



Maryland General Assembly – Senate EEE Committee – February 2, 2023

Energy-Conserving Standards (Maryland Sustainable Buildings Act of 2023) – SB 92

TESTIMONY OF DR. MARK SOUTHERLAND – **SUPPORT**

I am a professional ecologist who has served on the boards of Maryland Science Council, Maryland Water Monitoring Council, Howard County Environmental Sustainability Board, Howard County Conservancy, and Patapsco Heritage Greenway. I represent **Safe Skies Maryland**, a statewide organization dedicated to saving birds, wildlife, and people.

Two events brought me to advocating for this bill:

1. Glass Buildings as Energy Sinks. As a scientist working in the fields of energy conservation and green buildings, I was struck by the exponential growth of buildings with extensive glass facades. I realized that these majority glass buildings would be an energy sink and erode the energy conservation gains from decades of green building policies. While the extensive use of glass was originally considered green, because it reduced the need for artificial lighting, technological advances in LED lighting meant that the heat gain from windows and the need for additional air conditioning far outweighed the benefits. If future building continues to be dominated by extensive glass facades, then we are setting up society for increasing energy costs and greenhouse gas emissions for decades to come.

2. Glass Buildings as Killers of Birds. As a consultant to Maryland DNR on the licensing of windpower turbines, I learned that, while we could avoid major bird mortality at windpower turbines (with proper lighting and siting), building glass was a thousand times much larger killer of birds. Then I witnessed the construction of the first of several new, large glass buildings being built in Downtown Columbia and realized that we were creating a deathtrap for birds migrating through our community. I realized that, as the number of glass buildings statewide and nationwide was growing rapidly, bird deaths from building collisions was about to become much worse. Then, in September 2019, scientists reported that we have lost 29% of all birds in North America since 1970, confirming the dire state of this treasured resource.

Win-Win Solution. Most importantly, I learned that both problems were easily solvable. The building standards embodied in this bill would both conserve energy and reduce bird mortality by more than 90%. So, I was compelled to act and, working with Delegate Hill, Senators Guzzone and Lam, and others, began efforts to solve this problem at the local and state level.

Here is a summary of the problem and the solution:

This is an important problem with existing solutions and a diverse concerned citizenry

1. The number of majority glass buildings is increasing exponentially, setting up society for long-term energy costs as building envelopes will be in place or at least 50 years.
- There are no daylighting or energy benefits with window-to-wall ratios over 60 percent, and in most cases an area of 25-40 percent is optimum, i.e., lowest energy consumption
 - When glass treated to be bird friendly is used, energy loss is much reduced

2. 1 billion birds die in the U.S. every year colliding with transparent or reflective building glass (and the number of glass-dominated buildings is growing exponentially)
 - People walk into glass when they don't see the frame; birds never recognize a frame
 - Nearly all species are affected; even the best and brightest birds collide and die
 - Declining populations of migratory songbirds are significantly attributable to this non-sustainable loss
 - Birds are both an ecological mainstay and an economic driver through factors such as pest control and tourism (Maryland receives nearly \$1 billion in economic benefit from bird watching each year)
3. Building design and treated glass are an existing solution
 - Flight tunnel tests conducted by academics and the American Bird Conservancy have demonstrated the degree of safety provided by different kinds of glass
 - Green Business Council LEED program has codified the bird-friendly innovation credit standard in this bill
 - Building façade, screens, and shades work
 - Glass with UV or visible patterns of narrow lines or dots in 2"x4" arrangement work
 - Bird-friendly design is cost neutral at the design phase
 - Bird-friendly designs and glass are energy efficient and saves dollars over time
4. Bird Safe Building designs and retrofits are being implemented
 - Many beautiful glass buildings are bird friendly such as Anchorage Museum and the Inuit Headquarters in Mountainview CA
 - Jacob Javits Conference Center in NYC was expanded, but used bird friendly glass and has reduced bird deaths by 90% and energy consumption by 25%
 - Locally the Maryland DNR Tawes Building, National Aquarium, universities, nature centers and others are retrofitting their glass to be bird friendly
5. Bird Safe Building laws are being implemented
 - States of Illinois (2021) and Minnesota (2013) have mandatory bird safe building laws and Howard County MD passed a comprehensive law in July 2020
 - Mandatory laws are also in place in New York City, San Francisco, Oakland, Toronto, Ontario Province, and many other cities in US and Canada, with voluntary laws in other places (DC Council unanimously passed a bill and Mayor signed it on January 26, 2023)
 - Federal General Services Administration has instituted bird-safe standards, following passage in US House of a bi-partisan bill Bird-Safe Buildings Act earlier

Maryland has a chance to act locally to save money, fight climate change, and reduce the unsustainable deaths of economically important birds. Waiting even one year will see more glass buildings built and more money lost, more greenhouse gas emissions, and more birds dying.