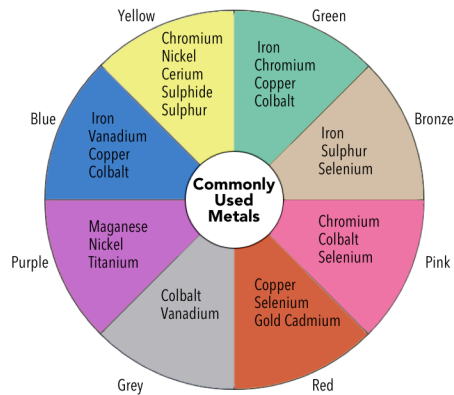


# Body Tinted Glass

Glass is one of the most versatile building materials it comes in a variety of colors, shapes, and sizes. Body tinted glass refers to glass that has been tinted or colored through the use of metal oxides. The addition of various metal oxides can be used to create numerous colors which can add ambiance to any building. Body tinted glass also impacts the solar energy transmission of the glass.

## What are Metal Oxides?

A metal oxide is a compound formed with metal and oxygen. The use of various metals allows manufacturers to produce a wide range of colors.



## How is it manufactured?

Body tinted glass is manufactured in a process that is almost identical to float glass. The most notable difference is the addition of metal oxides, colorants, to the raw materials before the beginning of the float glass process. The addition of the metal oxide does not interfere with the structural integrity of the glass. However, the thicker the glass is then the darker the glass will be. Keep in mind, the darker the glass is the higher percent of solar radiation it will absorb. It is important to take this into consideration since in certain conditions the glass might need to be toughened or heat strengthened to prevent thermal breakage.

Also take into consideration the surface orientation of the window when installed. The float glass manufacturing process used to create body tinted windows produces two surfaces, the tin side and the air side. With normal annealed glass the look of the two sides of glass are practically identical. With lower light transmitting glass, such as body tinted glass, this is not the case and it is important the "air surface" of the body tinted window, door, or skylight is to the exterior to avoid a "checkerboard" visual effect.

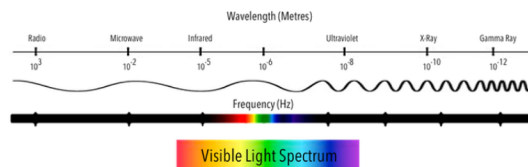
## Understanding Solar Energy Transmission

Solar energy transmission refers to the amount of energy that is passed from the exterior of the window to the interior portion of the window. The human eye can only register a small portion of the energy that the sun radiates. This portion is called the visible light spectrum. It is important to understand that glass can absorb, reflect, and transmit a large amount of radiation from the sun. In order to quantify this energy and have a systematic measurement system for glass a few key terms were developed.

**Solar Heat Gain Coefficient:** The amount of solar radiation admitted through the glass. This radiation is either reflected, transmitted directly and/or absorbed, and then released into the building as heat.

**U-Factor:** The rate of non-solar heat flow into the home through the glass. (Body tinted glass has no effect on U-factor).

**Visible light transmittance:** The fraction of the visible light spectrum that is transmitted through the glass.



## What are the benefits of body tinted glass?

For starters, body tinted glass provides a unique aesthetic appeal. It gives flexibility to the design of the home and building and has a very modern look.

Tinted glass also has the ability to reduce the transmission of solar radiation. It can play a role in reducing the SHGC of the window by reflecting/blocking various types and amounts of light. It also helps reduce glare from the window by absorbing some of the solar radiation.

Body tinted glass can also effect the visible light transmittance. This can be both a benefit and a challenge of body tinted glass. While some consumers may enjoy the shaded effect of tinted glass others may want a high amount of visible light coming into their home or office. It is important to strike a balance between efficiency and aesthetics when using body tinted glass.

Another benefit of body tinted glass is its ability to reduce fading. This is a very important attribute in buildings such as museums which have artifacts that are particularly susceptible to solar radiation.

Privacy is another reason people choose to use body tinted glass in their homes, offices, or automobiles.

Body tinted glass is also a great tool for increasing the energy efficiency of your home. Using tinted windows enables you to reduce the amount of UV-A and UV-B radiation that enters your home as heat. Allowing you to cut back costly cooling bills.

## Where can body tinted glass be used?

- Glass roofs
  - Skylights
  - Greenhouses
  - Balconies
  - French doors
  - Patio doors
  - Glass staircases
  - Windows
- These are just a few of the ways that body tinted glass can be used. Body tinted glass can also be tempered or laminated for safety as well as being used in conjunction with other efficient types of windows such as insulated glass units. Insulated glass units using body tinted glass provide extreme protection from unwanted heat gain in the home.