



How to choose the “right” film for the job?

This short paper attempts to answer that question.

The priorities of most homeowners when choosing a solar control window tinting film for their home is to:

1. **reduce the heat** coming through the windows (and perhaps to save on the cost of air-conditioning)
2. **protect furnishings** against sun damage and fading,
3. **gain privacy** from neighbours, and
4. **reduce glare** (perhaps it is hard to see the TV or computer screen)

Window tinting is a proven technology that has provided a cost effective solution to homeowners for over 50 years. Standard window tinting films provide **the highest heat and glare protection** and are **the lowest cost**. Standard films also block the light and are highly reflective (mirrored).

Many homeowners say they don't want their home to "feel" dark, don't want their windows to look "mirrored" or have very specific requirements, such as “don’t spoil my beautiful view.” Some people make a list of the things they wish to avoid when choosing a window tinting film.

- New “smart” films have now been developed to address these customer concerns about standard window films.

1. A Film to Reduce Heat

Solar energy reaches Earth in the form of visible light, UV and Infrared. (Slightly less than 50% of total solar energy is in the form of visible light). When solar energy strikes a solid object it is converted into heat energy. Yes, visible light also causes heat.

- Window tinting film reduces the heat that enters a room through windows. A film’s heat reducing performance is measured as a percentage of the Total Solar Energy that the film Rejects (TSER).

Standard window tinting films either reflect the solar energy away from the window (eg Mirror Tint) or block the solar energy by shading the window (much like shade cloth).

- Standard window tinting films block (or reflect) all three forms of solar energy in equal part. They do not distinguish between the visible light that we want in our home and the UV and infrared that we want to keep out. This means a standard window tinting film that achieves high heat reduction will also block most of the visible light, and make a home “feel” dark. This is the basis for the myth that only a dark film will block the heat.

Standard window films are a popular choice in commercial buildings because they achieve high heat reduction at relatively low cost, and any loss of natural light is compensated by the use of artificial lighting. However, most homeowners do not want a home that “feels” dark nor do they want to turn on lights during the day and new “smart” films were developed to meet the priorities of homeowners. Rather than blocking the infrared, UV and the visible light equally, Smart Films are designed to block as much of the invisible spectrum as possible (infrared and UV) while blocking only as much visible light as required for comfort.

- Clearly, the more visible light that is blocked, the more heat is also blocked, however, if too much light is blocked it will make the home “feel” dark and uninviting, which most people wish to avoid.
 - By blocking more of the invisible spectrum than standard window tinting films, Smart Films can let in more visible light and still achieve a similar Total Solar Energy Rejected (TSER) as a standard film.

2. A Film to Protect Furnishings

Almost all window tinting films block 99% of the Ultraviolet (UV) to protect against sun damage and fading of furniture and furnishings. (More info on fading is available in our paper titled “What causes fading?”)

3. A Film to Reduce Glare

Glare is word we use for excessive light. The “right” balance between glare and a home that “feels” dark is achieved where the visible light that passes through the film is greater than 20% and less than 40%.

4. A Film for Privacy

Privacy is achieved by the difference in the level of lighting between inside and outside. (Basically, we humans can see from the dark into the light, but not the reverse).

- Any window film that allows less than 25% of the visible light to pass through will create sufficient difference in the level of lighting between inside and outside to provide day-time privacy.

At night however, with the lights on, it is brighter inside than it is outside and so **no privacy at night**.

A decorative or frosted film is frequently chosen to provide privacy at night.

How much visible light (and therefore heat) can I block before a room "feels" uncomfortably dark?

The human eye can adjust to different light levels and maintain visual acuity even at low light levels.

However, as the level of light entering a room declines, at some point a "feeling" of darkness is evoked in the brain. Whilst we are all different, for most people, a window film that lets in less than 20% of the visible light (such as HP15 or Sunblock 10) will make a room "feel" dark while a film that lets in more than 20% of the light won't make a room "feel" dark. For example, the Ambiance 25 lets in 24% of the light and because the eye easily adjusts to this level of lighting (we can see easily) it does not evoke a "feeling" of darkness.

The "right" film for the job depends on your priorities

For the budget buyer, **standard/commercial films** offer the highest heat reduction at the lowest cost.

Our **most popular** film in the home is the **Smart Films Ambiance 25** because it achieves quite good heat reduction (61%), blocks just enough light to provide privacy but does not make a room "feel" dark, even though it blocks 76% of the light – and therefore provides good glare reduction. This film is recommended for living areas and any other rooms that require good natural lighting.

For **west facing** windows, particularly bedroom windows, the **Smart Films HP15** is often chosen because it blocks more heat (70%) than the Ambiance 25. Many people are prepared to sacrifice some light entering a bedroom to gain better heat protection, reasoning that they don't spend much time in their bedroom during the day. The HP15 blocks 9% more heat than the Ambiance 25 but also blocks 9% more light (hence the comment sacrificing light to gain better heat protection). This film is recommended for west facing bedroom windows and other rooms suffering high heat loads that do not require as much natural light.

For a **home theatre**, the **Sunblock 10** film is a very popular choice because it does make a room dark. Sunblock 10 is a standard film that achieves similar heat protection to the Ambiance 25 but allows in 1/3 of the light (8% for the Sunblock 10 vs 24% for the Ambiance 25).

The **Smart Films ClearView ICE 60** is a clear (untinted) film for homeowners with **the \$M view**, and for those controlled by a **body corporate** who will not permit the "external appearance of the building" to change. The ClearView ICE 60 provide good heat (58% reduction) and fade protection without spoiling a beautiful view (day or night) nor will it change the external appearance of the window. This film does not provide privacy, which is why it won't stop you enjoying your views at night.

Buyers Regret?

Research shows that people who later regret their window tinting film choice most frequently say they choose a film that is too dark.

Get a feel for the finished job

To test for yourself how your home will "feel" after the film has been installed, wrap the film sample around your face like wearing sunglasses and look around your room – how does it "feel"? Then do the same with the other film samples and choose which film "feels" best.

Do the test twice – once in the morning and again in the afternoon.

- You don't want to solve one problem – heat and glare in the morning (or afternoon) – only to create another – a dark room in the afternoon (or morning) requiring you to turn on the lights.