GREENHOUSE GLAZING GUIDE

CROSS COUNTRY GREENHOUSES

HOBBY AND CUSTOM

TEMPERED SAFETY SINGLE GLASS

SINGLE GLASS GLAZING provides a classic aesthetic with maximum **LIGHT TRANSMISSION** and **HEAT GAIN**. With clear glass, an emphasis on ventilation is needed to reduce overheating during sunny periods. Single glass is great for extending seasons and year round gardening in moderate or coastal climates.

AVAILABLE IN 3mm OVERLAPS, 6mm FULL SHEETS AND VARIOUS TINTS

3mm OVERLAPS

Lapped sheets of **24", 30", 36"** tempered safety glass. The individual pieces of glass allow for easy installation and replacement if one pane breaks.

6mm FULL SHEETS

One solid sheet of tempered safety glass in every greenhouse bay which is double the thickness for even more strength and a beautiful seamless look.

6mm LAMINATED GLASS

One solid sheet of laminated safety glass in every greenhouse bay. Similar to car windshields, this safety glass will not shatter and will remain intact even when broken. This glass type may be required for greenhouse roof's where building codes require, common for applications over swimming pools, schools, and solariums.

SINGLE GLASS CAN BE ORDERED IN A VARIETY OF TINTS - JUST ASK US

POLYCARBONATE TWINWALL OR FIVE-WALL

POLYCARBONATE has become the standard in greenhouse glazing because of its durability, strength, insulating value and economical cost. All our polycarbonate includes an exterior UV Inhibitor which allows for a long life without UV damage such as yellowing or becoming brittle. Polycarbonate is the typical choice for adding insulation to your greenhouse if you want to extend the seasons or grow year round.

6mm TWINWALL (left) and 16mm FIVEWALL (right) AVAIL IN CLEAR, OPAL & BRONZE

6mm TWINWALL

Two layers with an air gap add insulation while diffusing light as it passes through. Double layer covering offers great insulation value, toughness, and easy handling. Very light weight and great for year round growing in most moderate climates.

16mm FIVEWALL

Similar characteristics as the twin-wall but with double the insulating ability and reduced light transmission. Best used in climates which see low temperatures but have large amount of daylight value.

A twinwall polycarbonate greenhouse illustrating that glazing is not a transparent product and only shapes are visible.

POLYCARBONATE CAN BE ORDERED IN CLEAR, OR OPAL OR BRONZE

INSULATED DOUBLE GLASS, TEMPERED

INSULATED GLASS is the premium product which makes for an astoundingly beautiful greenhouse or conservatory. Our standard double glass sealed-units are typically **3mm/4mm PANES** similar to a typical double paned window that incorporate a silicone seal around the edges to create weather resistance and even temperatures in the greenhouse.

TYPICAL 16mm - 5/8" THICK, DUAL PANE

CLEAR DOUBLE GLASS

Used for maximizing visible light transmission and relative heat gain. With clear glass,an emphasis on ventilation is needed to reduce overheating during sunny periods.

LAMINATED UNITS

These units are usually used for the roof of public spaces and institutions which are required by building codes. The lamination layer will provide strength and hold the pane in place if the glass breaks. A laminated unit is typically composed of an exterior tempered glass piece,an air gap,with two layers of float/annealed 3mm glass and a laminated interlayer which blocks UV.

HIGH PERFORMANCE LOW-E

Maximizes the Insulating R-Value and reduces Relative Heat Gain to allow for a more comfortable space. The Low-E (low emissivity) coating on the inside of the glass reflects most UV and infrared while keeping a clear view through the glass. The Low-E coating also reflects infrared back towards the interior retaining more heat.

COMBINATION GLAZING

Whether you are interested in providing privacy on one or two walls of the greenhouse with opal polycarbonate, or would like to have more light transmission through one side of the roof and not the other, we can combine different glazing in different roof and wall sections to enable the environment you're looking for.

FIVEWALL GLAZING ON SIDE TO PROVIDE ADDITIONAL SUN SHADE

TWINWALL POLYCARBONATE ROOF, SINGLE GLASS WALLS

Our most popular combination, the polycarbonate roof diffuses sunlight and protects plants from burning and provides the aesthetic of beautiful glass walls to look into your garden.

FIVE-WALL POLYCARBONATE ROOF, DOUBLE GLASS WALLS (LOW-E OPTION)

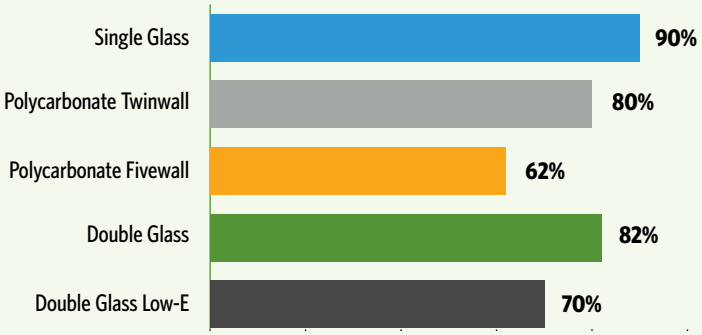
Best for combining the durability and insulation of polycarbonate, diffusing sunlight and withstanding hail, while benefiting from the aesthetics of double glass walls.

DOUBLE GLASS LOW - E ROOF , CLEAR DOUBLE GLASS WALLS

The high performance Low-E glass roof blocks most UV and infrared during summer, while the clear double glass allows the most light through during lower sun angles.

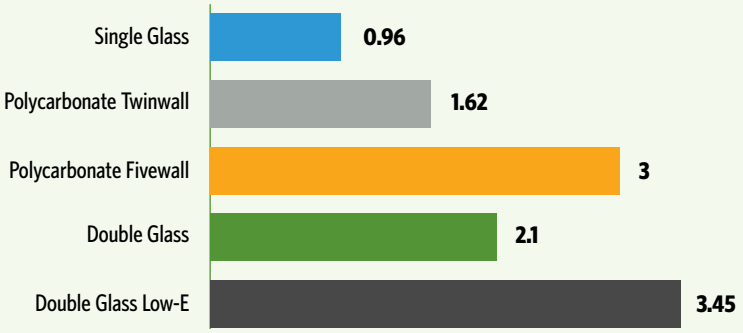
VISIBLE LIGHT TRANSMISSION

Light Transmission is the amount of visible light transmitted through each glazing. Plants have varying light requirements; whether diffused light to mimic undergrowth of a forest canopy or maximum light exposure. The **angle of incidence** in which light transmits through the glazing is also a factor. Maximum light transmission happens at 90 degrees perpendicular to the glazing.



INSULATING R-VALUE

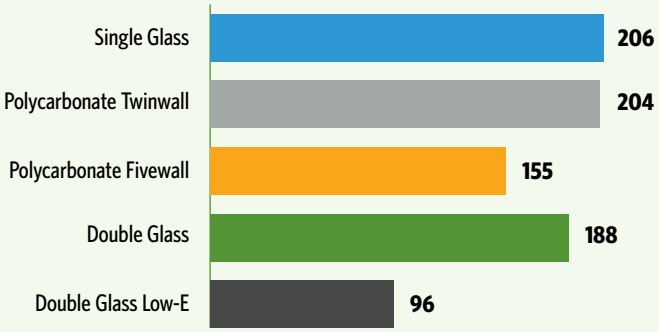
Higher insulating R-value means more heat will be held inside the greenhouse. Heat transfers from warm to cool through conduction, convection, and radiation. Conduction happens through a solid material. Convection happens as warm air mixes with cool air. Radiation happens when infrared is reflected from surfaces.



- ***MULTIPLE LAYERS WITH AIR GAPS REDUCE CONVECTION AND CONDUCTION.***
- ***LOW-E COATING REDUCES INFRARED TRANSMISSION AND REDUCES HEAT LOSS VIA RADIATION***

RELATIVE HEAT GAIN

Greenhouse glazing effectively functions as a heater when solar energy is available. The more BTU's, the warmer the greenhouse. Typically a lower number is preferred for keeping greenhouses from overheating in the warm months. The exception would be for greenhouses in cold but sunny climates, where higher heat gain will reduce winter heating costs.



BTU's Per Hour, Per sq.ft.

Relative Heat Gain Examples:

a) You use your greenhouse as a solarium and overall comfort is key, so you want to minimize how much Relative Heat Gain is produced during the day.

b) You want to use your greenhouse as a solar heater to produce heat for the rest of your house for the day, so you want to maximize your Relative Heat Gain.