



BIRD FRIENDLY GLAZING

Urban environment subjects birds to a number of risks. Glass, especially because of its transparency, prevents birds to perceive it as an obstacle, whereas its reflexivity leads to confuse the reflection of the sky, the vegetation, or their own reflection with reality. Birds will try to fly to the reflected habitat and hit the glass.

The City of Toronto was the first city in the world to publish a "Bird-friendly Development Guidelines" in 2007. This guide identifies the various risk factors and makes recommendations to mitigate death of birds. For more information see the guide at: <https://www.toronto.ca/wp-content/uploads/2017/08/8d1c-Bird-Friendly-Best-Practices-Glass.pdf>

With regards to glazing, one of the recommendations is to integrate visual markers on the glass (lines, dots or other patterns). Studies have shown that visual markers must at a maximum of 10cm

apart to prevent bird collisions with glass. Applying these visual markers to the entire building is ideal, but at least for a minimum 12 meters above ground (4 floors), maybe more in rough terrain. On clear glass, it is recommended to apply the visual markers as close to the surface as possible as they are not obscured by reflections. When an energy efficient glass is used on face 2, the patterns must be applied on face 3. It is then recommended to use a very contrasting color to enhance efficiency.

In 2018 CSA formed a Bird Friendly Building Design committee to work on the development of a Standard. In May 2019 the Standard CSA A460:19 was approved. It covers building design in both new construction and existing buildings.

Its intent is to reduce bird collisions with buildings.

It states that "bird collision mitigation strategies shall be present to a height of 16 meters from grade or to the height of the adjacent mature tree canopy, whichever is greater. "Where glazing is adjacent to green roofs and or other rooftop vegetation, the bird collision mitigation strategy shall be applied to a height of 4 meters from the surface of the green roof or the height of the adjacent mature vegetation, whichever is greater".

To minimize the risk of bird collision, treatment of glazing within the specified elevation shall apply to:

- a) A minimum of 90% of all glazing material;
- b) All glazing material that creates fly-through conditions; and
- c) All glazing material adjacent to a natural heritage features.

LAURIER offers Birds friendly CERAFRIT or digitally printed CERAPRINT glass solutions. We can also assist you to create a personalized design that will meet the city of Toronto guidelines.

LAURIER STANDARD PATTERNS

Standard application

Patterns below follow the spirit of the City of Toronto recommendations

Check local regulations

CERAPRINT – CP0171

1% COVERAGE

*5mm (3/16") diameter dots
spaced 100mm (4")
Center to center*

CERAPRINT - CP --0569

1 COVERAGE

*5mm (3/16") diameter dots
Spaced 100mm (4")
Center to center*

CERAPRINT – CP-0709

2% COVERAGE

*5mm (3/16") diameter dots
Spaced 25mm (1")
Center to center*



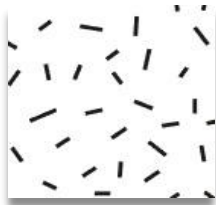
CERAPRINT – CP-0548
4% COVERAGE



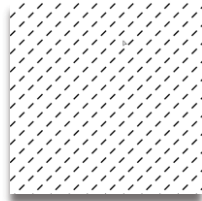
CERAPRINT – CP-0552
5% COVERAGE



CERAPRINT – CP-0553
17% COVERAGE



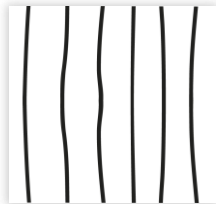
CERAPRINT- CP-0540
6% COVERAGE
6mm (1/4") Lines
Spaced 60mm (2 3/8")
Center to center



CERAPRINT-CP-0542
9% COVERAGE
5mm (3/16") Lines
Spaced 50mm (2")
Center to center



CERAPRINT –CP0554
38% COVERAGE
Various size Lines

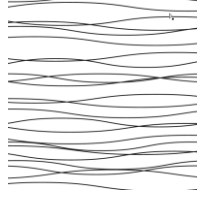
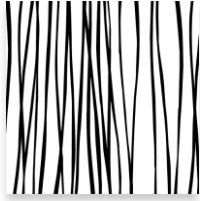


CERAPRINT-CP0551
20 % COVERAGE
5mm (3/16") Lines



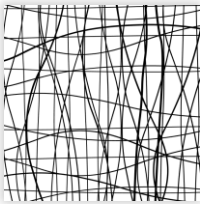
CERAPRINT-CP0549
16% COVERAGE
5mm (3/16") Lines





Other CERAPRINT Standard patterns
Check local regulations

CERAPRINT-CP0555
15% COVERAGE



CERAPRINT-CP0550
15% COVERAGE



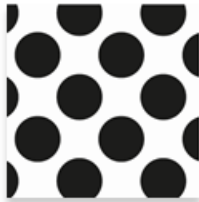
Screen-printed CERAFRIT Standard patterns

Standard application– no changes

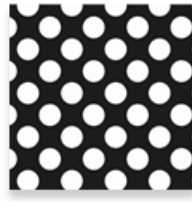
Patterns below follow the spirit of the City of Toronto recommendations

Check local regulations

CERAFRIT
50% COVERAGE
6mm (1/4") diameter dots
Spaced 11mm (7/16")
Center to center



CERAFRIT
60% COVERAGE
3mm (1/8") diameter dots
Spaced 6mm (1/4")
Center to center



CERAFRIT
50% COVERAGE
6mm (1/4") Lines
Spaced 12mm (1/2")



CERAFRIT
40% COVERAGE
3mm(1/8") Diameter dots
Spaced 6mm (1/4")
Center to center



CERAFRIT
30% COVERAGE
3mm (1/8") Diameter dots
Spaced 7mm (9/32")
Center to center

