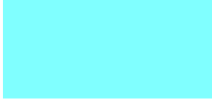
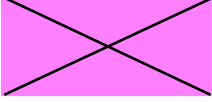


Document	Specification Proposal (rev. 02)	
Contractor	Glencar Construction Ltd	
Project	SMMC, Plot R2, Kingsway Business Park, Rochdale	
Issue Date	28/01/2026	

Curtain Walling (vertical)	
System	Senior Architectural: SF52.
PPC Finish	RAL 7016 matt (anthracite grey).
Features	Thermally improved.
	Mullion drained.
	Black EPDM gaskets.
	Internal box sizes TBC.
	17mm rectangular cover caps (to mullions).
	15mm rectangular cover caps (to transoms).
	Internal transom extension profile at cill level – details TBC.
Perimeter Abutments	PPC aluminium cills at level +0.00 (external only).
	PPC aluminium angle trims to head and jambs (external only).
	Coping pressings, supports, membranes etc. BY OTHERS.
	Single layer EPDM membrane.
	Loose-fill mineral wool insulation.
Glass (vision) – with circuit board print design 	Outer leaf: 13.5mm toughened-laminate with SNX70 solar control coating and circuit board digital print design
	Cavity: 16mm black warm edge spacer bar + 90% argon gas
	Inner leaf: 6mm clear toughened + DRY coating
	Centre-pane U-value: 0.9 W/m ² k
	Light transmission: 64%
	G-value: 0.29
	Acoustic value: 39 dB Rw (-2 C; -6 Ctr)
Glass (ground floor) 	Outer leaf: 8.8mm annealed laminate + SNX70 solar control coating
	Cavity: 16mm black warm edge spacer bar + 90% argon gas
	Inner leaf: 6mm clear toughened + DRY coating
	Centre-pane U-value: 0.9 W/m ² k
	Light transmission: 64%
	G-value: 0.32
	Acoustic value: 40 dB Rw (-3 C; -7 Ctr)
Glass (first floor) 	Outer leaf: 6mm toughened + SNX70 solar control coating
	Cavity: 16mm black warm edge spacer bar + 90% argon gas
	Inner leaf: 6mm clear toughened + DRY coating
	Centre-pane U-value: 0.9 W/m ² k
	Light transmission: 65%
	G-value: 0.31
	Acoustic value: 35 dB Rw (-2 C; -4 Ctr)
Glass (spandrel) 	Outer leaf: 6mm toughened
	Cavity: 16mm black warm edge spacer bar + 90% argon gas
	Inner leaf: 6mm clear toughened + RAL 7016 ceramic coating + 100mm class A1 non-combustible insulation + foil backing
	Centre-pane U-value = 0.35 W/m ² k
	Light transmission: N/A
	G-value: N/A
	Acoustic value: 61 dB Rw (-5 C; -13 Ctr)
Glass (spandrel) - with circuit board print design 	Outer leaf: 6mm toughened + digital print design to position #2
	Cavity: 16mm black warm edge spacer bar + 90% argon gas
	Inner leaf: 6mm clear toughened + RAL 7016 ceramic coating + 100mm class A1 non-combustible insulation + foil backing
	Centre-pane U-value = 0.35 W/m ² k
	Light transmission: N/A
	G-value: N/A
	Acoustic value: 61 dB Rw (-5 C; -13 Ctr)
All glass substrates include Guardian ExtraClear low iron. Glass specifications to be read in conjunction with the appended drawings and datasheets. Glass types are colour-coded for ease of reference.	

Manifestation – circuit board design	Digital print application. Standard colour (non-metallic). Digital printing is not available in metallic colours. The colour offered will be an alternative to RAL 9006. Sample to be provided for review/approval.
Manifestation – horizontal bands	50mm diameter frosted vinyl dots x 2nr rows. Applied to full height glazing at ground floor only. Note that this item may not be required. Building Control to advise.
Aluminium Panels	Outer skin: 2mm aluminium (PPC to match frames) Core: 32mm non-combustible insulation Inner skin: 2mm aluminium (mill finish or PPC to match frames if visible from inside)

Opening Lights (within vertical curtain walling)	
System	Senior Architectural: PURE parallel-offset.
PPC Finish	RAL 7016 matt (anthracite grey).
Features/ fittings	Thermally improved.
	Black EPDM gaskets.
	Friction hinges (4nr per vent).
	Restricted to 100mm.
	Designed for natural ventilation only.
Security rating	PAS24.
Electric Actuators	Product TBC.
	Finish TBC.
	Flex length 1.0m (black) – TBC.
	Temporary testing/commissioning included.
	<u>Exclusions</u>
	• Wiring. • Conduits. • Switches, sensors etc. • Electrical connection. • Final testing and commissioning. • SHEVS

Curtain Walling (rooflights)	
System	Senior Architectural: SF52.
PPC Finish	RAL 7016 matt (anthracite grey).
Features	Thermally improved.
	Mullion drained.
	Black EPDM gaskets.
	Internal box sizes TBC.
	17mm rectangular cover caps (to mullions).
	15mm profiled cover caps (to transoms).
Perimeter abutments	PPC aluminium trims/flashings (interfaces with cladding/roof covering).
	PPC aluminium pressing (circa 300mm girth). Located internally at the base of curtain walling.
	Single layer EPDM membrane.
	Loose-fill mineral wool insulation.
Glass (vision)	Outer leaf: 6mm toughened with SNX70 solar control coating
	Cavity: 16mm black warm edge spacer bar + argon gas
	Inner leaf: 6.8mm clear laminated
	Centre-pane U-value: 1.4 W/m ² k
	Light transmission: 67%
	G-value: N/A
Other	Non-fragile design. Not suitable for maintenance and accidental impact loads.

Opening lights (within rooflights)	
Manufacturer	Lonsdale Metal Company Ltd.
Product	GlazaTherm.
PPC Finish	RAL 7016 matt (anthracite grey).
Features/fittings	Thermally improved.
	Black EPDM gaskets.
	Barrel hinges (2nr per vent).
Electric Actuators	Product TBC.
	Finish TBC.
	Flex length 1.0m (black) – TBC.
	Temporary testing/commissioning included.
	<u>Exclusions</u> • Wiring. • Conduits. • Switches, sensors etc. • Electrical connection. • Final testing and commissioning. • SHEVS.

Pass Door (adjacent to revolving door)	
System	Senior Architectural: SPD150.
PPC Finish	RAL 7016 matt (anthracite grey).
Operation	Fully automatic.
Security Rating	PAS24 – when in fully locked mode, i.e out of hours.
Features/fittings	Thermally improved.
	Anti finger-trap facility (bulb stiles).
	Black EPDM gaskets.
	Pivot hinges.
	2nr deadlocks with security cylinders (including 3 nr suited keys)
	Push button activation.
	Safety sensors.
	Fail safe battery backup.

Aluminium Doors (emergency escape)	
System	Senior Architectural: SPD150.
PPC Finish	RAL 7016 matt (anthracite grey).
Operation	Manual.
Security Rating	PAS24.
Features/fittings	Thermally improved.
	Anti finger-trap facility (bulb stiles).
	Black EPDM gaskets.
	Pivot hinges.
	Panic push bars (standard finish)
External ironmongery	N/A

Powder Coating	
Applicator	Senior Architectural.
Manufacturer	Akzo Nobel.
Product Type	Interpon.
Thickness	60 microns..
Colour Ref.	RAL 7016 matt (anthracite grey).

Please Note	

REVISIONS

P01	First Issue	13/09/24
		ES DTP
P02	Issued for tender	11/10/24
		ES DTP
P03	Louvers added as per WB instruction	10/01/25
		PCT DTP

Material Key

1	Double Glazed Curtain Walling, Frames PPC Anthracite Grey RAL 7016
2	Ceramic Backed Opaque Double Glazing
3	Digitally Printed Manifestation Pattern to Glazing Panels in Silver RAL 9006
4	Parallel Push Window, Frames PPC Anthracite Grey RAL 7016
5	Insulated Spandrel Panel PPC Anthracite Grey RAL 7016
6	Aluminium 'Mill Finish' Cladded Structure
7	Anodised Aluminium Sheet Cladding
8	Steel Doors, PPC Silver RAL 9006
9	COR-TEN Steel Cladding Panels
10	Engineering Dark Brickwork Plinth
11	Steel Doors, PPC Anthracite Grey RAL 7016
12	Aluminium Louvres and Louvre Doors, PPC Anthracite Grey RAL 7016
13	COR-TEN Steel Perforated Panels to Service Yard
14	Galvanised Steel Security Fencing
15	Roller Shutter Door, PPC Anthracite Grey RAL 7016
16	Revolving Double Glazed Door



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PROJECT
KINGSWAY BUSINESS PARK
PLOT R2 - SMMC

TITLE
**GA ELEVATIONS
NORTH AND EAST**

SCALE
1 : 100 @ A1

DATE
13/09/24

DLA REF
2022-040

DRAWN
DTP

REVIEWED
PGT

DOCUMENT NUMBER
SMMC-DLA-ZZ-XX-DR-A- **20210**

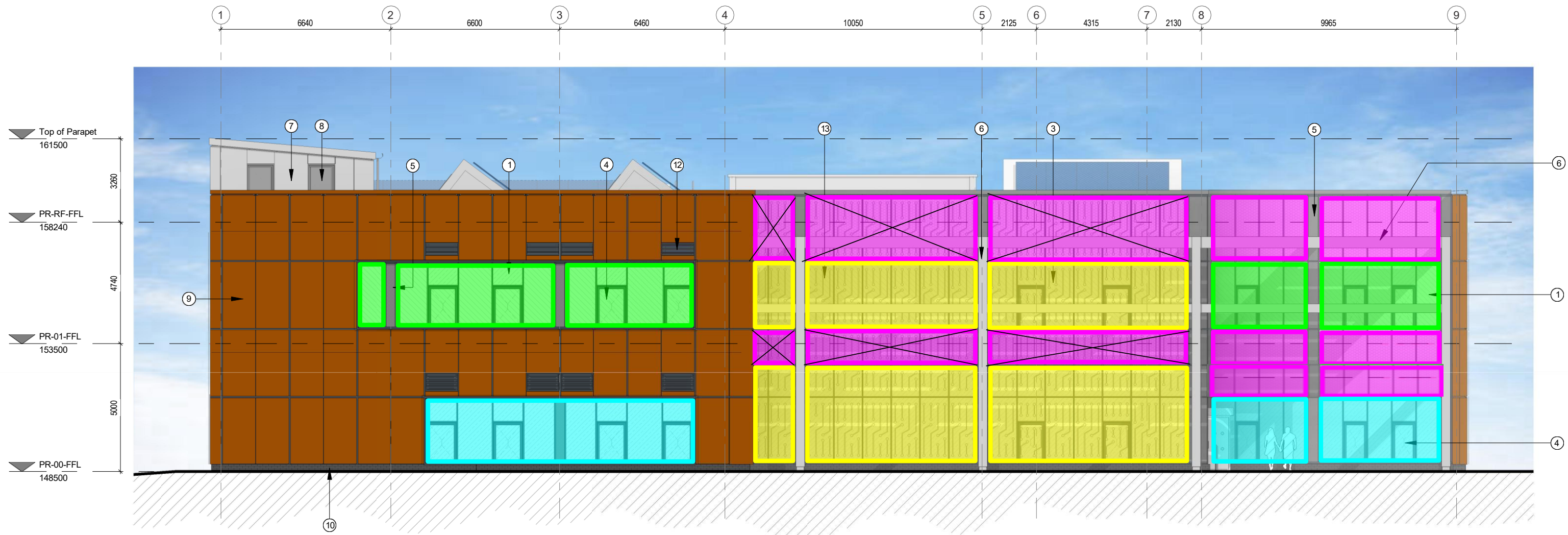
DOCUMENT PURPOSE
STAGE 4 TENDER

REVISION
P03



REVISIONS

P01	First Issue	13/09/24
		ES DTP
P02	Issued for tender	11/10/24
		ES DTP



1 ELEVATION 1
20211 1 : 100 GA Elevation - South



2 ELEVATION 2
20211 1 : 100 GA Elevation - West

Material Key

1	Double Glazed Curtain Walling, Frames PPC Anthracite Grey RAL 7016
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16	Revolving Double Glazed Door



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PROJECT
KINGSWAY BUSINESS PARK
PLOT R2 - SMMC

TITLE
**GA ELEVATIONS
SOUTH & WEST**

SCALE
1 : 100 @ A1

DATE
13/09/24

DLA REF
2022-040

DRAWN
DTP

REVIEWED
PGT

DOCUMENT NUMBER
SMMC-DLA-ZZ-XX-DR-A- **20211**

DOCUMENT PURPOSE
STAGE 4 TENDER

REVISION
P02

SMMC, Plot R2, Rochdale

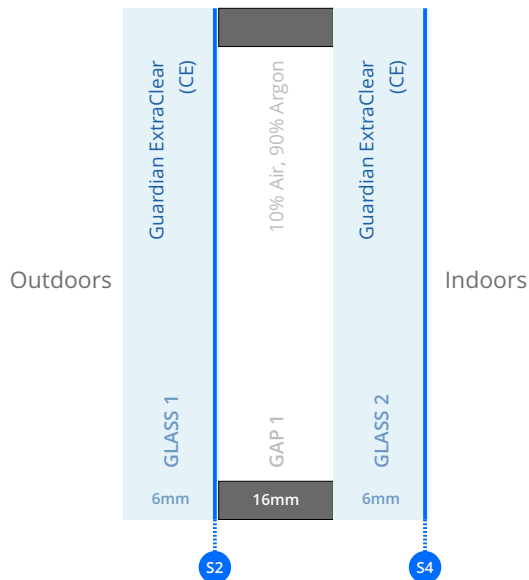
Make-up Name	Glass 1 & Coating	Glass 2 & Coating	Visible Light			Solar Energy				Thermal Properties	Embodied CO2	Acoustic Values			
			Transmittance	Reflectance		Transmittance	Reflectance	Solar Factor (g%)	Secondary Heat Transfer (q _l)	U-Value U _g W/m²·K	[eq. kg/m²] A1-A3	RW(C;Ctr)	OITC	STC	Calculation Method
				ρ _v % out	ρ _v % in										
First Floor Glass	SunGuard® SNX 70 HT (CE) on Guardian ExtraClear (CE)	ClimaGuard® Dry (CE) on Guardian ExtraClear (CE)	65.4	14.0	15.4	28.9	43.9	30.9	2.0	0.9	31.32	35(-2;-4)	29	35	Certified
Ground Floor Glass	Guardian ExtraClear (CE)	SunGuard® SNX 70 (CE) on Guardian ExtraClear (CE)	64.1	11.5	13.1	29.2	30.4	31.8	2.6	0.9	40.71	40(-3;-7)	30	38	Certified
Screen Printed Glass	Guardian ExtraClear (CE)	SunGuard® SNX 70 HT (CE) on Guardian ExtraClear (CE)	NOTE: the figures below do not take into account the effects of screen printing												
			64.2	13.6	15.3	26.7	30.4	29.2	2.5	0.9	54.29	39(-2;-6)	31	39	Estimated

Calculation Standard: EN 410:2011 / EN 673:2011

First Floor Glass



Total Unit (Nominal):
28 mm
Glazing Weight:
29.19 kg/m²
Slope: 90°

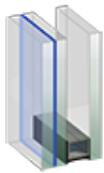


Coatings

- S2 SURFACE 2 COATING** SunGuard® SNX 70 HT (CE)
- S4 SURFACE 4 COATING** ClimaGuard® Dry (CE)

CG Dry must be heat-treated for all applications and uses.

Ground Floor Glass



Total Unit (Nominal):
30.762 mm
Glazing Weight:
34.6 kg/m²
Slope: 90°

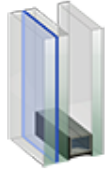


Coatings

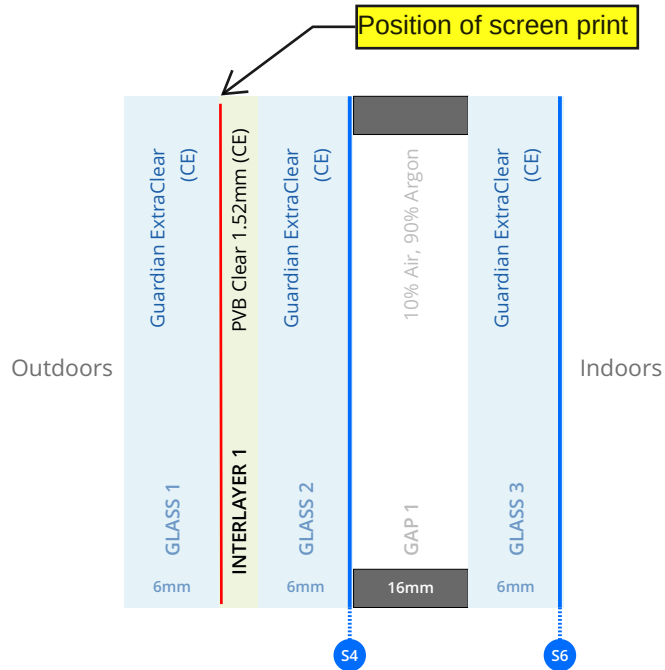
- S4 SURFACE 4 COATING** SunGuard® SNX 70 (CE)
- S6 SURFACE 6 COATING** ClimaGuard® Dry (CE)

CG Dry must be heat-treated for all applications and uses.

Screen Printed Glass



Total Unit (Nominal):
35.524 mm
Glazing Weight:
45.41 kg/m²
Slope: 90°



Coatings

- S4 SURFACE 4 COATING** SunGuard® SNX 70 HT (CE)
- S6 SURFACE 6 COATING** ClimaGuard® Dry (CE)

CG Dry must be heat-treated for all applications and uses.

Important Notes

Calculations and terms in this report are based on EN 410:2011/EN 673:2011. The performance values shown above represent nominal values for the center of glass with no spacer system or framing. Solar Factor (g) and Secondary Heat Transfer (qi) are not available for sloped glazing, as no calculation method is prescribed by the standard for these attributes.

The KIWA logo and KIWA Validation Report MD - 14/477/GL are provided as evidence of validation of the Guardian Performance Calculator software, program version 4.1, for execution of calculations of luminous and solar characteristics of glazing and thermal transmittance, according to EN 410:2011 and EN 673:2011.

Embodied CO₂ [eq. kg/m²] A1-A3 is estimated based on material Embodied Carbon Factor (ECF), derived from Guardian Glass Regional third-party independently verified and published / current Environmental Product Declarations (EPDs) which are produced to EN 15804 and are compliant with the requirements of ISO 14044, the International Life Cycle Assessment (LCA) standard, and ISO 14025 and ISO 21930, the international standards covering EPD for construction products. The A1-A3 ECF is an estimate of the embodied carbon due to production of that material, taking into account an average value of glass production thickness. The resulting material value should then be multiplied by the square area of glazing to provide an estimate of embodied carbon of the material at the project scale. Embodied CO₂ estimates provided by Guardian represent only values associated with the glass components manufactured by Guardian. The estimated values do not represent in any way a plant-specific and/or product specific guarantee.

Laminated products:

The Performance Calculator allows the user to model a wide variety of laminated glass makeups using different float glass substrates, coatings and interlayer material, including those makeups where the coating faces the interlayer. It is the user's responsibility to assess whether the laminated glass makeup meets relevant regional standards and complies with applicable laminated glass safety regulations.

In addition, when the laminated glass makeup includes a coating facing the interlayer material, there may be a loss of thermal insulation performance and a color change compared to non-embedded coated glass.

The security and safety properties of laminated products certified under EN 356 (Burglar Resistance) and EN 12600 (Pendulum Body Impact Resistance) are valid exclusively if the laminated products are produced directly by Guardian.

Non-specular products (translucent or diffuse):

The performance measurement for non-specular (translucent or diffuse) materials such as translucent interlayers or acid etched glass surface, or surface with ceramic frit is limited by the current experimental technologies. Since measurements capture physically only a part of the resulting radiation, calculated performance results provided herein and based on such measurements are not compliant with any standard (including EN 410) and may only be used as a general reference. Actual values may vary significantly based upon exact fabrication process, as well as type, thickness and color of used non-specular material.

Explanation of Terms according to EN 410:2011/EN 673:2011

Visible Light Transmittance (T_v , %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass.

Ultraviolet (UV) Transmittance (T_{uv} , %) is the percentage of the incident UV component of the solar radiation in the wavelength range of 280 nm to 380 nm that is transmitted by the glass.

Solar Energy Direct Transmittance (T_e , %) is the percentage of incident solar energy in the wavelength range of 300 nm to 2500 nm that is directly transmitted by the glass.

Visible Light Reflectance Outdoors/Indoor (R_v out/in, %) is the percentage of incident visible light directly reflected by the glass.

Solar Direct Reflectance Outdoors/Indoors (R_e out/in, %) is the percentage of incident solar energy directly reflected by the glass.

Solar Energy Absorptance (A_e , %) is the percentage of the sun's energy that is absorbed by glass.

U-Value (U_g , W/m² K) is the glazing parameter that characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and expresses the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side. Temperature differential according to standard conditions: $\Delta T = 15K^\circ$. The lower the value, the greater is the insulating value. EN 673 defines the value with 1 decimal place. The value is also provided with 3 decimal places for informational purposes.

Solar Factor or Total Solar Energy Transmittance or g-value (g%) is the total solar radiation transmitted by the glass.

Shading Coefficient (sc) is Solar Factor divided by 0.87. It is a measure of the solar heat gain referenced to 3 mm clear glass which has the designated value of 1.00.

Secondary Heat Transfer Coefficient (q_i) is the result of heat transfer by convection and longwave IR-radiation of that part of the incident solar radiation which has been absorbed by the glazing.

Colour Rendering Index in transmission, D65 (R_a) is the change in colour of an object as a result of the light being transmitted through the glass.

The security and safety properties of laminated products certified under EN 356 (Burglar Resistance) and EN 12600 (Pendulum body impact resistance) are valid exclusively if the laminated products are produced directly by Guardian

Disclaimer for Acoustic Performance

Disclaimer for Acoustic Performance: The acoustic performance data provided in the reports is based on a test protocol or an estimation and may be used if user actual glazing is identical to input data described herein. Acoustic performance data herein is only applicable for glazing dimensions 1,23 m x 1,48 m (as per testing standard). Estimation of acoustic performance is based on component-similarity assumptions which are derived from measured data and interpolation to expand the database of values from test protocols. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 10140-3/EN ISO 10140-2, some variation in the calculated performance can also be expected. As such, the weighted performance, R_w , and adaptation terms, C and Ctr, should typically be considered to be accurate within ± 2 dB. However, wider deviations can occur. Actual performance may vary according to the glazing dimensions, frame system, noise sources and many other parameters. The acoustic performance data herein should not be used as a substitute for tests of actual glazing. For more information, please consult Assumptions and Terminology section in Guardian Acoustic Assistant.

By accessing this calculator, you agree not to alter or modify the generated report data and information, by any means. Any manual alteration will be your own responsibility and will annul all the content of the report.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report. Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples or CE Initial Type Testing and subject to variations due to manufacturing and calculation tolerances. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. Guardian recommends a full-size mock-up be approved. The values provided herein are generated according to established engineering practices and applicable calculation standards. Many factors may affect glazing characteristics, including glass size, building orientation, shading, wind speed, type of installation, production process and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is the responsibility of the users of the analysis to ensure that the intended application is appropriate and complies with all relevant laws, regulations, standards, codes of practices, processing guidelines and other requirements. Guardian makes no guarantee that any glazing modeled herein is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

All the HT/T coatings must undergo heat treatment. The specified values for these coatings are valid only once the heat treatment process has been completed.

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Program Version: 4.1.0.9855
Database Version: 20251112