

Yes, bird-friendly glass patterns can be on inside surfaces!

The new Canadian model code for bird-friendly design requires: that bird-friendly glass patterns be on surface 1 to comply. Does this mean that bird-friendly patterns on inner surfaces won't be effective? No – there is a lot of effective bird-friendly glass with patterns on an inner surface.

Simply stated, for an appropriate pattern on glass to effectively deter bird collisions, the pattern must be visible to a bird from far enough away that the bird has time to change direction and avoid impact. The concern is that reflections on surface 1 may make patterns on inside surfaces invisible, or less visible, part or all of the time. However, this may be avoided, if glass is carefully designed, and we have good examples of successful, bird-friendly buildings with frit on interior surfaces of the glass. That surface 2 patterns can be effective is important, because it lowers costs and greatly enlarges the options available for bird-friendly design at a point in time when a growing number of jurisdictions are requiring it. For fritted glass, the key is for surface 1 to have a reflectivity of 15% or less.

The most notable recent example, especially important because we have data from before and after, is the renovated Jacob Javits Center in Manhattan.

(<https://www.youtube.com/watch?v=FCTTHuWPxDg&t=114s> for all the details, photos below). Before the renovation, the building was of serious concern, documented by years of Project SafeFlight (NYC Audubon) monitoring. The renovation enlarged the building, replaced the original glass, dramatically increased glass wall area, added a bird-attracting green roof, and simultaneously **reduced bird collisions by over 90%**. The glass on this building has an **internal** frit pattern designed to deter collisions, but the frit also helps control costs for managing temperature in the building. The architects, FXCollaborative, say there were no incremental costs to make the building bird-friendly.



Jacob Javits Convention Center



Jacob Javits glass close up