

GLASS THAT WILL SHAPE YOUR THINKING

LOW E DOUBLE GLAZING TECHNICAL SPEC INFO



METRO
PERFORMANCE GLASS

More options. More performance.

Metro Performance Glass offers a range of double glazing units that incorporate the latest in Low Emissivity technology. Your designs can be tailored to match the conditions, with the best combination of insulation, anti-fading and clarity.

ENERGY STAR® Qualified Windows must receive a rating of 3 stars or greater¹, and are only available in the United States.



Non Low E Glass Standard Spacer ^{2,7}

	Standard Aluminium Frame ¹		Thermally broken Aluminium Frame ²		Heat Loss & Condensation	Visibility & Glare			Heat Gain			Fading
	WEERS ³	R (Rw avg) ¹	WEERS ¹	R (Rw avg) ¹	U (Ug Cog) ³	VLT ⁴	VLR-E ⁴	VLR-I ⁴	SHGC ⁴	SC ⁴	LSG ⁵	Tdw-ISO ⁶
Make-up (mm) ³	Indicative Rating	Indicative R Value	Indicative Rating	Indicative R Value	U Value ⁶	Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	
4-8-4	2.0	0.26-0.28	2.5	0.29-0.31	3.1	81%	15%	15%	0.77	0.90	1.05	0.74
4-10-4	2.0	0.26-0.28	2.5	0.29-0.31	2.9	81%	15%	15%	0.77	0.90	1.05	0.74
4-12-4	2.0	0.26-0.28	2.5	0.29-0.31	2.9	81%	15%	15%	0.77	0.90	1.05	0.74
4-14-4	2.0	0.26-0.28	2.5	0.29-0.31	2.8	81%	15%	15%	0.77	0.90	1.05	0.74
4-16-4	2.0	0.26-0.28	2.5	0.29-0.31	2.7	81%	15%	15%	0.77	0.90	1.05	0.74



High Clarity, Low Haze Low E Glass ^{2,7}

	Standard Aluminium Frame ¹		Thermally broken Aluminium Frame ²		Heat Loss & Condensation	Visibility & Glare			Heat Gain			Fading
	WEERS ³	R (Rw avg) ¹	WEERS ¹	R (Rw avg) ¹	U (Ug Cog) ³	VLT ⁴	VLR-E ⁴	VLR-I ⁴	SHGC ⁴	SC ⁴	LSG ⁵	Tdw-ISO ⁶
Make-up (mm) ³	Indicative Rating	Indicative R Value	Indicative Rating	Indicative R Value	U Value ⁶	Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	
4-8-4	3.0	0.32-0.34	4.5	0.41-0.43	2.3	69%	12%	12%	0.56	0.65	1.23	0.64
4-10-4	3.0	0.32-0.34	4.5	0.41-0.43	2.1	69%	12%	12%	0.56	0.65	1.23	0.64
4-12-4	3.0	0.32-0.34	4.5	0.41-0.43	1.9	69%	12%	12%	0.56	0.65	1.23	0.64
4-14-4	3.0	0.32-0.34	4.5	0.41-0.43	1.8	69%	12%	12%	0.56	0.65	1.23	0.64
4-16-4	3.0	0.32-0.34	4.5	0.41-0.43	1.7	69%	12%	12%	0.56	0.65	1.23	0.64

NOTES:

¹Based on an average new house lot of joinery to determine the average R-value (Rw avg) and Window Energy Efficiency Rating System (WEERS) rating. The average house lot of joinery totals 41m² of glazing in a typical frame with 3 doors and 17 windows. The Indicative WEERS star ratings shown are a guide and will vary with different frame types and or window/door sizes. The WEERS scale is out of 6, the higher the star rating the better the windows thermal performance.

²Low E Coating on Surface 2 for standard units and Surface 3 for tint units.

³U value calculated on LBL W7 software using CEN conditions - argon = 90% argon, 10% air mix.

⁴SC, SHGC, VLT, VLR-E, VLR-I, Tdw-ISO calculated on LBL W7 and manufacturers software using NFRC 100-2010 conditions

⁵LSG = VLT / SHGC (If the LSG is greater than 1.0, then the glass transmits more light than heat)

Terminology

- R:** The higher the R value the better the windows thermal performance.
- U:** The lower the U Value the lower the heat transfer, the better the insulation.
- VLT:** The higher the percentage the more daylight transmitted.
- VLR-E:** The higher the percentage the more light reflection.
- SHGC:** The lower the solar heat gain coefficient the less solar heat it transmits.
- SC:** The lower the shading coefficient the less heat gain and thus more shading is provided by the glass.
- LSG:** If the LSG is greater than 1.0, then the glass transmits more light than heat.
- Tdw-ISO:** The lower the TDW-ISO the greater the fading reduction provided by the glass.

Available from Energy Star® qualified partners. (www.energywise.govt.nz/tools/energy-star/windows/)



High Clarity, Low Haze Low E Glass, includes Argon Gas and Thermal Spacer ^{2,7}

Make-up (mm) ³	Standard Aluminium Frame ¹		Thermally broken Aluminium Frame ²		Heat Loss & Condensation	Visibility & Glare			Heat Gain			Fading
	WEERS ³	R (Rw avg) ¹	WEERS ¹	R (Rw avg) ¹	U (Ug Cog) ³	VLT ⁴	VLR-E ⁴	VLR-I ⁴	SHGC ⁴	SC ⁴	LSG ⁵	Tdw-ISO ⁶
	Indicative Rating	Indicative R Value	Indicative Rating	Indicative R Value	U Value ⁶	Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	
4-8-4	3.5	0.35-0.37	5.0	0.44-0.47	2.0	69%	12%	12%	0.56	0.65	1.23	0.64
4-10-4	3.5	0.35-0.37	5.0	0.44-0.47	1.8	69%	12%	12%	0.56	0.65	1.23	0.64
4-12-4	3.5	0.35-0.37	5.0	0.44-0.47	1.6	69%	12%	12%	0.56	0.65	1.23	0.64
4-14-4	3.5	0.35-0.37	5.0	0.44-0.47	1.5	69%	12%	12%	0.56	0.65	1.23	0.64
4-16-4	3.5	0.35-0.37	5.0	0.44-0.47	1.5	69%	12%	12%	0.56	0.65	1.23	0.64



High Performance High Clarity, Low Haze Low E Glass, includes Argon Gas and Thermal Spacer ^{2,7}

Make-up (mm) ³	Standard Aluminium Frame ¹		Thermally broken Aluminium Frame ²		Heat Loss & Condensation	Visibility & Glare			Heat Gain			Fading
	WEERS ³	R (Rw avg) ¹	WEERS ¹	R (Rw avg) ¹	U (Ug Cog) ³	VLT ⁴	VLR-E ⁴	VLR-I ⁴	SHGC ⁴	SC ⁴	LSG ⁵	Tdw-ISO ⁶
	Indicative Rating	Indicative R Value	Indicative Rating	Indicative R Value	U Value ⁶	Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	
4-8-4	4.0	0.38-0.4	5.5	0.48-0.54	1.7	80%	13%	13%	0.62	0.72	1.29	0.70
4-10-4	4.0	0.38-0.4	5.5	0.48-0.54	1.5	80%	13%	13%	0.62	0.72	1.29	0.70
4-12-4	4.0	0.38-0.4	5.5	0.48-0.54	1.3	80%	13%	13%	0.62	0.72	1.29	0.70
4-14-4	4.0	0.38-0.4	5.5	0.48-0.54	1.2	80%	13%	13%	0.62	0.72	1.29	0.70
4-16-4	4.0	0.38-0.4	5.5	0.48-0.54	1.2	80%	13%	13%	0.62	0.72	1.29	0.70

See back for tint options

⁶Tdw-ISO is a damage-weighted transmittance from the International Standards Organization (ISO) based on the contribution to fading at each wavelength from 300nm to 700nm that include the UV and Visible parts of the solar spectrum.

⁷Stated performance values can vary based on variations during production, use of float glass substrates on the basis of availability as well as variations between VLR-E, SHGC & SC can

vary by +/-5% and U-Values can vary by +/-0.1.

Condensation - Low E double glazed units make the internal glass temperature warmer and reduce the onset of condensation on the inner glass surface.

External Dew - Low E double glazed units are so efficient they can sometimes cause the outer panes to dew as the outer pane surface is colder due to less heat loss.

For more information call 0800 658 945

Tinted Low-E Double Glazing Performance Data^{2,7}



External Glass	Make-up	VLT (%) ⁴	VLR-E (%) ⁴	VLR-I (%) ⁴	SHGC ⁴	SC ⁴	LSG ⁵	UV Tdw-ISO ⁶
		Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	Fading Reduction
4mm Green	4-12-4	72%	13%	14%	0.54	0.63	1.3	0.59
4mm Bronze	4-12-4	56%	9%	13%	0.61	0.71	0.9	0.45
4mm Grey	4-12-4	51%	8%	12%	0.58	0.67	0.9	0.44



External Glass	Make-up	VLT (%) ⁴	VLR-E (%) ⁴	VLR-I (%) ⁴	SHGC ⁴	SC ⁴	LSG ⁵	UV Tdw-ISO ⁶
		Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	Fading Reduction
4mm Green	4-12-4	61%	11%	11%	0.47	0.55	1.3	0.52
4mm Bronze	4-12-4	47%	8%	10%	0.51	0.59	0.9	0.39
4mm Grey	4-12-4	44%	8%	10%	0.48	0.56	0.9	0.39



External Glass	Make-up	VLT (%) ⁴	VLR-E (%) ⁴	VLR-I (%) ⁴	SHGC ⁴	SC ⁴	LSG ⁵	UV Tdw-ISO ⁶
		Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	Fading Reduction
4mm Green	4-12-4	61%	11%	11%	0.47	0.55	1.3	0.52
4mm Bronze	4-12-4	47%	8%	10%	0.51	0.59	0.9	0.39
4mm Grey	4-12-4	44%	8%	10%	0.48	0.56	0.9	0.39



External Glass	Make-up	VLT (%) ⁴	VLR-E (%) ⁴	VLR-I (%) ⁴	SHGC ⁴	SC ⁴	LSG ⁵	UV Tdw-ISO ⁶
		Visible Light Transmission	External Reflectance	Internal Reflectance	Solar heat gain co-efficient	Shading co-efficient	Light to solar gain ratio	Fading Reduction
4mm Green	4-12-4	71%	11%	12%	0.44	0.51	1.6	0.57
4mm Bronze	4-12-4	55%	8%	11%	0.47	0.55	1.2	0.44
4mm Grey	4-12-4	50%	7%	11%	0.44	0.51	1.1	0.43

NOTES:

Principally Low E and Tint combinations are used to increase privacy and or reduce glare, heat gain and fading. The standard tints in this table are body-tinted glass; thicker glass tints will further reduce the glare and associated performance data.

Aesthetically tints are generally put on the outside pane of the unit. When units are sitting next to each other in a window frame or close to each other, they should have the same thickness of tinted glass to reduce the potential for colour variation.

All data for the table above is calculated with a Low E on Surface 3 of the unit and the tint on the outer pane. U value performance is unaffected by the inclusion of tints so please reference the previous charts for U value data.

Tinted panes must be heat treated to reduce the risk of thermal breakage

