SAINT-GOBAIN

4BIRD® Lami

Effective bird protection in glass architecture with solar control coatings combined with special bird-friendly interlayers

SAINT-GOBAIN GLASS

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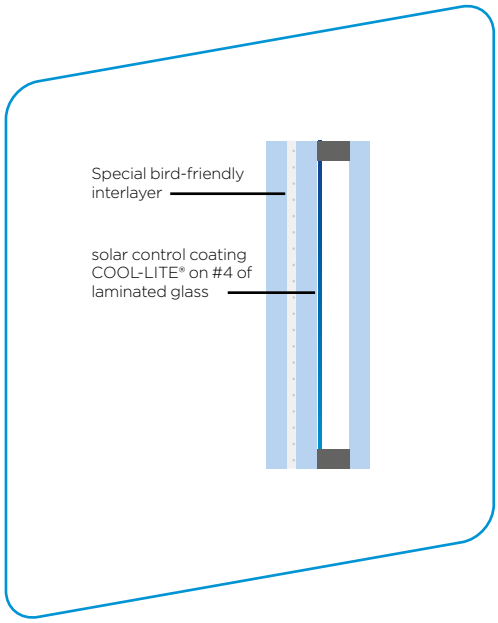
According to the American Bird Conservancy (ABC) „each year up to 1 billion birds die after hitting glass surfaces in the United States.“[1] The reasons why birds hit windows and glass facades are diverse - not to say that a sparrow has a different perception of glass than a pigeon. In general, there are two, seemingly contradicting reasons why birds may collide with glass but that are unique to the material in itself: reflectivity and transparency.

All glasses, of course, reflect the surroundings of their buildings – from the sky with its clouds down to bushes and trees in nearby streets or parks - which obviously presents to birds the continuity of their local habitat with „safe routes, shelter, and possible food ahead“[2] Likewise, the same perception may occur to birds if for them the glass seems to be transparent – especially corner glazings, skywalks or glass walls are known threats to birds.

With the **4BIRD® product family, Saint-Gobain Glass** offers a range of solar control glass with a special focus on an effective bird protection, offering both sustainable solutions for the preservation of the biodiversity and a wiser energy consumption of building, while keeping a homogeneous and neutral external aesthetic.

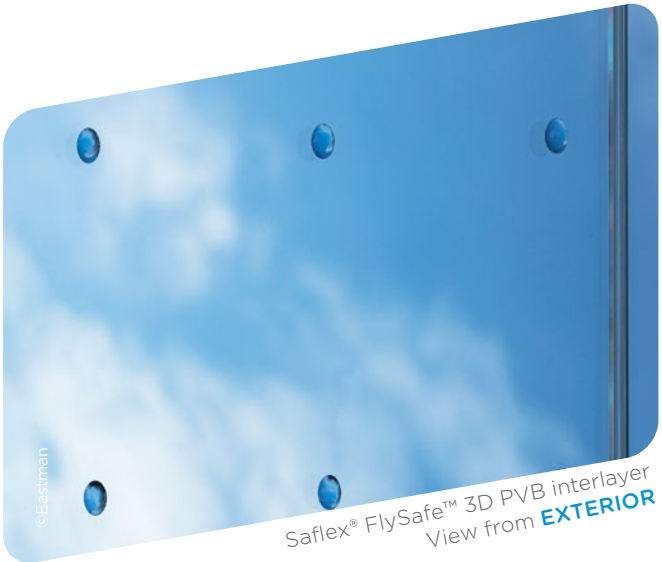
[1] abcbirds.org/glass-collisions/why-birds-hit-glass
[2] sfplanning.org/standards-bird-safe-buildings



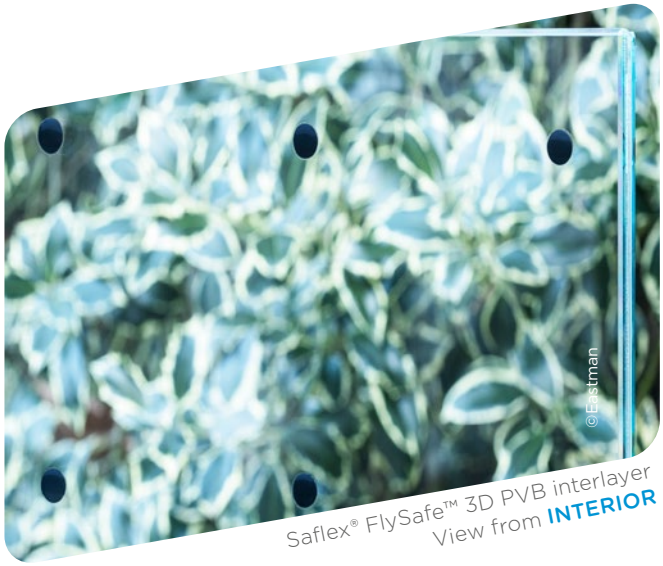
4BIRD® Lami combines Saint-Gobain Glass solar control coatings of the COOL-LITE® family with special bird-friendly interlayers.

4BIRD®Lami 4BL-1 uses **Saflex® FlySafe™ 3D** PVB interlayer.

The laminated glass can be assembled as the outer pane of a double (DGU) or triple (TGU) pane with the Saflex® FlySafe™ 3D PVB interlayer in front of the coating, which is always placed on face #4 of the laminate.



Saflex® FlySafe™ 3D PVB interlayer
View from **EXTERIOR**



Saflex® FlySafe™ 3D PVB interlayer
View from **INTERIOR**

4BIRD®Lami is a series combining **Saint-Gobain Glass solar control coatings of the COOL-LITE® family** with **commercially available bird-friendly interlayers** such as Saflex® FlySafe™ 3D PVB interlayer, delivering a highly effective solution for bird-protection as laminated glass giving architects the freedom to create visually stunning buildings while protecting birds and still benefiting from outstanding performances and safety or security properties.

The pattern complies with currently known local regulations and national guidelines. It meets the recognized rules and tighter mandatory or voluntary regulations like **LEED Pilot Credit #55: Bird Collision Deterrence.**

AESTHETICS

The low, external reflection as well as the colour-neutral external appearance of the COOL-LITE® products associated with discreet pattern create an excellent combination of function and aesthetics, thus offering a smooth and homogeneous façade design and taking care of both: bird protection and comfort of the user with undisturbed views from both exterior and interior.

COMFORT

Offering all the benefits of COOL-LITE® solar control glass, with extreme transparency and neutrality to get as much as natural daylight as possible all year round with all its benefits for both, your power consumption and your health. And with highly efficient sun protection and excellent insulation to reduce the energy consumption and associated cost.

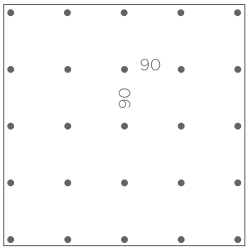
FLEXIBILITY

Bird-protection glazing made with Saflex® FlySafe™ 3D PVB interlayer can be combined with several COOL-LITE® selective coatings (both in annealed or to-be-tempered versions) as well as with other Saflex® PVB interlayers (Saflex® Acoustic, Saflex® Structural...) enabling to offer durable bird protection without compromising on solar protection, safety, security, or acoustic.

EFFECTIVENESS

Multitested, bird-protection glazing made with Saflex® FlySafe™ 3D PVB demonstrated high effectiveness in reducing bird collisions, reaching Threat Factor (TF) below 10, making this product one of the most efficient on the market today.

DESIGN



aligned dots (4BL-1)

4BIRD®Lami 4BL-1 uses Saflex® FlySafe™ 3D PVB, which pattern consists of 3D aligned opaque sequins (shiny silver on front, black on back) with Ø 9 mm (0.35“) spaced by a maximum 90x90 mm (3.5“x3.5“) from center to center. Coverage <1%.

AVAILABILITIES

Saflex® FlySafe™ 3D PVB is available in roll of 0.76mm thickness, also in superwide up to 322cm.

Saflex® FlySafe™ 3D PVB can be combined with several COOL-LITE® coatings, in annealed or to-be-tempered (II) version. This is the first product in the 4BIRD® family compatible with annealed glass (offering thus flexibility and cost saving).

- Substrates: PLANICLEAR®, DIAMANT®, ORAÉ® 3
- Coatings: COOL-LITE® XTREME 70/33 (II), XTREME 61/29 (II), SKN 183 (II), SKN 175 II, SKN 176 (II).
- Standard sizes and thickness

[3] for COOL-LITE® XTREME only

4BIRD®Lami in double glazing unit (DGU) and triple glazing unit (TGU)

with bird-friendly interlayer (Saflex® FlySafe™ 3D PVB)	Ug-Value [4]	Light Transmission (LT) [5]	Solar Factor (g-value) [5]	Selectivity (LT/g)	Outside reflection (LRe) [5]	Inside reflection (LRi) [5]	Material threat factor (TF) [6]
	[W/m2K]	*[%]*	*[%]*	*[%]*	*[%]*	*[%]*	
DGU 66.4/16/4 mm – coating on face 4 of the laminates, 90% Argon, all panes PLANICLEAR®							
4BIRD® Lami COOL-LITE® XTREME 70/33 (II) - 4BL-1	**1.0**	**69**	**31**	**2.23**	**11**	**13**	**9**
4BIRD® Lami COOL-LITE® XTREME 61/29 (II) - 4BL-1	**1.0**	**60**	**27**	**2.22**	**11**	**15 / 14 [7]**	**9**
4BIRD® Lami COOL-LITE® SKN 183 (II) - 4BL-1	**1.0**	**73**	**37**	**1.97**	**12**	**13**	**9**
4BIRD® Lami COOL-LITE® SKN 175 II - 4BL-1	**1.0**	**69**	**33**	**2.09**	**14**	**15**	**9**
4BIRD® Lami COOL-LITE® SKN 176 (II) - 4BL-1	**1.0**	**59**	**34**	**2.03**	**13**	**15**	**9**
TGU 66.4/12/4/12/4 mm – coating on face 4 of the laminates + PLANITHERM® XN on face 7, 90% Argon, all panes PLANICLEAR®							
4BIRD® Lami COOL-LITE® XTREME 70/33 (II) - 4BL-1	**0.7**	**62**	**29**	**2.14**	**13**	**16**	**9**
4BIRD® Lami COOL-LITE® XTREME 61/29 (II) - 4BL-1	**0.7**	**54**	**25**	**2.16**	**12**	**17 / 16 [7]**	**9**
4BIRD® Lami COOL-LITE® SKN 183 (II) - 4BL-1	**0.7**	**66**	**34**	**1.94**	**14**	**16**	**9**
4BIRD® Lami COOL-LITE® SKN 176 (II) - 4BL-1	**0.7**	**62**	**32**	**1.94**	**14**	**17**	**9**

[4] according to EN673 [5] according to EN410 [6] value given after ABC evaluation for given configuration (see next page for more details)
[7] values respectively for tempered (II) and annealed coatings with the same glazing configuration

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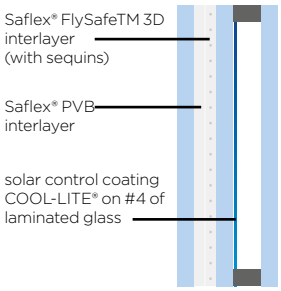
AMERICAN BIRD CONSERVANCY

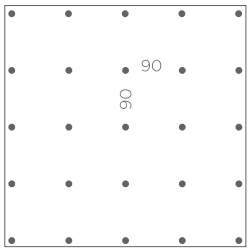
American Bird Conservancy (ABC) has evaluated several **4BIRD®Lami** configuration and found that they **satisfied ABC's criterion for bird-friendly glass.**
Corresponding **Material Threat Factors (TF)** have been given.

Laminated glass with special bird-friendly PVB with the interlayer in front of the coating (face #4 of the laminated glass), on clear or low-iron glass.
The given material threat factor (TF) is depending on the overall outdoor reflection (RLe) of the assembly

4BIRD®Lami 4BL-1 (Saflex® FlySafe™ 3D PVB interlayer)

4BIRD®Lami 4BL-1 uses the interlayer Saflex® FlySafe™ 3D PVB with Ø 9 mm (0,35") opaque sequins (shiny silver on front, black on back), spaced by a maximum of 90mm (3.5") from the center to center - Coverage < 1% m^2.





4BL-1 Aligned sequins (3.5"x3.5")

Material Threat Factor (TF) = 9 for overall outdoor reflection (RLe) of the assembly **≤ 15%**

Material Threat Factor (TF) = 10 for overall outdoor reflection (RLe) of the assembly **≤ 19%** only for 4BIRD LAMI solution

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MORE DETAILS ON THE 4BIRD® FAMILY
WWW.SAINT-GOBAIN-GLASS.PL/PL/4BIRDR

MORE DETAILS ON SAFLEX® FLYSAFETM 3D PVB ON
WWW.SAFLEX.COM/SAFLEX-FLYSAFE

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