY TRIM BLADES it is recommended that only use stainless steel blades are used.

There must be a minimum of 0.5 mm gap between film edge and window frame.

## Edge Sealing Film - (Both Internally And Externally)

- When installing external films such as external product range (RHE/NHE) the edges must be sealed with either Dow Corning 795 or Dow Corning 995 Structural Silicone.
- Both silicones are available in black or white colours.
- When installing films such as the safety/security series films where added protection is required against wind-borne debris, spontaneous glass failure (nickel sulphide) and forced entry, the film edges are to be sealed with Dow Corning 995 structural silicone.
- Refer to the 'Edge Grip™' bulletin in the MEP Films Extranet website.
- When installing security films for blast mitigation purposes contact [info@mepfilms.com.au](mailto:info@mepfilms.com.au) for further information.

**Note:** The Dow Corning silicones mentioned are the only tested and recommended silicones for use on MEP Films (polyester) films.

**DO NOT SUBSTITUTE OTHER SILICONE SEALANTS - if unsure, contact the local MEP Films Sales Representative for guidance.**

**Special Note:** Internally applied film to glass that will be exposed to the outside atmosphere such as hopper windows, louvre windows and awning windows will not be covered under the current warranty conditions/obligations.

## 12.0

### Automotive Application Solutions.

#### Cleaning

- Slip-Eez with X-100 (A100) is recommended for all glass cleaning.
- On certain glass types it may be necessary to use Slip-Eez with X100 undiluted to cleanse the glass of stubborn contamination and to get the ceramic 'micro dot' area clean.
- NOTE: film must be applied within 15 minutes of cleaning the ceramic 'micro dot' area, otherwise oily contaminants may reform, and cause a lifting problem at a later date.

#### Slip Solution

- Film-On (A101) is recommended OR slip G (A103) can be used provided quick drying is NOT a problem.

#### Water Quality

- There is no consistent standard of tap water throughout the country, all manufacturers recommend using either de-ionised or distilled water. Tinters must assure themselves that the water used with any of the recommended Slip Solutions is free from chemicals as well as sediment particles
- If in doubt contact the local MEP Films representative for guidance.

**Note:** Water bottles/spray systems/spray nozzles must be cleaned at least weekly to ensure contaminants/bacteria are removed and prevented from being applied between the glass and film, causing long term problems with the mounting adhesives.

## 13.0

### Flammability Tests.

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Three different MEP film types were tested and received a “Class A” fire rating following testing under “Standard Test method For Surface Burning Characteristics of Building Materials”. The three films tested, covered two adhesive types and two metal coating types. The results, therefore can be translated to all the relevant film types.

These films are:

- N 1035 SR CDF
- R 20 Silver SR CDF
- SCL SR PS4

The test performed is known as ASTM E 84 and it evaluates both the flammability and smoke generated when mounted film is exposed to an open flame.

Depending on how fast the material burns and the levels of smoke released, a material gets either a class A, B, or C rating. The MEP Films not only received an ‘A’ Rating, but they tested at the very top of the ‘A’ category.

Customers may be assured that when MEP Films are installed they do not contribute to the fire hazard of a building.

## 14.0

### Indoor Plants.

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- According to landscape horticulturist Dr Robert E. Moon of the Agricultural Extension Service, Texas A&M University, the lack of ultraviolet rays does not in anyway affect the natural growth of either desert or tropical plants.
- The only light rays that plants require for natural growth are far reds, red and blues, and these colours are not part of the ultraviolet spectrum.
- Most tropical plants or dark green plants, require less light and heat than they now receive.
- Variegated plants, or light green plants, require more light than plants that are darker green.

If a customer’s main concern is for plant life, choose V28 with a 28% Visible Light Transmission (VLT) instead of R15G with only 8% Visible Light Transmission (VLT) or with a N1050 with a 50% Visible Light Transmission (VLT).

## 15.0

### AS/NZS 2208 Human Impact Considerations Compliance.

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- Australian Standard AS/NZS 2208 is the recognised Australian and New Zealand Standard for testing glass and associated products (such as film and other organic coatings) to determine if these products protect people from injury in the event of impact with glass. This is commonly referred to as the Human Impact Standard. Products that meet this stringent standard are referred to as complying with Australian and New Zealand Safety Glazing Requirements, AS/NZS 2208.
- AS/NZS 2208 is a test standard performed on glass by creating an impact on the glass surface using a swinging 46kg (100lb) bag to simulate human impact. After impact when the glass is broken, the glass fracture must be small enough to minimise the likelihood of injuries.
- All of MEP Films Safety and Security films have been manufactured to comply with the AS/NZS 2208 standard, even when applied to 3mm thick glass.

Australian Standard AS1288 – 2006 Glass in Building Standards and New Zealand Standard NZS 4223 Glazing in Buildings Part 1 & 2 – 1985, Part 3 – 1993, directs glaziers as to where safety glazing is to be used in a building.

**Note:** The Human Impact Standard AS/NZS 2208 is not a security standard.

## 16.0

### Film Care And Maintenance.

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- Upon application of film when viewing through the film/glass combination either from the inside or the outside, it may be noticed that a dimpled or textured appearance and milky or cloudy spots are apparent. This is common and is a normal part of the drying process, especially with sputtered metal films.
- The cloudiness will slowly diminish with time and within two to eight weeks should vanish entirely, depending on the type of film product used, outside temperature, weather conditions and humidity.

### Cleaning

- To prevent voiding the warranty it is recommended that MEP Films “Window Tint Cleaner & Protector” (A105S) be used for the cleaning of film surfaces with the exception of external (RHE/NHE) films.

### RHE/NHE Cleaning Instructions

- External (RHE/NHE) films utilises a protective weatherable layer that is designed to withstand exterior weathering and sheds dirt. In most cases the windows should only require an occasional hose with water and a mild household detergent. Spray the window pane to be cleaned thoroughly with a water/detergent mix. Then spray/rinse with clear water. Let the window pane treated with RK20 to air dry. DO NOT SQUEEGEE OR WIPE DRY.
- DO NOT WASH EXTERNAL (RHE/NHE) FILMS WITH BRUSHES AND/OR SQUEEGEES.



# 17.0

## Warranty - Claim Procedure.

Contact the local MEP Films office PRIOR to undertaking any warranty work, to obtain approval to proceed.

The Claim procedure requires the following details:

1. A4 size sample of failed/faulty film
2. Complete form 8A which requires:
  - a. Full customer details (including phone numbers)
  - b. Installation address
  - c. Description of problem
  - d. Quantity of failed/faulty film
  - e. Date job was originally installed and by whom
  - f. Name of product type and lot number
  - g. Replacement date
  - h. ABN number
3. Copy of warranty or with respect to automotive claim, the warranty slip completed and signed by customer.

**Note:** Warranty claims for illegal (dark) installed films will not be accepted.

The above information should be sent to the local MEP Films office.

- Eligible reimbursements will be issued within 30 days of receipt of above information.
- Warranties are valid to the original purchaser so long as they retain ownership of the premises/ vehicle during the applicable warranty period.
- Customer must sign and endorse any copy of an original document to verify that it is a rue copy.

### Special note:

In the event of lost warranties it will be necessary to obtain additional documentation prior to agreeing to do any work. Contact the local MEP Films representative for guidance.

### Film Roll Faults

Please contact the local MEP Films office for instructions. Do not return any goods until instructed to do so, by the local MEP Films office.

# 17.1

## Warranty Claim Report (Form 8A).

(To be completed by MEP Customer for each Warranty Claim)

<b>1) MEP CUSTOMER DETAILS (TINTER)</b>		<b>Debtor Code.....</b>
		<b>Claim No.....</b>
Trading Name: .....		
Contact Name: .....		
Telephone: (W) ..... (M) ..... (H) .....		

<b>2) CUSTOMER DETAILS (End User)</b>	
Name: .....	
Address: .....	
Telephone: (W) ..... (M) ..... (H) .....	
Purchase Order No.: .....	

<b>3) PRODUCT DETAILS</b>	
MEP Product Code: .....	
Lot No. or Serial No.: .....	
Total Area Claimed: .....	
Other Details: .....	

<b>4) WARRANTY CLAIM / CUSTOMER COMPLAINT DETAILS</b>	
Date Original Product Fitted: ..... Date Product Refitted: .....	
Description of Claim / Complaint: .....	
.....	
.....	
.....	
Location of Claim / Complaint: .....	
.....	
.....	

<b>5) VEHICLE DETAILS (If applicable)</b>	
Make / Model: .....	
Registration / VIN No: .....	
Warranty No.: .....	

<b>6) TINTER'S VERIFICATION SIGNATURE</b>	
I acknowledge that the above information is true and correct.	
Signed: .....	Date: .....
(Print Name)	

## 17.2

### What Needs To Be Attached To A Form 8A.

#### WHAT NEEDS TO BE ATTACHED TO A FORM 8A WARRANTY CLAIM REPORT

##### When Fault is Found After Installation

- Step 1. **Evidence of Warranty**  
Copy of Original Warranty **OR** MEP copy of Original Invoice **OR** copy of Original Purchase Verification Statement **OR** Purchase Order must be stapled to a FORM 8A. **Customer (end user) should sign any copy of an original document to verify that it is a true copy.**
- Step 2. **The Rework Invoice (items)**  
This Invoice or any document of release / delivery, must be signed by the customer to verify what warranty work has been done and must be stapled to a FORM 8A.
- Step 3. **Faulty Product**  
  
To enable the fault to be identified, an A4 sized piece of faulty product must be attached to the MEP Form 8A – Warranty Claim Report.

##### When Fault is Found Prior to or During Installation

- Step 1. **Evidence of Purchase**  
Do not use the faulty product. Contact the MEP Representative who will verify and request the return of the faulty product. Tinter must provide details of the product purchase.
- Step 2. **Faulty Product**  
  
A Form 8A – Warranty Claim Report must be raised with the total quantity of failed product entered as specified under the heading “Product Details”.

## 18.0

### Auto Regulations.

State or Territory	VLT Front Wind-Ups	VLT Rear of Driver	VIS Light Reflected
ACT	35%	20%	< 10%
New South Wales	35%	20%	< 10%
Northern Territory	35%	15%	< 10%
Queensland	35%	20%	< 10%
South Australia	35%	20%	< 10%
Tasmania	35%	20%	< 10%
Victoria	35%	20%	< 10%
Western Australia	35%	20%	< 10%
New Zealand	35%	20%	< 10%

- All Visible light transmittance figures are nett film and glass combined.
- Be very careful as more and more car manufacturers are darkening the glass. Some films may be illegal on some vehicles.
- It is illegal to install film outside of State or Territory regulations.
- More information about legal films can be obtained by going onto the relevant Government Transport Websites
- Darker tints are permitted on the rear of approved commercial vehicles in NSW, ACT, WA, Tasmania, and NZ. Check relevant government websites.

**Note:** Warranty claims for illegally installed films will not be accepted by MEP Films and/or LLumar Performance Films.

# Order & Information Hotlines.

## VIC/TAS

13 King Street,  
Blackburn VIC 3130  
Free call: 1800 998 634  
Ph: (03) 8873 4900  
Fax: (03) 9877 5925  
Email: [vicinfo@mep.com.au](mailto:vicinfo@mep.com.au)

## WA/NT

Unit 1, 57 Guthrie Street,  
Osborne Park WA 6017  
Free call: 1800 999 070  
Ph: (08) 9445 0901  
Fax: (08) 9445 0992  
Email: [wainfo@mep.com.au](mailto:wainfo@mep.com.au)

## NEW ZEALAND

24A Tarndale Grove,  
Albany Auckland 0632 NZ  
Free call: 0800 800 501  
Ph: 0011 649 414 4195  
Fax: 0015 649 414 4196  
Email: [nzinfo@mepfilms.co.nz](mailto:nzinfo@mepfilms.co.nz)



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