Selection Guideline for MicroShade® products

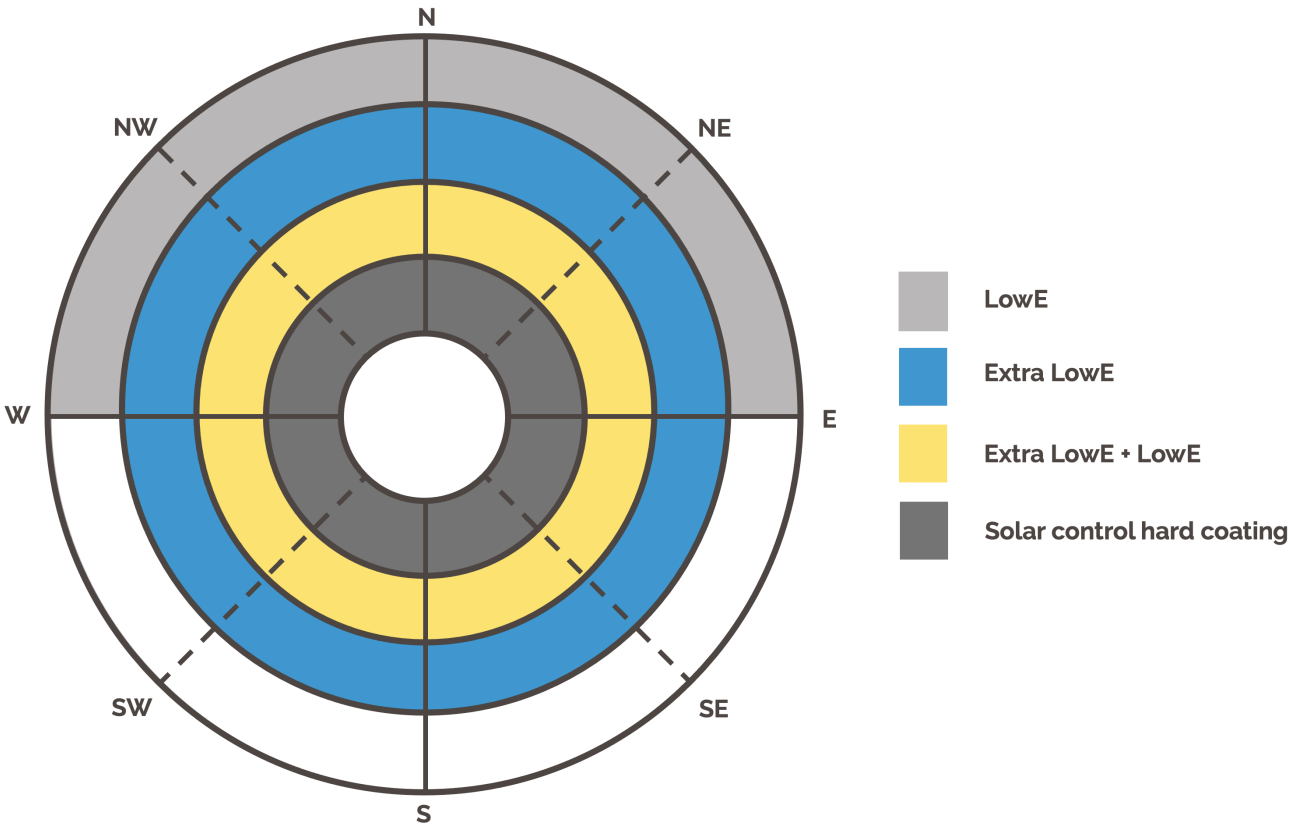
Los Angeles, USA - roof application

MicroShade® is a highly effective shading product consisting of an almost invisible film combining UV and IR coatings with a structured micro-lamella. The shading efficiency depends on the incidence angle of the sun on the lamellas. When the sun is high in the sky during the summer, MicroShade® provides the strongest shading and during winter when the sun is low more heat is allowed into the building. Similarly, the shading efficiency also varies during the course of the day due to the different positions of the sun morning, noon and evening.

For roof applications[1] MicroShade® is usually used in combination with either a low-e, an extra low-e coating or a solar control hard coating, depending on how much shading is necessary. A low-e coating will let in more light, whereas a solar control coating will provide a stronger shading. Two layer glazings for roof application are only recommended in combination with a solar control hard coating.

The obtained shading is best expressed using the effective solar transmission factor, called effective g-value – and with MicroShade®, this value depends on the orientation and pitch of the roof. Rotating the MicroShade® can in some cases improve the performance. Rotation should be considered for orientations between northeast (45˚) and northwest (315˚) for roof windows at tilts between 25˚ and 70˚. The rotation angle is always 90˚. Please contact MicroShade A/S at support@microshade.com to confirm if rotation is beneficial.

The figure below shows which type of glazing a MicroShade® product should be combined with at given roof orientations.



[1] Roof application means glazing mounted in a position between 0˚ (horizontally) to 60˚ tilt.

Key performance data for 2-layer glazing with MicroShade® MS-F 60/14

The tables below indicate the light transmittance LT_0 and the mean effective g-value in the summer period (June to end of August) for two-layer MicroShade® glazing in Los Angeles.

MS-F 60/14 with a low-e coating[1]	U-value[3] ($W/m^2 K$)	LT_0	Effective g-value, summer period (June to end of August)[4]						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	1.11	0.56	0.26	0.25	0.27	0.28	0.27	0.25	0.26
15°			0.25	0.26	0.27	0.28	0.27	0.26	0.25
30°			0.24	0.26	0.27	0.26	0.27	0.26	0.24
45°			0.23	0.27	0.26	0.24	0.26	0.27	0.23
60°			0.23	0.26	0.23	0.20	0.23	0.26	0.23

MS-F 60/14 with an extra low-e coating[2]	U-value ($W/m^2 K$)	LT_0	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	1.04	0.49	0.22	0.22	0.23	0.24	0.23	0.22	0.22
15°			0.22	0.22	0.23	0.24	0.23	0.22	0.22
30°			0.21	0.22	0.23	0.23	0.23	0.23	0.21
45°			0.20	0.23	0.22	0.20	0.22	0.23	0.20
60°			0.20	0.22	0.20	0.17	0.20	0.22	0.20

1) 8 mm tempered float + MS-F 60/14 – 16 mm argon – 8 mm Planitherm XN
2) 8 mm tempered float + MS-F 60/14 – 16 mm argon – 8 mm Planitherm One
3) U-value is calculated according to EN 673:2011 at vertical position.
4) Effective g-value is calculated according to EN 410:2011.

Key performance data for 3-layer glazing with MicroShade® MS-F 60/14

The tables below indicate the light transmittance LT_o and the mean effective g-value in the summer period (June to end of August) for three layer MicroShade® glazing in Los Angeles.

MS-F 60/14 with two low-e coatings[1]	U-value ($W/m^2 K$)	LT_o	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	0.63	0.51	0.21	0.21	0.22	0.23	0.22	0.21	0.21
15°			0.21	0.21	0.23	0.23	0.23	0.21	0.21
30°			0.20	0.22	0.22	0.22	0.22	0.22	0.20
45°			0.19	0.22	0.21	0.19	0.21	0.22	0.19
60°			0.18	0.22	0.19	0.15	0.19	0.22	0.19

MS-F 60/14 with an extra low-e and a low-e coating[2]	U-value ($W/m^2 K$)	LT_o	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	0.61	0.45	0.18	0.18	0.19	0.20	0.19	0.18	0.18
15°			0.18	0.18	0.19	0.20	0.19	0.18	0.18
30°			0.17	0.19	0.19	0.19	0.19	0.19	0.17
45°			0.16	0.19	0.18	0.17	0.18	0.19	0.16
60°			0.16	0.19	0.16	0.13	0.16	0.19	0.16

MS-F 60/14 with two extra low-e coatings[3]	U-value ($W/m^2 K$)	LT_o	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	0.59	0.4	0.17	0.16	0.17	0.18	0.17	0.16	0.17
15°			0.16	0.16	0.17	0.18	0.17	0.16	0.16
30°			0.15	0.17	0.17	0.17	0.17	0.17	0.15
45°			0.15	0.17	0.16	0.15	0.16	0.17	0.15
60°			0.14	0.17	0.15	0.12	0.15	0.17	0.14

1) 8 mm tempered float + MS-F 60/14 - 14 mm argon - 8 mm Planitherm XN - 14 mm argon – 8 mm Planitherm XN
2) 8 mm tempered float + MS-F 60/14 - 14 mm argon - 8 mm Planitherm One - 14 mm argon - 8 mm Planitherm XN
3) 8 mm tempered float + MS-F 60/14 - 14 mm argon - 8 mm Planitherm One - 14 mm argon - 8mm Planitherm One

Key performance data for glazing with MicroShade® MS-F 60/14 and solar control hard coating

The tables below indicate the light transmittance LT_0 and the mean effective g-value in the summer period (June to end of August) for two types of MicroShade® glazing in Los Angeles.

MS-F 60/14 with a solar control hard coating and an extra low-e coating[1]	U-value ($W/m^2 K$)	LT_0	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	1.04	0.41	0.19	0.18	0.19	0.20	0.19	0.18	0.19
15°			0.18	0.19	0.20	0.20	0.20	0.19	0.18
30°			0.17	0.19	0.19	0.19	0.20	0.19	0.17
45°			0.17	0.19	0.18	0.17	0.18	0.19	0.17
60°			0.16	0.19	0.17	0.14	0.17	0.19	0.17

MS-F 60/14 with a solar control hard coating and two extra low-e coatings[2]	U-value ($W/m^2 K$)	LT_0	Effective g-value, summer period (June to end of August)						
Orientation Pitch			315° NW	270° W	225° SW	180° S	135° SE	90° E	45° NE
5°	0.59	0.33	0.14	0.13	0.14	0.15	0.14	0.13	0.14
15°			0.13	0.14	0.15	0.15	0.15	0.14	0.13
30°			0.13	0.14	0.14	0.14	0.15	0.14	0.13
45°			0.12	0.14	0.14	0.12	0.14	0.14	0.12
60°			0.12	0.14	0.12	0.10	0.12	0.14	0.12

1) 8 mm tempered float + Stopsol Supersilver + MS – 16 mm argon – 8 mm Planitherm One
2) 8 mm tempered float + Stopsol Supersilver + MS – 14 mm argon – 8 mm Planitherm One - 14 mm argon – 8 mm Planitherm One