TESTIMONY BEFORE THE NEW YORK CITY COUNCIL
COMMITTEE ON HOUSING AND BUILDINGS
NEW YORK CITY DEPARTMENT OF BUILDINGS
MELANIE E. LA ROCCA, COMMISSIONER
SEPTEMBER 10, 2019

Good morning Chair Cornegy and members of the Committee on Housing and Buildings. I am Melanie E. La Rocca, Commissioner of the New York City Department of Buildings ("the Department"). I am joined today by Gus Sirakis, my First Deputy Commissioner. Together, we are pleased to be here to offer testimony in support of the three of the bills before the Committee today.

Let me start by thanking the City Council for your ongoing partnership with the Department. We both strive to ensure that this great City of ours – with its over one million buildings and 45,000 active construction sites – not only has the safest built environment, but that we continue to evolve and grow New York City's leadership in the field of design and development.

We are a Department dedicated to the safety of all people – whether they build New York City, work in New York City, live in New York City, or visit New York City. We are a Department that is dedicated to ensuring workers return home safely every single night, that tenants are safe in their homes and are not displaced by construction work, and that our customers receive the best level of service, all while strengthening our use of data for the benefit of New Yorkers.

Much has changed at the Department since the establishment of a Superintendent of Buildings, our earliest known predecessor, in 1860. The Department went from a unit within the City's Fire Department to a Citywide Department of Buildings in 1936. We have grown – to a Department

of nearly 2,000 employees – and changed throughout the years to respond to the needs of New Yorkers and the ever-evolving needs of an industry we work closely with.

However, the one thing that has remained constant throughout our many years is the presence of codes that regulate the construction of buildings, which have existed in New York City in some form since as early as the 17th century. Since that time, our codes have been revised periodically to ensure that they are up-to-date, and that they reflect advancements in technology, as well as the latest standards for life safety.

The New York City Construction Codes ("Construction Codes") are the backbone of New York City's built environment. They, coupled with the New York City Zoning Resolution, which we are responsible for interpreting and enforcing, physically make New York City the place it is today.

Today, the Committee has before it, **Intro. Number 1481**, which updates the New York City Plumbing Code ("Plumbing Code"), which is part of the Construction Codes.

The Department began this Construction Code revision cycle in 2015. Our code revision process is a true labor of love on the part of our staff and committee members and represents a deep collaborative process. This public-private partnership involves over 645 industry professionals and stakeholders who volunteer their time and sit on 14 different committees, including a Managing Committee and Technical and Advisory committees, which are organized by discipline. To date, this effort has resulted in over 37,000 total hours of service, of which more than 7,000 hours were spent on just the Plumbing Code revision. Committee members include architects, engineers, attorneys, other City agencies, as well as representatives of construction, labor, real estate and other stakeholder organizations. A complete list of committee members is available on the Department's website.

The proposed revisions to the Plumbing Code are based on the 2015 edition of the International Plumbing Code, which are developed by the International Code Council. The International Code Council is an association with over 64,000 members, which is dedicated to developing model

codes, like the International Plumbing Code. All 50 States, as well as 4 U.S. territories and the District of Columbia rely on the International Code Council model codes to form the basis of their construction codes. While the proposed revisions use the International Plumbing Code as a base, they also modify or add new language to the Plumbing Code tailored to the unique needs and characteristics of the City's built environment.

This bill makes 840 revisions to the Plumbing Code. 565 changes came directly from the International Plumbing Code, 169 changes came from the Code Revision Committees, 89 changes were a combination of both the International Plumbing Code and Code Revision Committees' input and 17 changes were more minor in nature and proposed by the Department. The bill also makes two dozen substantive revisions, which include revisions that add new or expanded requirements to the Plumbing Code. No single amendment or new proposal in this bill was included unless it was first approved by our committees and agreed upon, through consensus.

Highlights of the revisions being made to the Plumbing Code by this bill include:

- A new requirement that pipes bear all required markings, including those required by applicable reference standards, which will aid in development inspections;
- A clarification that multi-tenant facilities may share a drinking fountain, similar to shared public toilet facilities, provided that drinking fountains are available for use on each floor;
- A new requirement that each well of a multiple compartment sink discharge independently to a waste receptor, which strengthens the existing protections against cross-contamination in food handling;
- New provisions related to roof drain flow rate, which will result in a more performance based approach to drain design; and
- New provisions that limit the cutting away of a structural member during the installation or alteration of a plumbing system, which will improve the safety of the joists, studs, beams, columns or other structural members that support a building.

Before I discuss the remaining bills before the Committee, I would like to take a moment to thank the members of the Plumbing Technical Committee, the Administrative and Enforcement Advisory Committee and the Managing Committee, who contributed their expertise and countless hours to produce the bill before the Committee today.

The Department expects to submit revisions to the Energy Code later this year. Further, the Department expects to submit revisions to the balance of the Construction Codes, which includes the Administrative, Building, Fuel Gas, and Mechanical Codes, and to the Electrical Code in 2020.

Turning now to construction safety, an area of extreme importance to not only the Department, but to this Administration, and certainly to this City Council. We are strongly supportive of **Intro. Number 1661**, which would require that construction workers at certain construction sites receive relevant information regarding site safety training during required site safety orientations.

These site safety orientations are required before a worker begins work at a site and each year thereafter and are required at all construction sites where Local Law 196 construction safety training is mandated. These are sites that require that a Construction Superintendent, Site Safety Coordinator or Site Safety Manager be designated, which generally means they are New Building sites, with the exception of the construction of a 1-, 2-, or 3-family building, or that they are sites involving the full demolition of a building or the enlargement of a building.

The Department supports this bill as it will put valuable information and resources, including applicable deadlines, the types of training required and total number of hours of training required, directly into the hands of workers.

This bill will build on the efforts of many to ensure information about site safety training reaches those who need it. Since the enactment of Local Law 196, the Department has continued to perform outreach to our stakeholders. Such outreach includes:

- launching a week of action this week, which involves direct outreach to workers on construction sites in all five boroughs and an educational advertising campaign targeting construction workers, which includes advertisements on television, print media, radio and on subways;
- direct mailings to permit holders for sites where the law is applicable
- direct mailings to site safety professionals reminding them of their obligations;
- distribution of educational materials directly to construction workers;
- creating our Site Safety Construction Map, an interactive map workers can use to determine whether a job requires site safety training; and
- implementing a rule to require signage within construction sites that provide information to workers about site safety training in all languages spoken at the site.

The final bill before the Committee, **Introduction Number 1482-A**, would require that new buildings and buildings replacing glass, utilize bird-friendly glass, which is less reflective or transparent. The Department shares the Council's goal of reducing the potential for bird collisions with glass. We look forward to working with the Council, the bill's sponsors and the industry, on this proposal.

We thank the City Council for its continued support and look forward to continuing our work together to improve the Department for the benefit of all New Yorkers.

We welcome any questions you may have.

SUBSURFACE PLUMBERS ASSOCIATION OF NEW YORK CITY, INC.

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Response to Intro 1481

Good day Members of the City Council, and all others in attendance today. My name is David Balkan, and I am the Vice president of the NYC Subsurface Plumbers Association, and the CEO of Balkan Sewer And Water Main Service. The Subsurface Plumbers Association is a highly regarded plumbing trade association established for well over 40 years. We are also closely affiliated with the NYC Master Plumbers Council. It is my pleasure to have the opportunity to speak here today.

Intro 1481 is an all-encompassing document regarding updating the entire NYC Plumbing Code. However the industry which I represent is the house sewer and water service line industry. Therefore we will solely address the proposed new definition of a building drain, and its corresponding component a house sewer.

In this Association's previous response to Intro 1481, we had clearly stated serious concerns about the then proposed change in definition of a building drain. To briefly re-state our concerns, they included an overlapping and confusing inspection process by both the DEP and the DOB brought about by extending the definition of a building drain to the actual property line. This would have resulted in needless additional charges of approximately $5,900.00 to NYC property owners when they required house sewer work. Additionally, and perhaps more seriously, there was the very real potential for both bodily injury and property damage due to excavations having to be left open. They key component of the previous wording read as follows:

"That part of the lowest piping of a drainage system that receives the discharge from soil, waste and other drainage pipes inside and ***that extends 5 feet (1524 mm) in developed length of pipe beyond the exterior walls of the building or up to the property line, whichever is further****, and conveys the drainage to the building sewer."*

I am pleased to report that our above concerns have been appreciated and fully addressed by both the DOB and DEP, and in a most sensible and logical way. The new definition of a building drain as proposed will now be defined as ending at the outside of the foundation wall as stated below:

"That part of the lowest piping of a drainage system that receives the discharge from soil, waste and other drainage pipes inside and ***that extends to the exterior walls of the building*** *and conveys the drainage to the building sewer."*

The house sewer likewise will be considered to start at the outside of the foundation wall. This simple and logical change in wording will save NYC property owner's thousands of dollars when any sewer work is required inside their property line. Perhaps more importantly, it will virtually eliminate the potential of open excavations causing bodily injury, property damage, and flooded basements.

I would like to state that the process that resulted in this very positive change in the definition of a building drain was seamless. The industry's concerns were treated as meaningful, and representatives from our industry were treated respectfully and with a high degree of courtesy by both DOB and DEP personnel. On behalf of my industry, and my Association, I would like to state that this experience in taking part in Intro 1481 was quite a pleasant one. It is refreshing when government and industry can work together for the common good. I would like to thank all those that took part in producing Intro 1481, including Council Staff, for your considerable time and effort. It was a truly large and cumbersome feat, one which has equally as large ramifications. I further thank you for the opportunity to speak today, and for the ability to take part in the process.

Respectfully,

David Balkan,

Vice President Subsurface Plumbers Association

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September 10, 2019

Good afternoon Chairman Cornegy, Members and Staff of the City Council Committee on Housing and Buildings. My name is Dottie Mazzarella. I am the Vice President of Government Relations for the International Code Council (ICC). The ICC is a member-focused association dedicated to helping the building community provide safe, resilient, and sustainable construction through the development and use of model codes (I-Codes) and standards used in the design, construction, and compliance processes. Most U.S. states and communities, federal agencies, and many global markets choose the I-Codes to set the standards for regulating construction, plumbing and sanitation, fire prevention, and energy conservation in the built environment.

I appreciate the opportunity to submit testimony in support of Int. 1481 to update the New York Plumbing Code to the 2015 International Plumbing Code (IPC) with amendments that reflect the unique character of the City.

The I-Codes are currently adopted at the state or local level in all 50 States, in New York City, the District of Columbia, Guam, Northern Mariana Islands, the U.S. Virgin Islands and Puerto Rico. The I-Codes are also used internationally in the Caribbean, Central America, the Middle East, Georgia and Mexico. The International Plumbing Code (IPC) which Int. 1481 is based upon, is in use or adopted in 35 states, NYC, the District of Columbia, Guam, Puerto Rico, Trinidad and Tobago, the Cayman Islands, and Columbia.

The I-Codes are revised and updated every three years by a national consensus process that strikes a balance between the latest technology and new building products, economics and cost while providing for most recent advances in public and first responder safety and installation techniques. The I-Codes are correlated to work together without conflicts to eliminate confusion in building design or inconsistent code enforcement among different jurisdictions.

The ICC Code Development Process is an open, inclusive process that encourages input from all individuals and groups and allows those governmental members, including representatives from NYC, to determine the final code provisions. I am pleased that several NYC building and fire department staff and other organizations in the City participated in the most recent ICC Code Hearings, and as a result, several provisions of the current NYC Construction Codes and other Local Laws have been incorporated into the 2015 I-Codes – which includes the 2015 IPC. This involvement and participation by personnel from the Department of Buildings is critical to the success of future versions of the I-Codes. The technical and practical expertise of NYC building and fire officials, design professionals, builders, contractors, labor representatives and all organizations interested in building safety are vital to your adoption efforts as well as ours.

New York City is one of many jurisdictions that values public and first responder safety and the protection of our built environment by updating plumbing, building, fire, and energy codes. By regularly updating your construction codes, the City provides the safest and economically prudent climate for its citizens since it will allow the use of new construction standards or methods. Accordingly, Int. 1481 will update the City's Plumbing Code to reflect recent building, safety and efficiency standards developed by the nation's leading building, plumbing and fire department officials, building scientists, builders, general and plumbing contractors, architects, engineers, product manufacturers and discipline specific associations with modifications unique to the City.

The International Code Council is honored to partner with the City of New York, and we look forward to continuing to serve your needs. Thank you for the opportunity to present testimony to you today in support of Int.1481. I am happy to answer any questions you may have or provide additional documentation.

ACEC *New York*

American Council of Engineering Companies of New York

Testimony on Intro. 1481

New York City Council, Committee on Housing and Buildings
September 10, 2019

Testimony by:
Ed Bosco, PE LEED AP BD+C
Vice Chair, American Council of Engineering Companies of New York
Managing Principal, M-E Engineers
(also a member of the Mechanical, HVAC & Boilers Technical Committee)

On behalf of the American Council of Engineering Companies of New York (ACEC New York), I'd like to thank Chair Cornegy and the members of the Committee for their efforts over the years to update the City's Construction Codes. I am here today to testify in support of Intro. 1481 which proposes revisions to update the New York City Plumbing Code.

Founded in New York City in 1921, ACEC New York is one of the oldest continuing organizations of professional consulting engineers in the U.S. We represent close to 300 consulting engineering and affiliate firms throughout New York State, with a concentrated presence in New York City. Our members plan and design the structural, mechanical, electrical, plumbing, civil, environmental, fire protection and technology systems for the City's buildings and infrastructure.

Over the years, hundreds of ACEC New York members have donated countless of hours chairing and/or serving on the Technical Committees convened by the Department of Buildings (DOB) to assist with revising the City's construction codes. The Technical Committees work closely with the DOB to address issues associated with the adoption of the International Plumbing Code for use in New York City. We thank the DOB for this high level of collaboration and for continually improving upon the process for updating the Construction Codes based upon industry feedback.

During the current code revision cycle, 120 members of ACEC New York have been serving on the Technical and Managing Committees. The Plumbing Technical Committee that assisted the DOB in drafting the Plumbing Code revision being considered today is chaired by Phil Parisi of MG Engineering, who is also chair of ACEC New York's Plumbing Code Committee.

We applaud the work of the DOB's Plumbing Technical Committee and understand that it is a two tier process with further review by a Managing Committee composed of representatives from all sectors of industry and government. The end result is a true consensus document.

Going forward, ACEC New York members will continue to work with the other DOB Technical Code Committees and the City Council to ensure that the updates reflect the on-the-ground issues encountered by our engineers, architects and builders every day as well as best practices for safety and sustainability.

We respectfully offer our support for this current round of amendments which reflect those objectives and urge the council to swiftly pass this bill.

MGEngineering D.P.C. / we engineer success

September 8, 2019

Chairperson Robert E. Cornegy Jr.
City Hall Park
New York, NY 10007

Re: Intro 1481-2019 – Local Law to Amend the New York City Plumbing Code
Testimony before the Housing and Buildings Committee Meeting
Tuesday, September 10, 2019, 10:00 am

Dear Mr. Cornegy:

My name is Philip F. Parisi Jr, PE, and I am here to support Intro 1481-2019, the proposed updated Construction Codes for the City of New York. I am an Associate Principal and Head of the Plumbing and Fire Protection Department at MG Engineering DPC, located here in New York City. MG Engineering is a prominent and one of the foremost consulting engineering firms in New York City providing the design of the mechanical, electrical, plumbing and fire protection systems for some of the most prestigious buildings in New York City and other locales in the United States. I am currently the Chair of the New York City Code Revision Plumbing Technical Committee, a member of the New York City Code Revisions Managing Committee, and a member of the New York City Master Plumbers and Master Fire Suppression Contractors Licensing Board.

During the previous code revision cycles which began in 2006 I participated as a technical committee member and in 2011 I participated as the Co-Chair of the New York City Code Revision Plumbing Technical Committee, along with numerous other committee members. Both of those efforts resulted in the 2008 and subsequently the 2014 NYC Plumbing Code. Over the last 12 years the committee comprised, mostly volunteers, Department of Building staff and other city agencies, have worked together to adapt the 2003 International Plumbing Code to meet the special needs of New York City and then update the former 2008 New York City Plumbing Code to be further in line with the 2009 International Plumbing Code resulting in the 2014 NYC Plumbing which is currently in place today. Similar to previous years, the goal of the New York City Department of Buildings and the industry as a whole is to maintain a similar code revision cycle as the International Code Council maintaining a high quality and keeping up with the latest industry technology and practices. For the past 12+ years I have been a part of this code revision process, the time and effort put into the maintenance of updating of the New York City Construction Codes has been shown to be of great benefit to New York City based on constant feedback from other industry professionals and community response. We have found that with the Plumbing Code simplified it is easier to apply in practice while maintaining high quality standards. This code revision has improved over the previous two cycles, enhancing and engaging all city agencies as well as improving the speed at which the review and revision cycle takes place. The improvement in the communication between the industry professionals and the city agencies including the Department of Buildings is a testament to the success of the revision process.

The Plumbing Technical Committee kicked off the revision July 26, 2017, and was comprised of 45 members, including representatives from the engineering community, Contractors, representatives of the Real Estate Board (REBNY) and the Building Owners and Managers Association (BOMA). Representatives from the DOB, the DEP, the FDNY, the SCA and the NYCHA were also included to form a broad and diverse consensus group. During this process, the Building Department provided the proposed code language, which incorporated the 2015 International Code language into the 2014 New York City Construction Codes, as a base document for review. We worked for approximately two (2) years and over two hundred (200) hours, in 40+ committee meetings, reviewing and implementing changes that would improve upon the current New York City Construction Codes, remove ambiguity and improve the safety and performance for new and existing construction.

MG Engineering D.P.C. 116 West 32nd Street New York, NY 10001 **p** 212.643.9055 **f** 212.643.0503 **www.mgedpc.net**

To highlight some of the significant updates in the Plumbing Code: We added and refined the definitions within the code to better reflect today's technology and terminology as well as coordinated with the NYC DEP and Subsurface Plumbers Association to align the building drain and sewer terminology. We have coordinated multiple sections among the administrative sections for Licensing, Plumbing, Fuel Gas and Fire Codes to simplify and make them consistent across the construction codes. A significant achievement was the creation of Chapter 14, "Subsurface Landscape and Irrigation Systems", which aligns standards with the industry and NYC DEP for the discharge of storm water to subsurface irrigation systems. Majority of the effort was put to minor revisions to incorporate safety requirements, alignment with the new NYC energy code, alignment with technical bulletins issued by the NYC DOB, materials of piping systems, method of support and required testing for plumbing systems. Another significant achievement was the coordination with the NYC DEP Storm Detention Facility requirements, adding detailed diagrams for clarity and to eliminate any conflicts that may have existed in previous years during the design and approval process for site connections and detention facilities. Finally, we have also aligned the reference standards to be consistent with the national reference standards such as ASME, AWWA and NFPA, and the NYC Fire Code references as well.

The results of our hard work are the code changes presented in Intro 1481-2019. I believe that these changes to the New York City Plumbing Code will make significant improvements to the current versions. The proposed changes will allow our codes to remain current with the construction industry, eliminate ambiguity and keep our codes updated and consistent with the New York State and the International Building Codes. On behalf of the New York City Plumbing Technical Committee and the engineering community, I urge the Housings and Building Committee to accept and approve Intro 1481-2019.

Sincerely,

Philip F. Parisi Jr., P.E., LEED AP
Associate Principal

cc: **NYC Department of Buildings**
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Helen Gitelson, **HGitelson@buildings.nyc.gov**
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MGE
Michael Gerazounis, P.E., LEED AP / Bruce W. Jaffe / Peter Gerazounis, P.E., LEED /
Michael Marino, LEED AP / Masha Dinaburg, P.E., LEED AP / Brian A. Bateman, P.E. /
Arthur Gladstone / Thomas J. Fields, P.E., HBDP, EBCP, LEED AP / Anita Skara / Anthony Posa

TESTIMONY OF ELIAS MARKEE-RATNER
BEFORE THE
COMMITTEE ON HOUSING AND BUILDINGS
OF THE
NEW YORK CITY COUNCIL

Public Hearing
September 10, 2019

My name is Elias Markee-Ratner and I'm in the fourth grade at a public school in the East Village. I love birds. I have been studying them and birding since kindergarten. It's really important to me to save birds from the threats we've put in their way.

Many kids my age have never held a bird, live or dead. I've been lucky enough to hold many live birds. But I've held even more dead ones, and every time it makes me sad.

The reason I do this is because I work as a volunteer with New York City Audubon's Project Safe Flight. We monitor dangerous buildings where birds collide with windows, and hopefully help to end this problem.

Here is what I've seen as a Project Safe Flight volunteer. This past weekend in the Wall Street area we monitored six tall buildings that are dangerous to birds. In the space of 45 minutes we found four victims – two dead and two badly injured and dying. These included beautiful migrating songbirds like the Chestnut-sided Warbler and the Black-and-white Warbler. I also saw an injured Common Yellowthroat that had just bounced off a large, mirrored glass window.

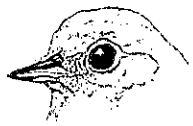
And that was only one morning at a handful of buildings. Imagine the hundreds of thousands of birds that are killed or injured every year in New York City after colliding with buildings that have unsafe windows.

Before I started volunteering, I thought the idea of these beautiful birds hitting windows and dying was terrible. But actually witnessing it is ten times worse.

I volunteer with Project Safe Flight to help birds thrive and survive. And that's where you can help us.

Please pass the Bird Friendly Glass bill.

Thank you!

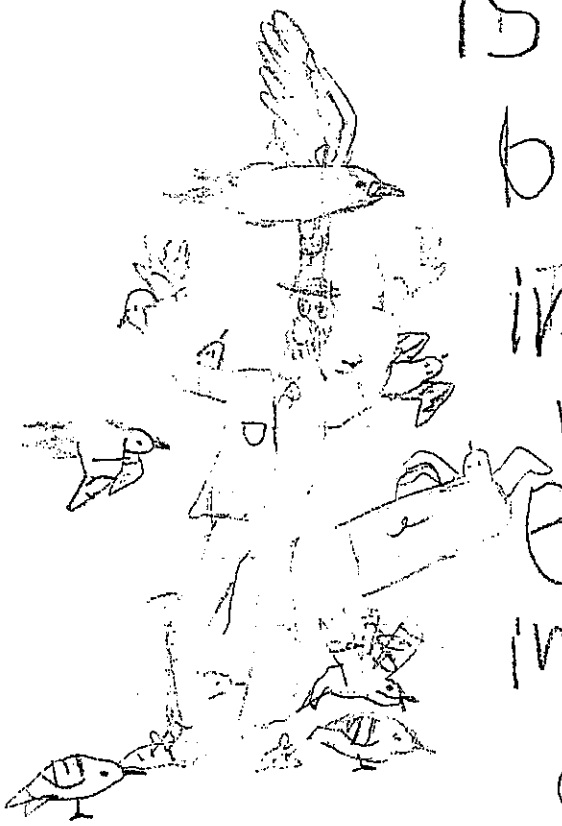


My name is John Dean and I am 11 years old. For my whole life I have called New York City my home. I have always been passionate about birds, watching them in urban parks whenever I get the chance. For a while I have also aware of the migratory birds that die each year in our city from colliding with glass windows. When I was in third grade, I wrote a letter to Mayor de Blasio requesting that less tall buildings are constructed in New York City to reduce migratory bird deaths. But today, using modern technology, we have the ability to make a compromise. The bird safe buildings act would preserve populations of migratory birds while allowing developers to build highrises. But there are other reasons why we should protect birds. They have taught us so much over the years. Travelers lost in a desert used to follow birds to find water. More recently, high-tech drones have been modeled after the flight of birds. The Wright Brothers even designed the first successful airplanes mimic aspects of avian flight. Birds have helped and continue to help us throughout history and in current times. During the wars of World War I and II, pigeons were used to deliver messengers to soldiers across enemy lines. One particular pigeon named Cher Ami, french for "Dear friend", was awarded the Dickin Medal for her bravery in World War II. She delivered an essential message to the Americans during the Meuse-Argonne Offense across german lines and survived despite severe injuries. In 1848, settlers in the state of Utah's crops were being destroyed by a cricket plague. But huge flocks of california gulls devoured the insects, saving the lives of many. Today vultures eat dead animal carcases, preventing the spread of deadly diseases. In the past, there have been consequences when bird species were threatened by humans. In China during the late 1950s and early 1960s, the chinese government started the four pests campaign. One of the targeted animals was the Eurasion tree sparrow. Across China, millions of sparrows were killed because they were believed to eat crops. The sparrow population was greatly diminished, allowing the populations of their main prey, caterpillars, to increase dramatically and consume much of the crops in China. This was one of the main contributing factors to the Great Chinese famine. If the Bird Safe buildings law is passed, it will be not only a win for birds, but a win for people, too.

1/11/17

Dear Mayor de Blasio

My hope for 2017 is for there to be less tall bildigs in Brooklyn. The reson is because Birds see reflection in the widows and crash into them.



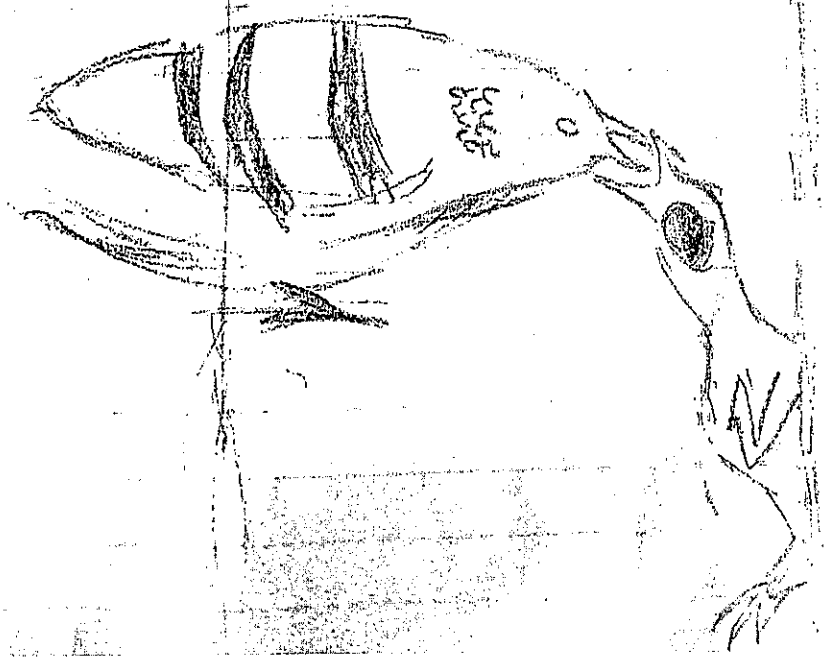
I love birds. Pigeons are not as bad as you think they are. they are one of

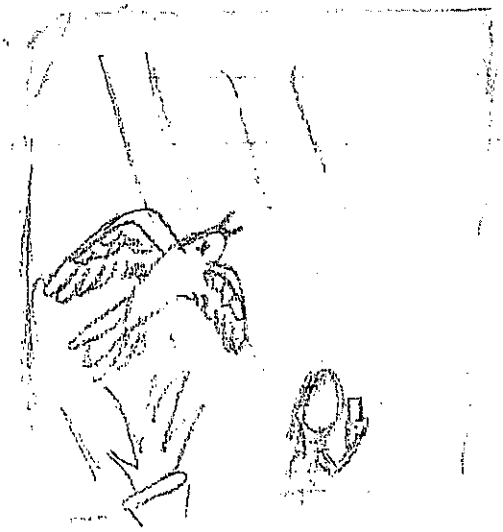
turn page

the only birds to give milk to there babies like mamals. I also hope there will More Parks in New york.

from John W. Dean

age 8.





NYCLASS

WE LOVE ANIMALS AND WE VOTE!

September 10, 2019
NYC Council Committee on Housing and Buildings
Testimony of Edita Birnkrant, Executive Director, NYCLASS
In favor of Intro 1482-A; Edita@nyclass.org; 917.940.2725

My name is Edita Birnkrant and I am the Executive Director of NYCLASS, (New Yorkers for Clean, Livable, and Safe Streets) an animal advocacy non-profit organization founded in 2008 and based in New York City, with supporters in all five boroughs. I am a resident of Queens. NYCLASS is strongly in support of Intro 1482-A which would require that glass installed on newly built or altered buildings be constructed with bird friendly glass to reduce the high number of bird strike fatalities. We commend Council Member Espinal, Speaker Corey Johnson and the other bill co-sponsors for introducing this progressive, common sense legislation to make our City more humane by creating a bird-friendly skyline. Birds play an important part in our ecosystem and we should do all can to protect them.

Over 100 species of birds that we know of have collided with buildings in New York City. The Spring and Fall are particularly deadly for the dozens of species of migrating birds passing through New York City New York City Audubon estimates that 90,000 to 230,000 birds die every year in our City as a result of colliding with reflective or transparent glass buildings. Some of these birds die instantly, but some first suffer severe traumas such as broken wings, internal injuries and concussions. The Wild Bird Fund, located on the Upper West Side, says they treat between 600-800 birds annually who have suffered such traumas from building collisions.

When we know better, we can do better. There is no reason to continue constructing buildings in such a way that creates mass bird deaths, now that we know there is a simple solution. The Javits Center in Hell's Kitchen is a perfect example of the success of implanting bird-friendly measures. Before it was redesigned to include bird-safe glass, the Javits Center was one of the biggest bird death sites in our City After the renovations, bird collisions decreased by 95 percent. With Intro 1482-A we have a wonderful opportunity to create a different future without these deadly, dismal bird death statistics. I urge you to pass Intro 1482-A so that we can make New York City more humane for our winged residents and visitors.

September 10th, 2019

Good Morning New York City Council Members,

I would like to first thank you for your service to this city and for your time today. My name is Chrissoula Mihelakis and I am here to offer the perspective of a New Yorker and explain why I am a proponent of Int. 1482-A, requiring bird friendly glass.

I am a life-long New Yorker and current Upper West Side resident. I grew up in Astoria, Queens, am building my career in this city, and intend to spend the rest of my life here. I am pro-New York. I want to see this city thrive and its inhabitants flourish.

As a Queens native, I am thrilled by Long Island City's growth, which is in part manifested by shiny new glass sky scrapers. I am grateful for all the jobs and housing that come along with these new structures and the benefits to the surrounding communities. I myself, have started my career in one of Long Island City's first glass buildings.

Concurrently, I am deeply troubled by the unintended negative effect of these new glass buildings on avian life. This is an issue that I take incredibly seriously and that motivates me to take action. The foreseeable escalation of this problem, if we don't act now, by the increasing number of glass buildings in New York frightens me.

I know that other New Yorkers care as well. Everyone with whom I speak about this issue, be it neighbors, colleagues or friends wants a solution. Severely detrimental harm to innocent wildlife on a scale of this magnitude is an easy issue to rally behind, especially when there is such a simple solution at hand.

Every time I come across a dead bird on our streets my heart breaks. I think about the thousands of miles this bird has flown along the Atlantic Flyway, a rite of passage for its species since the Ice Age, and how its life was cut short in an instant by no fault of its own. The staggering number of fatal bird collisions is almost incomprehensible. Beyond birds' important role in the ecosystem and the negative ramifications of their species' decline, they bring joy to my life and to the lives of many New Yorkers. They are beautiful, exceedingly intelligent and preciously valuable.

The progress of New York and caring for avian life and our environment are not mutually exclusive. The solution offered in Int. 1482-A is a win-win. It protects avian life, and its minimal requirements will not be a deterrent to building construction in our magnificent city.

By passing this bill you will be saving over 200,000 bird lives every year. You will be ensuring that thousands of buildings built in the future include bird-friendly glass. You will be in acting in contribution to New York City.

We have a responsibility to ensure New York's continued growth is executed in a responsible manner. New Yorkers demand it, and anything less is inexcusable. Please vote in favor of Int. 1482-A.

Thank you,

Chrissoula Mihelakis

Re: In Support of Int. 1482

To: New York City Council
New York NY

September 8, 2019

As a New York City Audubon Project Safe Flight volunteer, I have witnessed the impact that tall skyscrapers with sheer glass have on migrating birds. For the past several years, I have visited five skyscrapers in the downtown western neighborhood near the World Trade Center, and found many migrating warblers, ovenbirds, all beautiful specimens, fallen by the confusing reflective glass that is in their way. The Atlantic Flyway is the path that birds have taken for eons, and now humans' needs are hindering their ability to reach their wintering grounds and their breeding grounds safely. As our population grows, it is important for us humans to consider the rest of the natural world in our structures. The Javits Center is a great example of how a change to the design and the fenestration saved thousands of birds on their biannual journeys.

During the spring of 2019, as I was picking up four or five warblers in front of the World Trade Center, a construction worker asked me if I had been to 3 World Trade Center, which is not even on our route. He said, "It is a horror show." So many birds had fallen there (17 in all), the police were summoned, the building cordoned off, and a hazmat worker arrived prepared to deal with hazardous gas. The hazard was the glass. The birds crashed into it. The danger was to the birds, not the people.

How much longer can we humans think that we are the only living creatures who matter?
Here are two of the four most recent specimens I found yesterday, a Northern Waterthrush, and a Blackburnian Warbler.

I hope that you can find a way for humans to co-exist with the beautiful and wild creatures who were here first. I wholeheartedly support bill 1482.

Sincerely,

Patricia M. Aakre. 6 Varick St. 8B. New York NY 10013 (646)-633-3262

Blackburnian Warbler found WTC 9/7/19

Northern Waterthrush found WTC 9/7/19

THE HUMANE SOCIETY
OF THE UNITED STATES

1255 23rd Street, NW
Suite 450
Washington, DC 20037
P 202-452-1100
F 202-778-6132
humanesociety.org

September 10, 2019

Chairman Robert E. Cornegy, Jr.
Committee on Housing and Buildings
Council Chambers
NYC City Hall
250 Broadway
New York, NY 10007

RE: Intro. 1482-A, A Local Law to Amend the New York City Building Code in Relation to Bird Friendly Glass

Good Morning, Chairman Cornegy and Committee Members.

My name is Mary Mooney, and I'm a volunteer District Leader with the Humane Society of the United States. I hold a New York State Wildlife Rehabilitators License, Class II, and have been a volunteer with the Wild Bird Fund, New York City's only wildlife rehabilitation center.

I'm here to support Intro. 1482-A, which would require the installation of bird-friendly glass on new buildings to protect bird species, including migratory birds traveling through New York City twice a year.

Every year, in New York City, as many as 230,000 birds succumb to injuries from collisions with the smooth, highly reflective glass currently used. Birds in flight do not see buildings; they see only the reflection of the open sky behind them and are not aware of flying directly into lethal obstacles.

Wildlife volunteers are familiar with the caseload of injured and dying birds brought to the Wild Bird Fund, especially during migratory seasons. All too often, rescuers are ordinary New Yorkers, often distressed and overwhelmed by the inhumane suffering and loss of avian life resulting from collisions.

The migratory birds that move through our urban skies cannot change the centuries-old migratory routes they instinctively follow. Their biannual flights and their stop-over in our city are an observable phenomenon enjoyed by many New Yorkers. At the same time, the burden falls on us to understand this behavior. We have a responsibility to enable the co-existence of wild birds in an ever-more densely developed habitat full of danger. As our buildings grow in number and height, we are creating an increasingly hazardous environment for birds.

Intro. 1482-A is a humane and fair law, that will accommodate the safe passage of birds flying through our city seasonally, as well as birds that depend on an urban habitat all year long.

This forward-thinking law expresses a willingness to treat our bird population as a natural resource that is humanely protected and encouraged to thrive and grow.

For these reasons, I support this proposed law and look forward to seeing the City Council vote for enactment. Thank you for this opportunity to testify today.

Sincerely,

Mary Mooney

Mary Mooney
186 Pinehurst Avenue (5E)
New York, New York 10033

September 10, 2019

Dear Councilpersons,

The Brooklyn Bird Club stands behind the testimony of New York City Audubon in support of legislation protecting the local environment especially as concerns migrating and resident bird populations. In addition we would like to point out a building project that is emblematic of the hazards facing birds as they navigate our urban cityscape.

Developers in Brooklyn are proposing a 500 foot glass building on the east side of NYC's treasured Brooklyn Botanic Garden to be built at 960 Franklin Avenue. This structure with its highly reflective glass facade will, should it be built, be a serious bird strike hazard and will cast a huge shadow over the BBG gardens and its world famous conservatory in the morning as well as "cooking" the conservatory and gardens with sun glare later in the day.

New York City needs a more enlightened building planning strategy to address looming climate and environmental concerns.

Thank you,

Robert Bate
President Emeritus – Brooklyn Bird Club
Executive Vice President – New York City Audubon

20 Winthrop Street, Brooklyn
212-505-0011
robsbate@gmail.com

CATHOLIC COMMUNITY RELATIONS COUNCIL

80 Maiden Lane, 13th Floor, New York, New York 10038

Testimony of Joseph Rosenberg, Executive Director
Catholic Community Relations Council
New York City Council Committee on Housing and Buildings
Int. 1482-A – Bird Friendly Glass
September 10, 2019

Good morning Chair Cornegy and members of the City Council Committee on Housing and Buildings. I am Joseph Rosenberg, Director of the Catholic Community Relations Council, representing the Archdiocese of New York and the Diocese of Brooklyn on local legislative and policy matters.

We certainly support the concept of embracing measures that protect birds. There are clearly many dangers to the bird population in our City and this legislation would help lessen the hazard of birds flying into reflective clear glass. We do, however, have concerns with the bill that I would like to bring to your attention.

Int. 1482-A requires that at least 90% of all exterior glazing on the lowest 75 feet of any building must consist of bird friendly glass. The fiscal impact of removing existing glass and purchasing and installing bird friendly glass is unclear. The legislation is silent regarding if this mandate is retroactive therefore requiring all buildings in New York City to comply with this measure, or if it is prospective and covers only new developments. It also does not clarify if alterations or renovations to existing buildings trigger this requirement, and if so, what is the threshold of work that would require glass replacement. These are all important issues for us. Religious organizations have scarce financial resources and confront daily challenges in covering our operating expenses. Unfunded mandates create financial difficulties in our continuing efforts to develop and operate schools, run human service provider facilities for the elderly, the disabled and the needy, and construct much needed low-income and supportive housing for the residents of our City. We suggest that if religious organizations are not exempted in this bill, that we at least be provided with financing to accomplish the mandates of Int. 1482-A.

An important point that needs to be addressed is how Int.1482-A would affect the installation and renovation of stained glass windows. Hundreds of churches, mosques and synagogues contain stained glass which are enduring symbols of faith and beauty. They are sources of pride for all congregations and, in fact, for many New Yorkers as well as tourists who visit these sacred buildings.

It is not clear at all how stained glass windows would be impacted by this bill. The legislation defines bird friendly glass as "glass or glazing with a maximum threat factor of 25". Stained glass panels contains many individual pieces of colored glass framed by lead soldering. Are these valuable and historical windows classified above the "threat factor of 25" and therefore a danger to birds? If so, where are they covered on the Façade Material Type/Threat Factor Chart? Or does stained glass pose no problems to birds?

A report entitled "Bird Friendly Building Design" provides guidance on this question. It is published by the American Bird Conservancy and the New York City Audubon Society, and discusses how to protect birds when designing buildings. The authors state that "opaque, etched, stained or frosted glass . . . are excellent options to reduce or eliminate collisions".

Certainly, the Council's intent cannot be to require the removal, alteration or covering of stained glass windows in houses of worship, or prevent its use in future sanctuaries and other buildings owned by religious institutions. We therefore urge that the Council relies on this report and amends the bill to exclude stained glass from its mandates.

Thank you.

September 10, 2019

Regarding: support of **Bird Friendly Glass Bill, Int. 1482**

Testimony from: G Joshua Stoneman, 35 E 10th St, Apt 2H, New York NY 10003 / 646-221-9027 / g.joshua.stoneman@lmco.com

Dear City Council members,

I am writing to support the Bird Friendly Glass Bill, **Int. 1482.** This bill is very important to me because I believe New York City is the world's greatest city, and it would be even greater if we took the lead on reducing unnecessary bird deaths.

A bit about myself: I have lived in Manhattan since 1993, when I moved here after college. Currently, I work at the Lockheed Martin Corporation, where I work with power companies and large commercial customers like landlords to make the switch to energy efficiency and clean energy technology.

Like many New Yorkers, I have lived and worked in at least a dozen neighborhoods since moving here. One thing I've noticed is that in every neighborhood, I've found dead birds on the sidewalk. And not just pigeons, I'm talking about beautiful songbirds and native species that should not be dead on the concrete.

I think about these birds making their brave flights every spring and fall, some of them flying across the ocean to South America or the islands of the Caribbean. The have to survive hurricanes, storms, cold fronts, predators, and a myriad of other obstacles. It's just not fair if they fly thousands of miles, only to collide with a glass window in New York City.

How many of you have walked into a sliding glass door, at some point in your life, or seen a stranger or little kid do it? Almost everyone has seen it. Sometimes you just don't realize there's glass there. Now, imaging you're going 30 miles per hour. It would be fatal. Birds don't get a second chance when they hit glass.

The Bird Friendy Glass Bill, Int. 1482 would not cost New Yorkers a thing. But it would make the city a better place, and it fits with the spirit of this great city – providing a better opportunity to survive and thrive, for both humans and birds.

Thank you,

G Joshua Stoneman, Manhattan resident since 1993

Notes: over the years, I've taken iPhone pics of birds I see on the sidewalk. It always breaks my heart, seeing these creatures taken down on their journey north or south. Here are just a few:

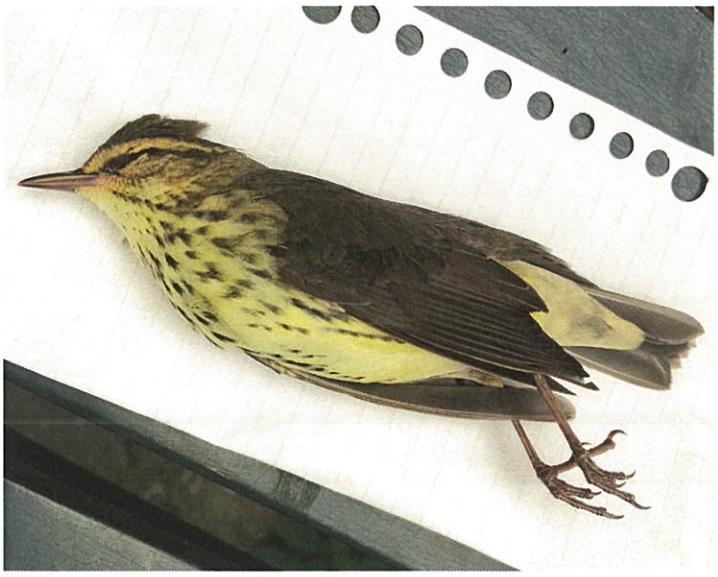
Support Int. 1482

Chelsea Lawrence

Volunteer for NYC Audubon - Project Safe Flight

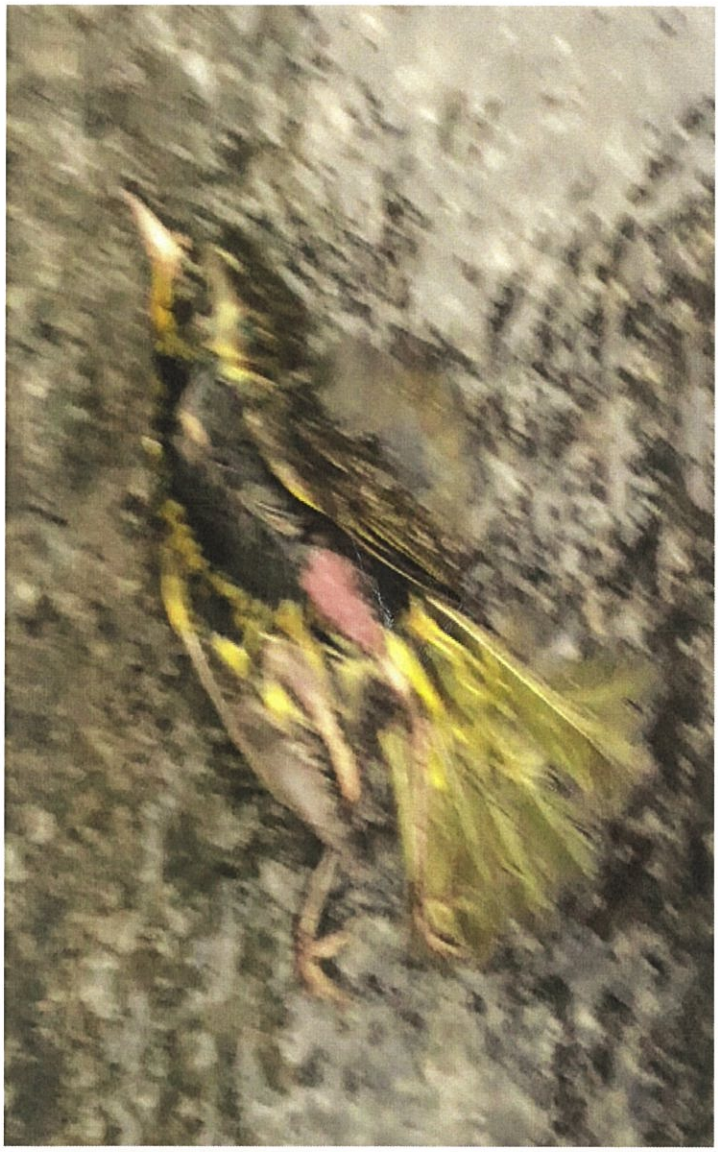
Chelsea Lawrence

Volunteer for NYC Audubon - Project Safe Flight



Chelsea Lawrence

Volunteer for NYC Audubon - Project Safe Flight



Hello council members,
My name is Nisarga Markandaiah and I am a resident of Park Slope, Brooklyn.

I grew up in Bangalore, India where I witnessed the city urbanized to a great extent. The city originally had lots of green spaces, trees and parks and due to uncontrolled growth these green spaces vanished. When I was young, I would see sparrows and other birds in great numbers and now they have almost vanished from the city. They died due to their homes being chopped off, the water bodies which dried up and due to a city which did not take action soon enough.

We have the privilege of living in the great city of New York, which not only houses so many people but also these birds which permanently or temporarily reside here. The vast green spaces which we are blessed with, attracts their descent as they traverse on their long migration paths. When they approach from heights in a great speed, they collide with high rises made of extremely clear glass which causes their death or injury.

Just as we strive to give the residents of this great city a safe and good life, we must also strive to support our residents-in-feathers. Birds are not only great for our ecosystem they also help in pest control and signal a healthy environment. We need to make sure NYC can host our temporary and permanent bird residents and I strongly encourage you to support this bill to change our building rules to accommodate our winged friends.

Thank you

Adam Vinson

170 East 79th Street Apt 7A

New York, NY 10075

September 10th, 2019 New York City Council Presentation in Support Law Int.1482

Hi, My name is Adam Vinson. I live in District 4 and I am a Junior at Eleanor Roosevelt High School in Manhattan. I am the founder of my school's Naturalist Club, a member of the New York State Young Birders Club and I also volunteer with New York Audubon, Project Safe Flight program to monitor migratory birds and window collisions and I volunteer at the Wild Bird Fund, New York City's only wildlife rehabilitation center for birds. Helping birds that migrate through our city is incredibly important and I am speaking here today to encourage you to vote in favor of law Int. 1482. I have seen with my own eyes the consequences glass window collision have on migratory birds. I hope the City Council takes this bill seriously. It's a small measure that could help our planet.

New York City is an incredibly important spot on the Atlantic/Eastern Flyway bird migration route. Twice a year, millions of birds fly through our city and while NY is incredibly important, it is also incredibly dangerous for birds. In Manhattan, both Central Park and Bryant Park, which are major birding spots, are completely surrounded by buildings covered in glass windows. When the birds hit the windows they often die in especially painful and grotesque ways. I've found Song Sparrows, Hermit Thrushes and Yellow-Bellied Sapsuckers with their necks snapped. Unfortunately, they were the lucky ones. Other birds often have their beaks snapped and gain internal injuries that eventually kill them. Most birds that survive the initial strike often

die within a month. When I volunteer at the Wild Bird Fund I often feed the migratory birds. One day I found one of them, a Brown Creeper, dead. It had struck a window and died the next day. Brown Creepers are incredibly tiny, fragile, and unique birds so seeing one dead was deeply depressing

This year, I made a petition at my school supporting bird strike legislation. Over 170 Eleanor Roosevelt students signed, including most of my grade. I also created an online version of the petition which quickly got another 259 signatures. I hope this response demonstrates to you that when people are made aware of the consequences of poorly designed glass windowed buildings they care and want to see a change.

Birds mean a lot to me and my interest in them has made my life better. Now is my time to give back to them. I ask all of you to support this bill as there is no good reason that you shouldn't. If this bill passes nobody gets hurt and the birds who desperately need our help are supported.

Testimony in favor of New York City Council Intro1482-A

Ann Seligman
235 East 46th St., Apt. C
New York, NY 10017
917-327-9210
acseligman@msas.net

The same things that made the New Yok area such a great place to settle over 400 years ago continues to make it popular with our feathered friends. Unfortunately, the combination of glass and lights – literally beacons! – also makes it a deadly stopover. Research shows that migrants are hit harder – pun intended – than resident birds. It's not pigeons, it's warblers and woodcocks, who are already suffering from habitat loss at both ends of their long treks, predation from all those charming house cats, and climate change.

I won't share the numbers of birds lost (others will, I'm sure), but will share the experience of walking a Project Safe Flight Route and collecting broken birds. Once they are dead, they're just a small soft sad bundle of feathers.

I am here speaking as an individual, but I am also a member of Manhattan CB6, and last November we unanimously passed a resolution supporting a state level bill A08779 (now A00705) which would require the NYC Department of Buildings to develop regulations to deter bird strikes. The support for that bill – and it would go further than this one does – demonstrates the concern that even nonbirders have for protecting wildlife in NYC.

In researching that bill, I learned that many bird-protecting measures can actually be cost-savers. For instance, while treated glass can cost minimally more initially, it can also act as an insulator, so that it reduces energy usage and pays for itself.

Thank you for taking up Intro 1482-A, and I look forward to hearing of its passage.

Resolution supporting New York State Assembly Bill A08779, relating to bird-safe construction and design in New York City

Passed Manhattan Community Board Six 34-0-0-0 on November 14, 2018

WHEREAS, New York City is located on a critical flyway and in Central Park alone, 280 bird species have been recorded, including 192 that are regular residents or migrants and among which are important pollinators and otherwise essential parts of New York's environment;

WHEREAS, collisions with buildings are a significant and needless source of mortality for both resident and especially migratory birds in New York City, and song bird populations are declining nationally;

WHEREAS, NYC's cityscape, especially the large amount of reflective glass, contribute unnecessarily to bird deaths;

WHEREAS, the numbers of these collisions are exacerbated by building lights that can act as magnets for migrating birds;

WHEREAS, The United States Fish & Wildlife Service and NYC Audubon estimate that up to 230,000 birds are killed in New York City every year by collisions with buildings;

WHEREAS, the American Institute of Architects (AIA) and the Green Building Council (developers of Leadership in Energy and Environmental Design, aka LEED standards) have developed a curriculum and guidelines to incorporate bird-friendly design, including a pilot credit (#55);

WHEREAS, other cities have implemented programs to reduce bird deaths, including Chicago, Toronto and San Francisco;

WHEREAS, Assembly Member Deborah Glick introduced Assembly Bill A08779, which would require the NYC Department of Buildings to develop rules applying to all new buildings and substantial renovations to deter bird strikes;

WHEREAS, Assembly Member Richard Gottfried is a co-sponsor of the bill;

WHEREAS, there are several cost-neutral ways to incorporate bird-friendly glass and design in new construction and in renovation;

WHEREAS, no specific technologies are mandated in the bill, but potential solutions include using screens, netting, fritted glass, UV patterned glass, opaque, etched, or frosted glass;

WHEREAS, some solutions, including automatically turning out office building lights at night, are actually cost-savers;

WHEREAS, Manhattan Community District Six is likely to experience large amounts of construction in the coming years, so this bill is quite timely;

THEREFORE, BE IT RESOLVED that Manhattan Community Board Six supports Assembly Bill A08799, and urges our elected officials to co-sponsor this bill, and for our State Senators to sponsor a corresponding bill in that body, and for Governor Cuomo to promptly sign it into law.

Terence Zahner
257 W 117th St
NY, NY 10026
tzahner@gmail.com

September 5, 2019

The New York City Council – Committee on Housing and Buildings
City Hall
NY, NY 10007

Dear Esteemed Council Members,

Thank you for taking the initiative to sponsor "*Int 1482-2019: A Local Law to amend the New York City building code, in relation to bird friendly glass*". I had hoped to speak at the public hearing on September 10th in person, but I am unable to attend due to business travel. The following is my experience with bird collisions from a single building in my neighborhood in Harlem - a building that should have been required by law to incorporate bird friendly glass.

I have been a resident of Manhattan for 21 years and a resident of Harlem for the last 10 years. In 2016, I started bird watching and making frequent visits to Central Park to observe and photograph the over 200 bird species that seek food and shelter in the park throughout the year. I had no idea that these visits would lead to what I am writing today. During 2016, construction began on Circa Central Park, a new ground-up building on the northeast corner of 110th St and 8th Avenue, replacing a gas station. It is an eleven story condominium with thirty-eight units that opened in 2017.

On the morning of October 17, 2017, while on the way to Central Park, I was shocked to encounter two dead migratory birds - a tiny Golden-crowned Kinglet and a Hermit Thrush - on the east sidewalk of 8th Avenue between 110th St and 111th St, directly below the west-facing facade of the newly opened Circa Central Park. At this point I had very little knowledge of bird-building collisions, but I had heard that NYC Audubon created a website (https://d-bird.org) for reporting dead or injured birds, so I filed reports and hoped it was a one-time occurrence. However, on October 26 I found a third dead bird, a Swainson's Thrush. By this time the Fall migration was largely over, but the following spring (May 2018) when migration began again, I discovered two more dead migratory birds. At this point I knew there was something seriously wrong with Circa Central Park and I resolved to raise awareness of the problem and document all the bird collisions.

I began surveying the sidewalks around Circa Central Park on a daily basis to determine when the collisions were occurring and if there were particularly problematic windows. I quickly learned that most collisions occurred in the early morning and that all sides of the building were killing birds. It became clear that Circa Central Park's highly reflective windows were to blame. Unable to perceive glass or reflections, birds fly toward what they see as open sky and trees and instead smash full speed, face-first into a window. The photo on the left below shows one pair of windows on the north facade of Circa Central Park on the morning of October 19, 2018. The highly reflective glass appears to be blue sky and a tree. On this particular morning, I found one dead Brown Creeper (photo on right) and observed a second stunned Brown Creeper fly up from the sidewalk and smash directly into a window for a second

time, this time landing on the window sill (highlighted in pink circle). Had the proposed change to the building code been in effect, these windows would have been required to use bird friendly glass and this never would have happened.

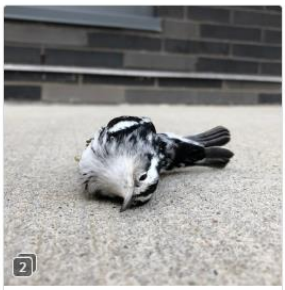
Overall, during the Fall 2018 migration I documented 40 bird collisions, nearly all resulting death. As of this writing, I have documented a total of 57 collision victims at Circa Central Park across 21 species of migratory birds – ranging in size from tiny kinglets and creepers up to woodpeckers. Of these, only 10 were still alive when I found them and were transported to Wild Bird Fund for rehabilitation. The true number of collision victims could easily be double what I have found and the kill count will be ever increasing with each migration period until action is taken to modify the glass.

My experience clearly illustrates why the New York City building code must be updated to require bird friendly glass. Circa Central Park isn't even the worst offender in the city. But it is a perfect example of a building that should never have been allowed to be built with highly reflective glass, especially on a site directly across from Central Park. Developers and building owners are currently free to completely ignore bird deaths, as the owners of Circa Central Park have done, despite receiving all the data I have collected and being well aware of the problem. Architects can claim bird friendly glass was specified in their designs, but are easily ignored to save a few percent on the cost of windows. Without statutory requirements, profits will always win over environmental conservation issues. Birds are a critical part of the global ecosystem and as a part of the Atlantic Flyway, New York City has a responsibility to ensure safe passage of migratory birds. **I urge you to immediately approve Int 1482-2019 and prevent more buildings like Circa Central Park from rising in our city and killing our wildlife.** This the first step to reversing the growing problem of bird-building collisions – a problem that kills between 90,000 and 250,000 birds annually in NYC alone, based on NYC Audubon estimates.

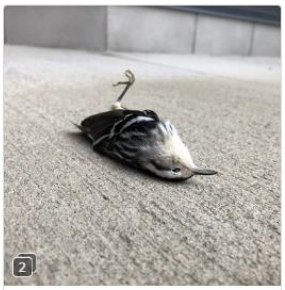
Sincerely,

Terence Zahner

The images below are a sample of Circa Central Park collision victims I have documented at https://www.inaturalist.org/projects/circa-central-park-window-collision-victims



Black-and-white Warbler
(*Mniotilta varia*)



Black-and-white Warbler
(*Mniotilta varia*)

American Redstart
(*Setophaga ruticilla*)

House Finch
(*Haemorhous mexicanus*)

Common Yellowthroat
(*Geothlypis trichas*)

Ovenbird
(*Seiurus aurocapilla*)

Swainson's Thrush
(*Catharus ustulatus*)

Northern Parula
(*Setophaga americana*)

Magnolia Warbler
(*Setophaga magnolia*)

Black-and-white Warbler
(*Mniotilta varia*)

Golden-crowned Kinglet
(*Regulus satrapa*)

Ruby-crowned Kinglet
(*Regulus calendula*)

Brown Creeper
(*Certhia americana*)

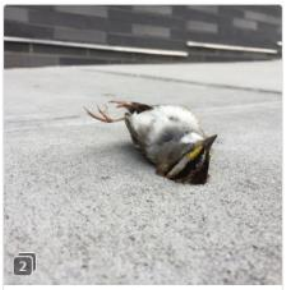
White-throated Sparrow
(*Zonotrichia albicollis*)

Brown Creeper
(*Certhia americana*)

White-throated Sparrow
(*Zonotrichia albicollis*)

Yellow-bellied Sapsucker
(*Sphyrapicus varius*)

Yellow-bellied Sapsucker
(*Sphyrapicus varius*)



White-throated Sparrow
(*Zonotrichia albicollis*)

Golden-crowned Kinglet
(*Regulus satrapa*)

Brown Creeper
(*Certhia americana*)

Brown Creeper
(*Certhia americana*)

Brown Creeper
(*Certhia americana*)

Golden-crowned Kinglet
(*Regulus satrapa*)

Golden-crowned Kinglet
(*Regulus satrapa*)

Ruby-crowned Kinglet
(*Regulus calendula*)

Ruby-crowned Kinglet
(*Regulus calendula*)

Ruby-crowned Kinglet
(*Regulus calendula*)

Yellow-bellied Sapsucker
(*Sphyrapicus varius*)

Ruby-crowned Kinglet
(*Regulus calendula*)

Golden-crowned Kinglet
(*Regulus satrapa*)

Black-throated Blue Wa...
(*Setophaga caerulescens*)

Yellow-bellied Sapsucker
(*Sphyrapicus varius*)

Swainson's Thrush
(*Catharus ustulatus*)

Tennessee Warbler
(*Oreothlypis peregrina*)

Brown Creeper
(*Certhia americana*)

American Redstart
(*Setophaga ruticilla*)

Blackpoll Warbler
(*Setophaga striata*)

Red-eyed Vireo
(*Vireo olivaceus*)

American Redstart
(*Setophaga ruticilla*)

Scarlet Tanager
(*Piranga olivacea*)

Northern Parula
(*Setophaga americana*)

Black-throated Blue Wa...
(*Setophaga caerulescens*)

Northern Parula
(*Setophaga americana*)

Swainson's Thrush
(*Catharus ustulatus*)

Blackpoll Warbler
(*Setophaga striata*)

Scarlet Tanager
(*Piranga olivacea*)

Swainson's Thrush
(*Catharus ustulatus*)

FDNY

JOSEPH M. JARDIN
Chief of Fire Prevention
Bureau of Fire Prevention

September 4, 2019

Chair Cornegy and the members of the Housing and Buildings Committee, my name is Joseph M. Jardin and I am the Chief of Fire Prevention at the New York City Fire Department. I write in support of Intro 1481 and the efforts of the Department of Buildings in managing the code development process to update the NYC collection of Construction Codes. Specifically, this Bill will yield an up-to-date Plumbing Code predicated on the 2015 International Plumbing Code.

FDNY remains an active participant in the NYC Construction Code process with nearly 20 FDNY members serving on eight Construction Code Committees, including the Plumbing Committee. Using Model Construction Codes as the foundation, this DOB facilitated committee process ensures the engagement of interested stakeholders, often resulting in debates and compromise involving disparate views on issues. Based on transparency and compromise, the process typically yields fair and sensible results.

From FDNY's perspective, issue debate and resolution during this cycle of Plumbing Code revision efforts underscore the effectiveness of the process. The regulation of medical gasses, non-medical gasses; cryogenic gasses and the protection of gas distribution piping in buildings are but several examples of process effectiveness and changes that will enhance public safety.

In closing I encourage your support of this Bill and thank you for the opportunity to provide this testimony.

Respectfully,

Joseph M. Jardin

Fire Department, City of New York
9 MetroTech Center, Brooklyn, NY 11201
nyc.gov/fdny | connect @fdny

Support Int. 1482, the Bird Friendly Glass Bill

Dear Council Members,

I am a native New York (born on Staten Island and resident there and in Manhattan and Brooklyn since) with a longtime love of our avian friends. With great sadness, I read about their decimation from such human activities as land development and pollution. The presence of glass buildings in our city only adds to the decline of too many species.

Birds contribute to our welfare through their interactions with plants and other animals, but we must also recognized them for their aesthetic gifts to us. A world without the songs and the colors of these precious creatures is truly an impoverished world.

While glass friendly buildings are not the entire answer to avian extinction, they would make a significant dent in it. I therefore urge you to support the Bird Friendly Glass Bill, Int. 1482. Thank you for your attention to this matter.

Lois

makandal@earthlink.net
linkedin.com/in/doctorlois/
makandal.org | frisneraugustinarchive.org
columbia.academia.edu/LoisWilcken

Please Support Int. 1482

Dear New York City Council,
Please support the Bird Friendly Glass Bill, Int. 1482 and let's keep our beautiful birds alive. They are stopping in Central Park every spring and fall as they migrate and we have a richer, more beautiful city as a result.
Kind regards and thank you for all the work you do,
Carolyn Grossner
400 E. 85th St.
New York, NY 10028

cgrossner@msn.com

Bird Friendly Glass Bill (Int.1482)

Hello,

Please pass the Bird Friendly Glass Bill, allowing bird-friendly glass in new buildings to prevent avian deaths. I am an ornithologist who hates to see birds numbers dropping due to human cause when we could fix the problem so simply. With fewer bird corpses hitting the streets, we would help with city cleanup as well. It's very sad to see these poor things outside a window and have to remove them, and especially unsightly when they hit near office windows.

Using these bird friendly glasses (or even using bird safe decals on windows) will be a tremendous help.

Thank you!

Heidi Faulkner
New York
--
Heidi Faulkner
BS in Conservation Biology 2017
SUNY College of Environmental Science and Forestry

hmfaulkner27@gmail.com

To Whom it May Concern,

I'm writing today to submit an official testimony in support of the Bird Friendly Glass bill (Int. 1482). Upwards of a quarter million birds die every year in this city from collision to windows and reflective buildings, and that number will keep going up as buildings grow taller and more glass-oriented. Over 100 species alone have collided with buildings in New York City, and if we want those species to survive long enough for our grandchildren to see them, we'll need to make some changes.

Every Fall and Spring people travel into the city, primarily to Central Park, to see the hundreds of thousands of birds that pass through. Central Park is routinely written up as a birding destination by The New York Times, The New Yorker, The Cut, and Travel + Leisure Magazine, and is described by Patch as "one of the nation's most impressive bird 'traps' during the spring and fall". On Planet Earth II, an entire episode was dedicated to the Peregrine Falcon population of NYC. These creatures have adapted to use our skyscrapers as their home, but finds themselves equally threatened by their reflective nature. Migration season is upon us, and as an individual bird makes the marathon journey south, let's not let their last moments be entering our skies.

New York City is a leader for the rest of the nation to follow. Let's start a greener migration ourselves and protect some of the most threatened species left.

Best,
Anna Gallagher
Berkeley Place,
Brooklyn, NY 11217

In support of Int. 1482

We're surrounded by buildings, many of which use highly reflective or transparent glass. When buildings reflect the sky or trees, birds can mistake that image for reality. As a result, **90,000-230,000 birds die per year** as a result of colliding into windows each year in New York City alone.

Please support legislation that would require all new buildings to use 90% bird-friendly glass up to 75 feet, and surrounding green roofs. Please support Int. 1482!

Thank you.

Molly Glenn

--
"Never doubt that a small group of thoughtful,
committed citizens can change the world;
indeed, it's the only thing that ever has."
~Margaret Mead

mollyaglenn@gmail.com

Int.1482

Dear Council Members:

In keeping with our City's long history of environmental progressivenes and humane treatment of animals of all kinds, I ask for your support of Int. 1482 which will provide safer passage for birds through our NYC's canyons of glass.

With best regards,

Sarah Woodside Gallagher

SWGall@nyc.rr.com

Bird Friendly Glass bill (Int. 1482)

Dear Council Members,

I am writing to urge you in supporting the Bird Friendly Glass Bill(Int.1482). This bill can be a start in the attempt to avert the tragic deaths of between 90,000 and 230,000 birds annually. We owe it to nature to do the best we can to have the least harmful impact. I have see the tragedy in person too many times to count, I implore your compassion.

Thank you, and thank you also for your service!

Sincerely,

Dennis Guiney
Audrey Drive
Lido Beach, NY 11561

spiff11209@hotmail.com

Please help pass Int. 1482

My name is Linda Scotto and I am writing to you about a very perilous situation that exists in New York City. I worked for nine years at a veterinary office on the Upper West Side, Lincoln Square Veterinary Hospital. During that time, I cannot tell you the amount of instances where people came into the practice with birds they found who were injured or killed because they had crashed into the reflective and transparent windows of buildings in New York City. There were all kinds, big, small, and many were beautiful migrating species that seasonal grace our beautiful city. Some of them were stunned, some were injured, many were dead.

I am urging you to please help pass the friendly glass bill, int. 1482. so that we can solve this problem and help keep theses beautiful creatures safe.

Thank you so much for your time.

Sincerely,

Linda Scotto

lindascotto@aol.com

NEW YORK CITY AUDUBON

71 West 23rd St
Suite 1523
New York, NY
10010

www.nycaudubon.org

Tel: 212 691 7483
Fax: 646 606 3301

Comments to
NEW YORK CITY COUNCIL COMMITTEE ON HOUSING AND BUILDINGS
Regarding
Introduction 1482-A-2019

New York City Audubon
September 10, 2019

My name is Kathryn Heintz, and as the Executive Director of New York City Audubon, I am here to voice our organization's support for Introduction 1482-A and thank Council Member Rafael L. Espinal, Jr., Council Speaker Corey Johnson, and their respective staffs, and the Council's legislative team for their diligent work on this important bill.

We are a science-based conservation organization representing 10,000 Audubon members across New York City and thousands more who support our mission to protect 350-plus bird species—almost a third of all the species in North America—amounting to millions of individual birds that live in or pass through New York City each year. Nearly half of the Atlantic Flyway's bird species are designated as species of conservation need, and protecting these birds and their habitats improves the quality of life for all New Yorkers.

As the lead bird-conservation organization in NYC, we are all too aware of the threats that birds face throughout the city. We have been studying the negative effects of climate change, habitat loss, and human disturbance on birds in New York City for forty years. We know that in the five boroughs, the deadliest obstacles migratory birds encounter are reflective and transparent glass on buildings.

Our conservation team has researched this issue since the 1990s, employing hundreds of volunteers to collect data on building collisions. Because of this ongoing study, we have evidence that up to 230,000 birds die each year in New York City alone as a result of colliding with glass on buildings. This is our community's contribution to the one billion birds dying per year across the country. It is a conservation crisis. To address this emergency, NYCA dedicates itself to finding and implementing solutions here at home.

Using bird-safe glass stops bird collisions. We proved this locally at the Jacob K Javits Convention Center. On a single morning during migration in 2006, a

volunteer found 20 dead birds outside of the Javits Center. It was then one of the top bird-killing buildings. It is easy to do the math--hundreds if not thousands of birds died at this single building each year. Since retrofitting and the installation of fritted and low-reflectance glass to be more energy efficient in 2013, bird collisions reduced over 90%.

We are encouraged when individual building owners and architects choose to use bird friendly design; however, it is clear that enforced legislation is imperative to save birds at citywide scale. Cities like Toronto, San Francisco, San Jose, and Portland already have bird friendly building mandates in place. Similar legislation is working its way through Chicago's City Council. New York City should not only follow these footsteps, we should lead in doing it best. You can make that happen. You can stop this environmental disaster in our midst.

A number of issues in our city compound this environmental disaster. We know, for example, that bright lights in New York City distract birds from their natural nocturnal migratory flight path, drawing them here. We need a holistic policy approach to kill fewer birds, and therefor also support the passing of Introduction 274, which would require public buildings to turn off unnecessary lighting at night during key migration periods.

New York City Audubon supports the following recommendations submitted in technical detail by the Bird Safe Buildings Alliance. We request that Introduction 1482-2019:

- Apply also to permitted retrofit projects that replace windows;
- Clarify that the 75' high zone of projection is measured from grade level;
- Require 100% of parallel glass and glass corners only below 75' to be bird safe.
- Require 100% of all glass railings to be bird safe (even over 75' high)
- Limit treatments to balconies, guardrails, and glass corners to the same 75' height limit;
- Improve definitions for Bird Friendly Material and "Fly-through" Conditions;
- Apply to 90% of all exterior surfaces rather than only to glazing in order to give Developers credit for all of the bird friendly materials utilized on their projects.
- Engage local expertise, including NYC Audubon and BSBA, in creating Compliance Guidelines.

Passing this legislation is part of a process. We too envision a future living, working, and thriving in a more sustainable city. However, to be truly better and environmentally embracing, the definition of sustainable must include bird-friendly. The time to implement this change is now. The opportunity is yours.

Thank you again for the opportunity to share this testimony. We stand ready to provide you with data, research, and stories from all across the city. Please contact us at (212)691-7483 madams@nycaudubon.org for more information

Kathryn Heintz
Executive Director
NYC Audubon

Susan Elbin
Director of Science and Conservation,
NYC Audubon

Molly Adams
Advocacy and Outreach Manager, NYC Audubon

Up to 1 billion birds die annually in the US from building collisions

AMERICAN BIRD CONSERVANCY

NEW YORK CITY AUDUBON

Up to 230,000 birds die each year in New York City

AMERICAN BIRD CONSERVANCY

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Why is New York City killing birds?

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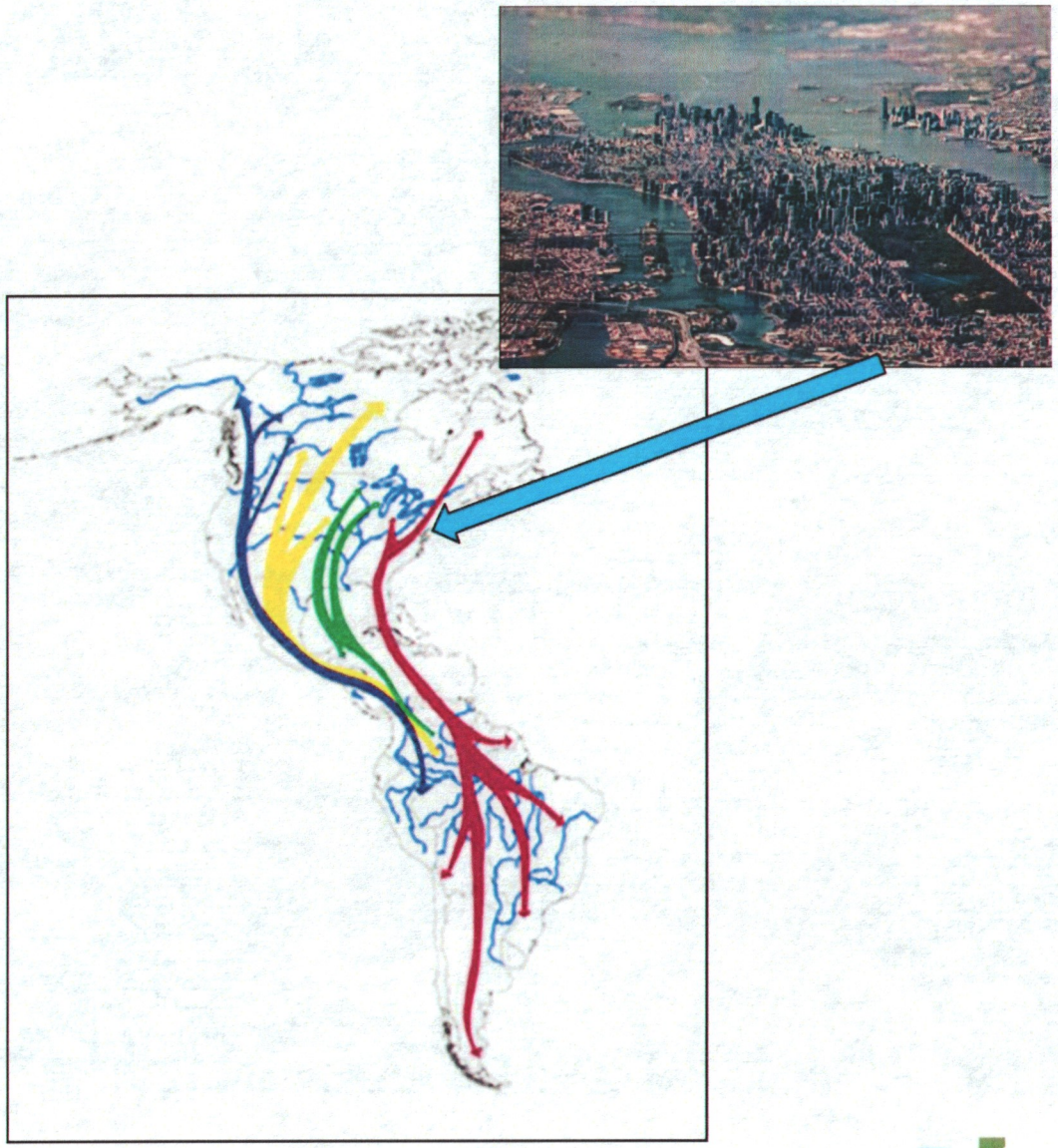
NEW YORK CITY AUDUBON

New York City lies directly in the Atlantic Flyway, a major migratory route for birds in spring and fall



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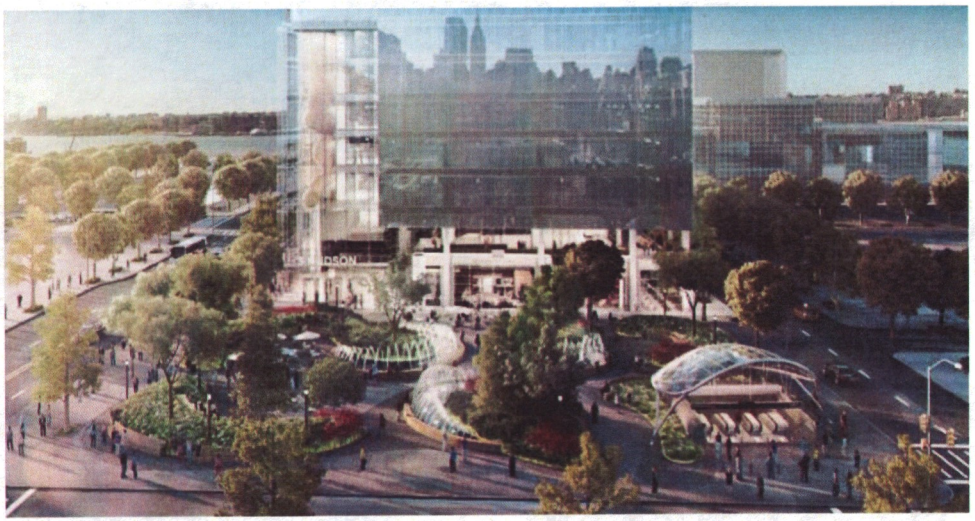
It is full of glass buildings



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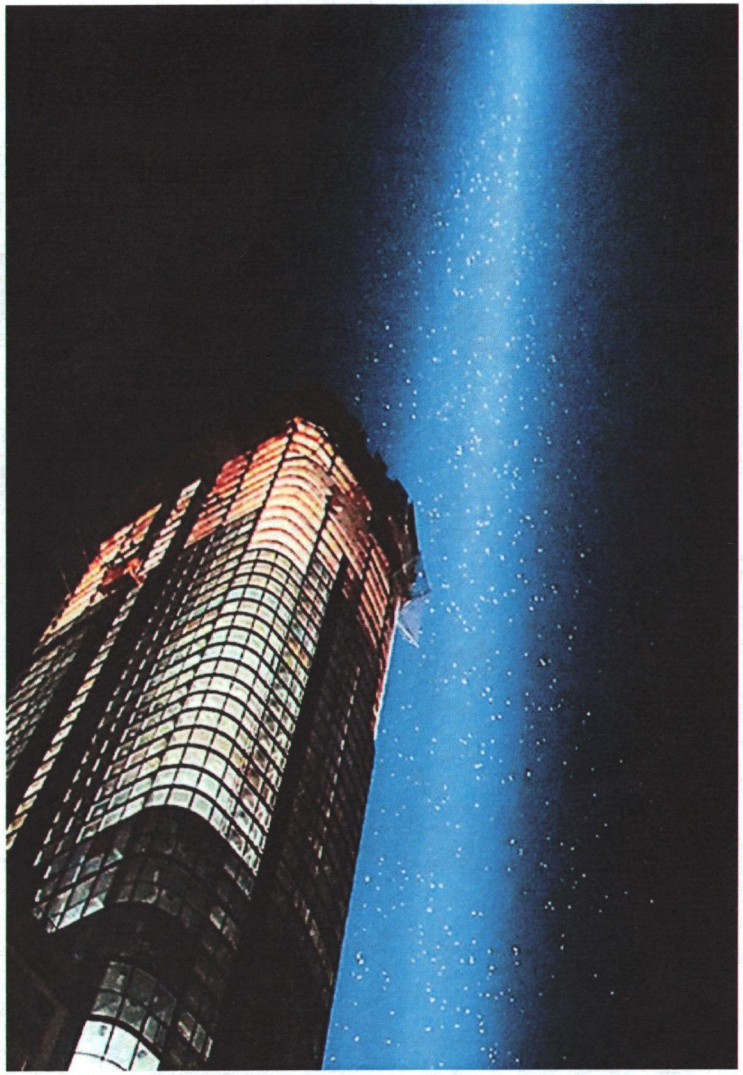
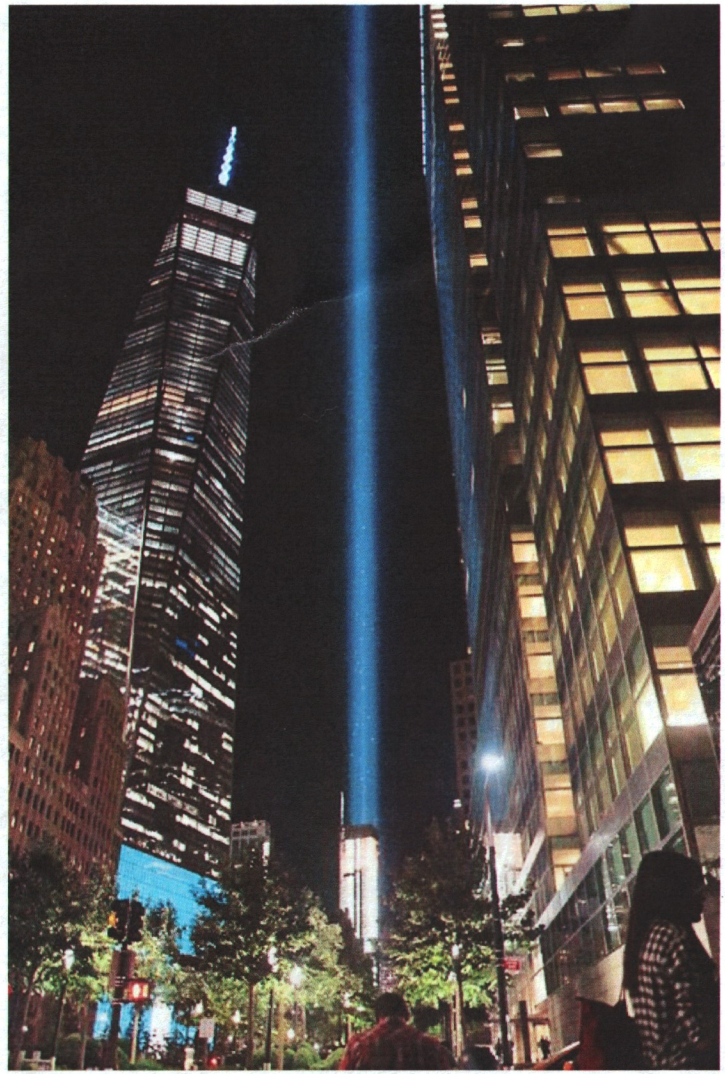
And its artificial lights attract birds into the built environment





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To birds, reflections are reality

See-through means fly through

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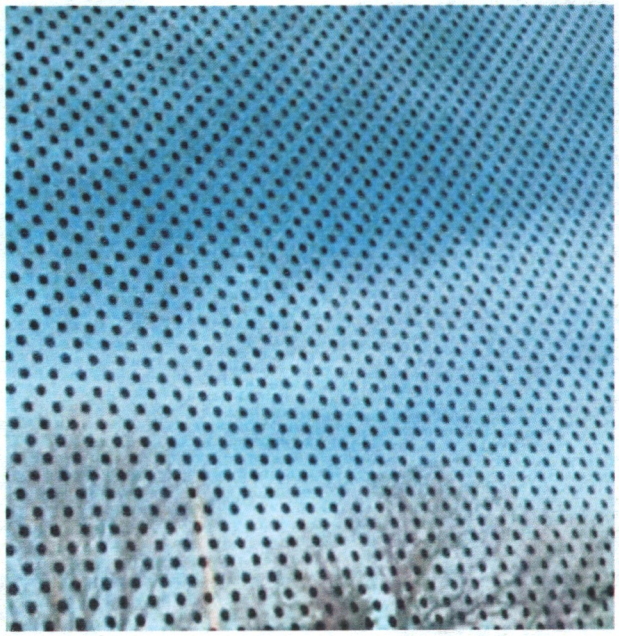
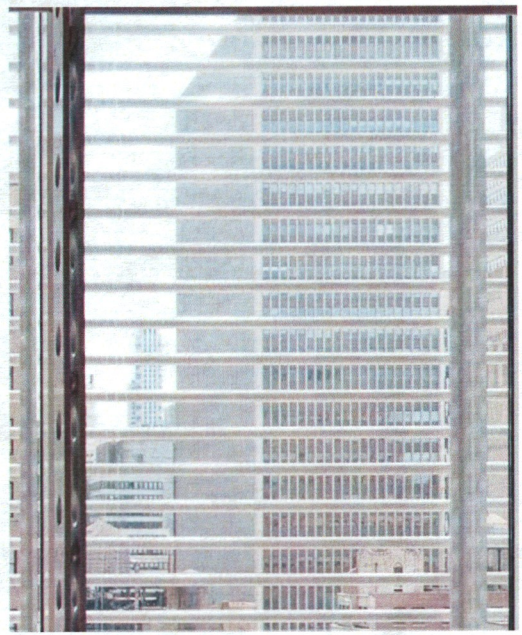
There are architectural solutions

Frit Patterns



UV Patterns

Screens



To name a few

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Jacob K. Javits Convention Center

Ceramic Frit

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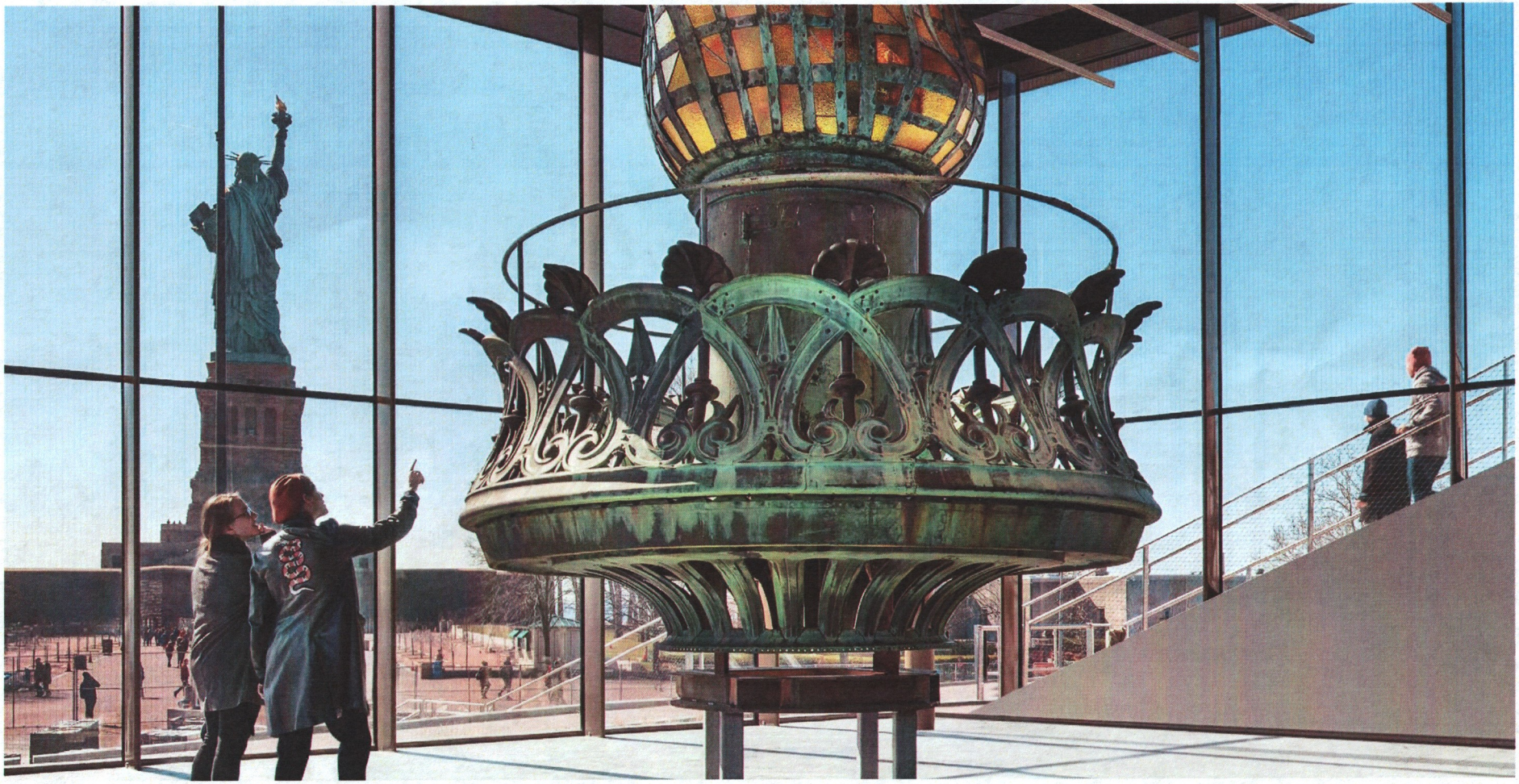
Statue of Liberty Museum



Frit Pattern

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Center for Global Conservation at the Bronx Zoo

UV Patterned Glass

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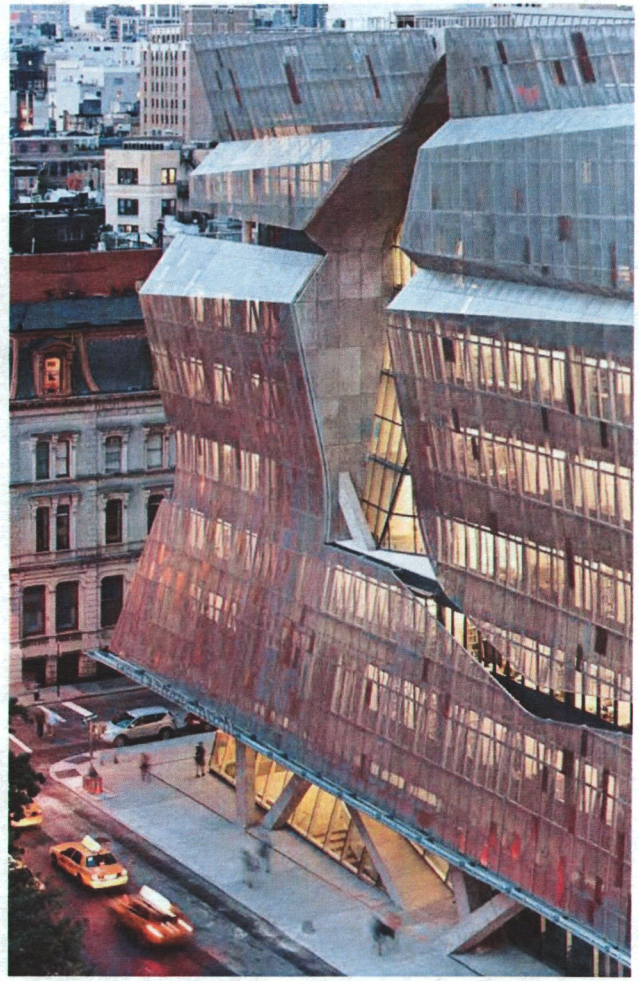
Screens



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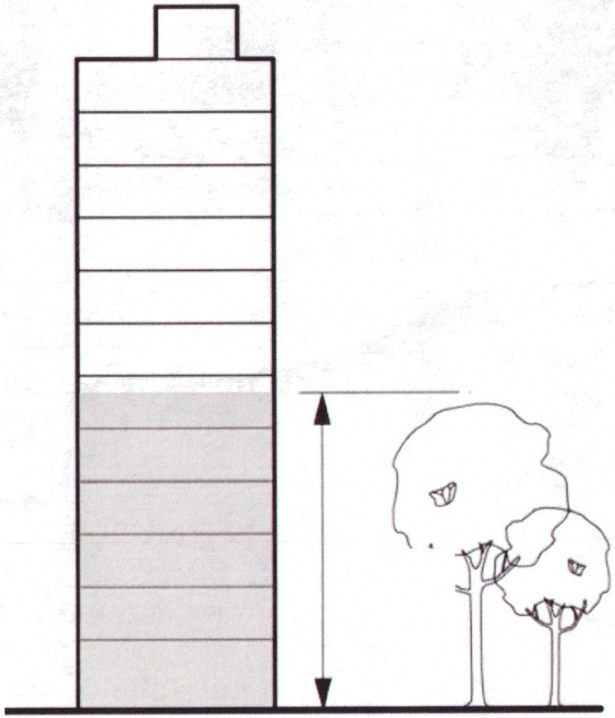
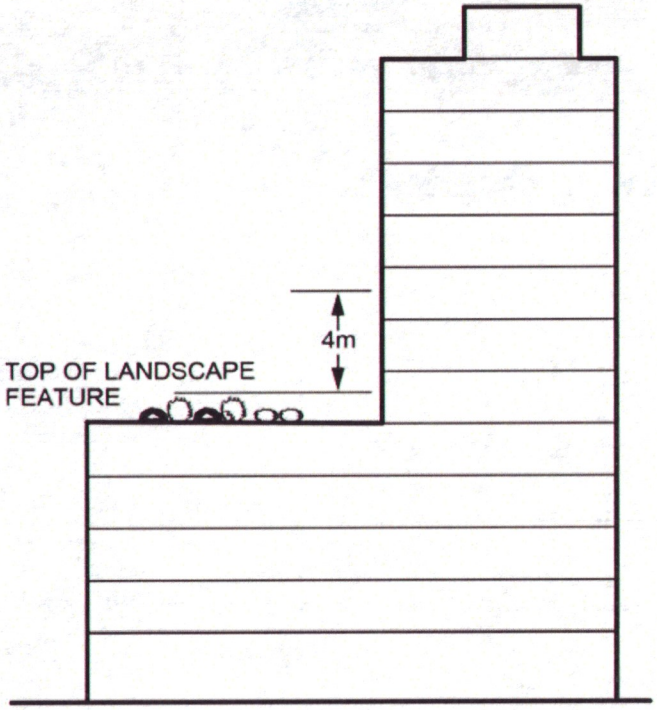
The lower stories are the greatest threat





Tree height is a proxy for the zone of bird activity

Most strikes occur in this zone

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American Bird Conservancy

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Suite 451

Washington, DC 20008

www.abcbirds.org

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NEW YORK CITY AUDUBON

AIA New York

September 5, 2019

AIA New York Support for Int. 1482, Bird-Friendly Glass Bill

AIA New York (AIANY), the professional association representing nearly 6,000 of New York City's architects and related professionals, is expressing its support for Int. 1482. This bill would require bird-friendly glass be used in new construction for ninety percent of glass 75 feet and below.

Buildings in New York City kill 90,000 to 200,000 birds each year. Many of these deaths could be easily preventable through the use of fritted glass, screens, and other design solutions. These materials and techniques have other benefits related to sustainability, as they keep sunlight out, making buildings cooler.

Bird-friendly design is already widespread in the industry. The American Bird Conservancy's Threat Factor rating is an existing reference standard used by design professionals to evaluate the dangers materials and techniques pose to birds. Furthermore, LEED provides a pilot credit for bird collision deterrence.

While AIANY supports Int. 1482, one shortcoming of the current version is that it only applies to new construction. With LL97 of 2019 mandating retrofitting in many large buildings to stay under carbon emission limits, the City has a rare opportunity to ensure that bird friendly glass is installed en masse. Therefore, it is important that buildings that are undergoing retrofits also be required to comply with the bill's provisions.

Bird collisions are a fixable problem, requiring the implementation of materials and techniques that some architects already utilize. Action by the City Council would significantly decrease bird deaths from collisions. Therefore, AIANY calls on the City Council to pass Int. 1482 and the Mayor to sign it into law.

Sincerely,

Benjamin Prosky, Assoc. AIA
Executive Director

Hayes Slade, AIA
2019 President

The American Institute of Architects

AIA New York
536 LaGuardia Place New York, NY 10012

T **(212) 683 0023**

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www.aiany.org

10 September 2019
Int. 1482 - Information

Javits Center

fxcollaborative

10 September 2019
Int. 1482 - Information

Statue of Liberty Museum

fxcollaborative

10 September 2019
Int. 1482 - Information

Columbia University School of Nursing

fxcollaborative

Javits Center

Statue of Liberty Museum

Columbia University School of Nursing

10 September 2019
Int. 1482 - Information

Examples of Ceramic Frit Patterns on Glass

fxcollaborative

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www.aiany.org

Hi. I'm Dan Piselli, an Architect and Director of Sustainability at FXCollaborative Architects. I am here on behalf of my office and the American Institute of Architects New York, also known as AIA New York. Both are in support of this bill.

The bird-glass collision issue is part of a larger problem with human impacts on the environment. The United Nations estimates that 1 million species of animals and plants are threatened with extinction because of us. They note: "We are eroding the very foundations of our economies, livelihoods, food security, health, and quality of life worldwide". They say that before climate change really kicks in, the biggest current reasons are unsustainable environmental land and sea use. Bird collisions are an environmental land use issue. Glassy buildings degrade habitat to the tune of up to a billion bird deaths every year in North America alone.

As architects, we often use glass to connect people with nature, but if done wrong, that glass can literally kill the nature we seek to connect with.

Fortunately, there are bird-safe glass solutions. I've been working on them since 2005, and have been involved with a number of bird-safe buildings. Multiple strategies are available: simple insect screens, solar shading elements, reduced reflectivity, decorative patterns, and barely-visible ultra-violet coatings. The simplest is patterns on glass, which adds only a fraction of a percent to the overall cost of an average new NYC building.

The Javits Center was known as the worst bird-killing building in the City in 2007. We replaced the original tinted & reflective glass with a more clear & less reflective type that has a pattern of tiny dots. This change reduced bird fatalities by more than 90% while also reducing air conditioning loads and saving energy. The building feels much more transparent and welcoming than before.

At the Statue of Liberty Museum, there was a National Park Service goal to avoid collisions. There, we used a different dot pattern which enables views into the building to see the historic torch and out to see the Statue. In a year of operation, there are no reported collisions, and we've heard no complaints about the dots.

At the Columbia University School of Nursing, we used a decorative pattern on much of the glass that is bird-safe. The pattern gives privacy to the students and reduces glare for the neighbors.

While we've had success implementing bird-safe glass with institutional clients, we've had less success with commercial building owners. They are hesitant because of concerns about cost and market expectations for clear glass. As a result, we have built very few commercial buildings with bird-safe features in NYC. Unfortunately, one residential building we designed currently has a big bird collision problem. Most building owners will not do this on their own, and that is why legislation is necessary.

We recommend the following adjustments to the bill, which are articulated in written comments submitted by the Bird-Safe Building Alliance:

- Clarify that the bill applies to new buildings and alterations.
- Clarify that the provision for 90% coverage below 75' is relative to overall exposed vertical surface area, not glass area, and that 75' be measured from grade.
- Define 'parallel glass' & 'glass corners' more clearly.
- Require 100% of parallel glass & glass corners below 75' be bird-safe.
- Require 100% of all glass balcony railings be bird-safe (even over 75').
- Require the Building Commissioner to produce compliance guidelines with the assistance of local experts on the issue.

AIA New York strongly recommends that the council approve this bill. It will help New York City lead on this important issue, and it will help the design and construction community make better more responsible buildings.

Bird-Friendly Building Design

Vassar's Bridge for Laboratory Sciences, shown here under construction in October 2015. The building is scheduled to open in January 2016. Cover rendering and photos courtesy of Ennead Architects

Exterior glass detail

Glass detail, showing frit pattern

Cover rendering and photo this page: The new Bridge for Laboratory Sciences building at Vassar College, designed by Richard Olcott/Ennead Architects, redefines the identity of the sciences on the College's historic campus and provides technologically advanced facilities for students, faculty, and researchers.

Fundamental to the building's design is its seamless integration with the natural landscape, scale, and campus aesthetic of the College. In this natural wooded setting, the need for strategies to reduce bird collisions with the building was apparent. In response, the building was designed to comply with LEED Pilot Credit 55: Bird Collision Deterrence.

Ennead managing partner Guy Maxwell is a nationally recognized champion of bird-friendly design and has led Ennead's innovative approach to make the building's glazing safer for birds, employing patterned glass, screens and sunshades, and Ornilux glass, a specialty glass product that uses a UV coating visible to birds but not humans.

By framing and showcasing views of the landscape, the building celebrates and connects students with the surrounding environment, while the overall development of the precinct repurposes an underutilized sector of campus.

Table of Contents

The area of glass on a façade is the strongest predictor of threat to birds. There are also other reasons to limit glass. Skidmore Owings Merril's Bronx, New York, Emergency Call Center is a handsome example of creative design with restricted glass, for a building intended to be both secure and blast-resistant. Photo by Chris Sheppard, ABC

For updates and new information, see **collisions.abcbirds.org**

Executive Summary

A bird, probably a dove, hit the window of an Indiana home hard enough to leave this ghostly image on the glass. Photo by David Fancher

Collision with glass claims the lives of hundreds of millions of birds each year in the United States. It is second only to domestic cats as a source of mortality linked directly to human action. Birds that have successfully flown thousands of miles on migration can die in seconds on a pane of glass; impacts kill fledglings before they can truly fly. Because glass is dangerous for strong, healthy, breeding adults, as well as sick or young birds, it can have a particularly serious impact on populations.

Bird kills occur at buildings across the United States and around the world. We know most about mortality patterns in cities, because that is where most monitoring takes place, but virtually any building with glass poses a threat wherever it is. The dead birds documented by monitoring programs or provided to museums constitute merely a fraction of the birds actually killed. The magnitude of this problem can be discouraging, but there are already effective solutions and an increasing commercial commitment to developing new solutions, if people can be convinced to adopt them.

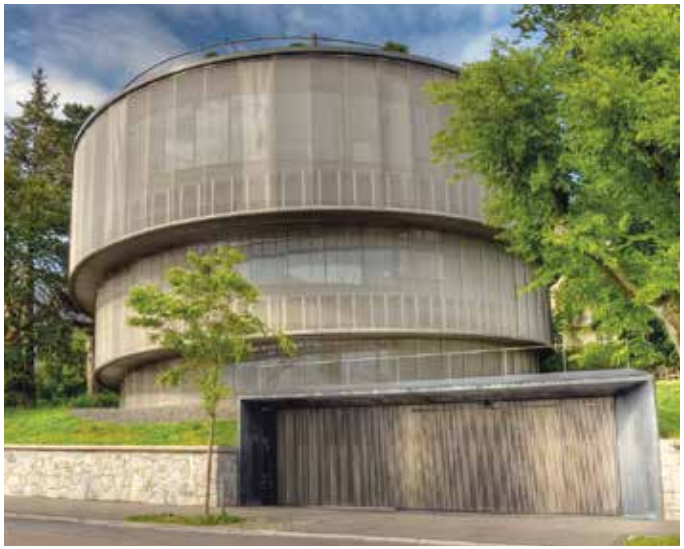
That artificial lighting at night plays a significant part in mortality from glass is widely accepted, but often misunderstood. The majority of collisions with buildings take place during daylight. There are many well-documented instances of bright lights at night disorienting large numbers of birds—usually night-migrating passerines but also seabirds—some of which may circle in the light, sometimes until dawn. Nocturnal mortality associated with circulation events is caused by collision with guy wires and other structures. Such events were described starting in the late 19th century at lighthouses, and later at the Washington Monument, Statue of Liberty, and Empire State Building, which were the only brightly lit structures in their areas. Today, such events occur mostly at offshore drilling platforms and communication towers. These situations have in common bright light surrounded by darkness, and their frequency has decreased in cities as areas of darkness around bright structures have also become lit. However, there are strong indications that birds are still being disoriented by urban lights and that lights are linked to mortality, even though mortality patterns have changed.

Advances in glass technology and production since the mid-twentieth century have made it possible to construct skyscrapers with all-glass walls, homes with huge picture windows, and miles of transparent noise-barriers on highways. There has been a general increase in the amount of glass used in construction—and the amount of glass on a building is the best predictor of

Newhouse III, designed by Polshek Partnership Architects, is part of Syracuse University's S.I. Newhouse School of Public Communications. This building incorporates an undulating, fritted glass façade with the words of the first amendment etched in letters six feet high along the base. Photo by Christine Sheppard, ABC

the number of birds it will kill. However, while glass is important for bringing light into buildings, a façade with over 30-40% glass dramatically increases energy use for heating and cooling. Bird-friendly design is becoming recognized as part of sustainable design, required increasingly by legislation across North America.

New construction can incorporate from the beginning bird-friendly design strategies that are cost neutral. There are many ways to reduce mortality from existing buildings, with more solutions being developed all the time. Because the science is constantly evolving, and because we will always wish for more information than we have, the temptation is to postpone action in the hope that a panacea is just around the corner. But we can't wait to act. We have the tools and the strategies to make a difference now. Architects, designers, city planners, and legislators are key to solving this problem. They not only have access to the latest building construction materials and concepts; they are also thought leaders and trend setters in the way we build our communities and prioritize building design issues.



The steel mesh enveloping Zurich's Cocoon in Switzerland, designed by Camenzind Evolution, Ltd, provides privacy, reduces heating and cooling costs, and protects birds, but still permits occupants to see out. Photo by Anton Volgger

This publication aims to provide planners, architects, and designers, bird advocates, and local, municipal, and federal authorities, as well as the general public, with a clear understanding of the nature and magnitude of the threat glass poses to birds. Since the first edition, in 2011, there has been increased awareness of collisions, evidenced by new ordinances and guidelines for bird-friendly construction, new materials to retrofit existing buildings, and promotion by the glass industry of bird-friendly materials.

This edition includes an updated review of the underlying science, examples of solutions that can be applied to both new construction and existing buildings, and an explanation of what information is still needed. We hope it will spur individuals, businesses, communities, scientists, and governments to address this issue and make their buildings safer for birds. Constructing bird-friendly buildings and eliminating the worst existing threats require only imaginative design, effective retrofits, and recognition that birds have intrinsic and cultural as well as economic and ecological value to humanity.

American Bird Conservancy's Collisions Program works at the national level to reduce bird mortality by coordinating with organizations and governments, developing educational programs and tools, evaluating and developing solutions, creating centralized resources, and generating awareness.

The façade of Sauerbruch Hutton's Brandhorst Museum is a brilliant example of mixing glass and non-glass materials. Photo by Tony Brady

INTRODUCTION

Why Birds Matter

For many people, birds and nature have intrinsic worth. Birds have been important to humans throughout history, often symbolizing cultural values such as peace, freedom, and fidelity. In addition to the pleasure they can bring to people, we depend on them for critical ecological functions. Birds consume vast quantities of insects and control rodent populations, reducing damage to crops and forests and helping limit the transmission of diseases such as West Nile virus, dengue fever, and malaria. Birds play a vital role in regenerating habitats by pollinating plants and dispersing seeds. Birds are also a direct economic resource. According to the U.S. Fish and Wildlife Service, bird watching is one of the fastest growing leisure activities in North America, an over $40 billion industry accounting for many jobs.

The Legal Landscape

At the start of the 20th century, following the extinction of the Passenger Pigeon and the near extinction of other bird species due to unregulated hunting, laws were passed to protect bird populations. Among them was the Migratory Bird Treaty Act (MBTA), which made it illegal to kill a migratory bird without a permit. The scope of this law, which is still in effect today, extends beyond hunting, such that anyone causing the death of a migratory bird, even if unintentionally, can be prosecuted if that death is deemed to have been foreseeable. At present, the scope of the MBTA is under challenge in federal court and it is impossible to say whether it will ever be used to curb glass collisions. However, courts in Canada have ruled that building owners are responsible for mortality caused by glass.

Violations of the MBTA can result in fines of up to $500 per incident and up to six months in prison. The Bald and Golden Eagle Protection Act (originally the Bald Eagle Protection Act of 1940), the Endangered Species Act (1973), and the Wild Bird Conservation Act (1992) provide further protections for birds that may apply to building collisions. Recent legislation, primarily at the city and state levels, has addressed the problem of mortality from building collisions and light pollution. Starting with Toronto, Canada, in 2009 and San Francisco, California, in 2010 an increasing number of states and municipalities have passed laws mandating bird-friendly design, while other authorities have passed voluntary measures.

Glass: The Invisible Threat

Glass is invisible to both birds and humans. Humans learn to see glass through a combination of experience and visual cues like mullions and even dirt, but birds are unable to use these signals. Most birds' first encounters with glass are fatal when they collide with it at full flight speed. Aspects of bird vision contribute to the problem. Whereas humans have eyes in the front of their heads and good depth perception, most birds' eyes are placed at the sides of their heads. Birds thus have little depth perception beyond the range of their bills but extensive fields of view to the side and behind. They judge their flight speed by the passing of objects to their sides, so their focus in flight is not necessarily ahead. Besides simply using designs with less glass, we can protect birds by using screens, shutters, and details that partly obscure glass while still providing a view, or by using two-dimensional patterns that birds perceive as actual barriers. However, birds have poor contrast sensitivity compared to humans: shapes at a distance merge into a blur at closer range for birds. This means that most signals that make glass safe for birds will probably be readily visible to people.

Reflections on home windows are a significant source of bird mortality. The partially opened vertical blinds here may break up the reflection enough to reduce the hazard to birds. Photo by Christine Sheppard, ABC

Birds may try to reach vegetation seen through two or more glass walls or windows; the single decal here is not enough to solve the problem, but two or three could do the trick. Photo by Christine Sheppard, ABC

(Opposite) The White-throated Sparrow is the most frequent victim of collisions reported by urban monitoring programs. Photo by Robert Royse

Lighting: Exacerbating the Threat

Most birds, with obvious exceptions, are active by day, with eyes best adapted for daylight sight. However, many bird species migrate by night, allowing them to use daylight hours for feeding. We still don't know everything about how night-flying birds navigate. We do know that birds probably have two special senses that allow them to determine location and direction using the Earth's magnetic field. One of these, located in the eye, may allow birds to "see" magnetic lines in the presence of dim blue light. Star maps, landmarks, and other mechanisms are also involved.

Artificial night lighting seemingly disrupts orientation mechanisms evolved to work with dimmer, natural light sources and can cause birds to deviate from their flight paths. The problem is compounded for birds flying in mist or cloud, which can cause them to fly lower and closer to artificial light sources, depriving them of celestial and magnetic cues. As birds fly near light sources, they may become disoriented and eventually land in the built environment.

Light at night can disorient birds, and the problem is not restricted to tall buildings. This scene of Las Vegas by night depicts a threat to any bird migrating nearby at night. Photo by BrendelSignature, Wikipedia

The majority of collisions with buildings actually take place by day. As birds seek food to fuel their next migratory flight, they face a maze of structures, and many, unable to distinguish between habitat and reflections, hit glass. The amount of light emitted by a building is a strong predictor of the number of collisions it will cause, more so than building height. Patterns of light intensity across a nocturnal landscape may influence the pattern of birds landing in that landscape at the end of migration stages. Thus, reducing light trespass from all levels of buildings and their surroundings is an important part of a strategy to reduce collisions with glass. There is some recent evidence that electromagnetic radiation outside the visible spectrum may also disorient birds.

Birds and the Built Environment

Humans first began using glass in Egypt around 3500 BCE. Glass blowing, invented by the Romans in the early first century CE, greatly increased the ways glass could be used, including the first crude glass windows. The 17th century saw the development of the float process, enabling production of large sheets of glass. This technology became more sophisticated, eventually making glass windows available on a large scale by the 1960s. In the 1980s, development of new production and construction technologies culminated in today's glass skyscrapers and increasing use of glass in all types of construction.

Sprawling land-use patterns and intensified urbanization degrade the quality and quantity of bird habitat across

the globe. Cities and towns encroach on riverbanks and shorelines. Suburbs, farms, and recreation areas increasingly infringe upon wetlands and woodlands. Some bird species simply abandon disturbed habitat. For resident species that can tolerate disturbance, glass is a constant threat, as these birds are seldom far from human structures. Migrating birds are often forced to land in trees lining our sidewalks, city parks, waterfront business districts, and other urban green patches that have replaced their traditional stopover sites.

The amount of glass in a building is the strongest predictor of how dangerous it is to birds. However, even small areas of glass can be lethal. While bird kills at homes are estimated at one to 10 birds per home per year, the large number of homes multiplies that loss to millions of birds per year in the United States, representing over 46% of the total problem. Other factors can increase or decrease a building's impact, including the density and species composition of local bird populations; local geography; the type, location, and extent of landscaping and nearby habitat; prevailing wind and weather; and patterns of migration through the area. All must be considered when planning bird-friendly buildings.

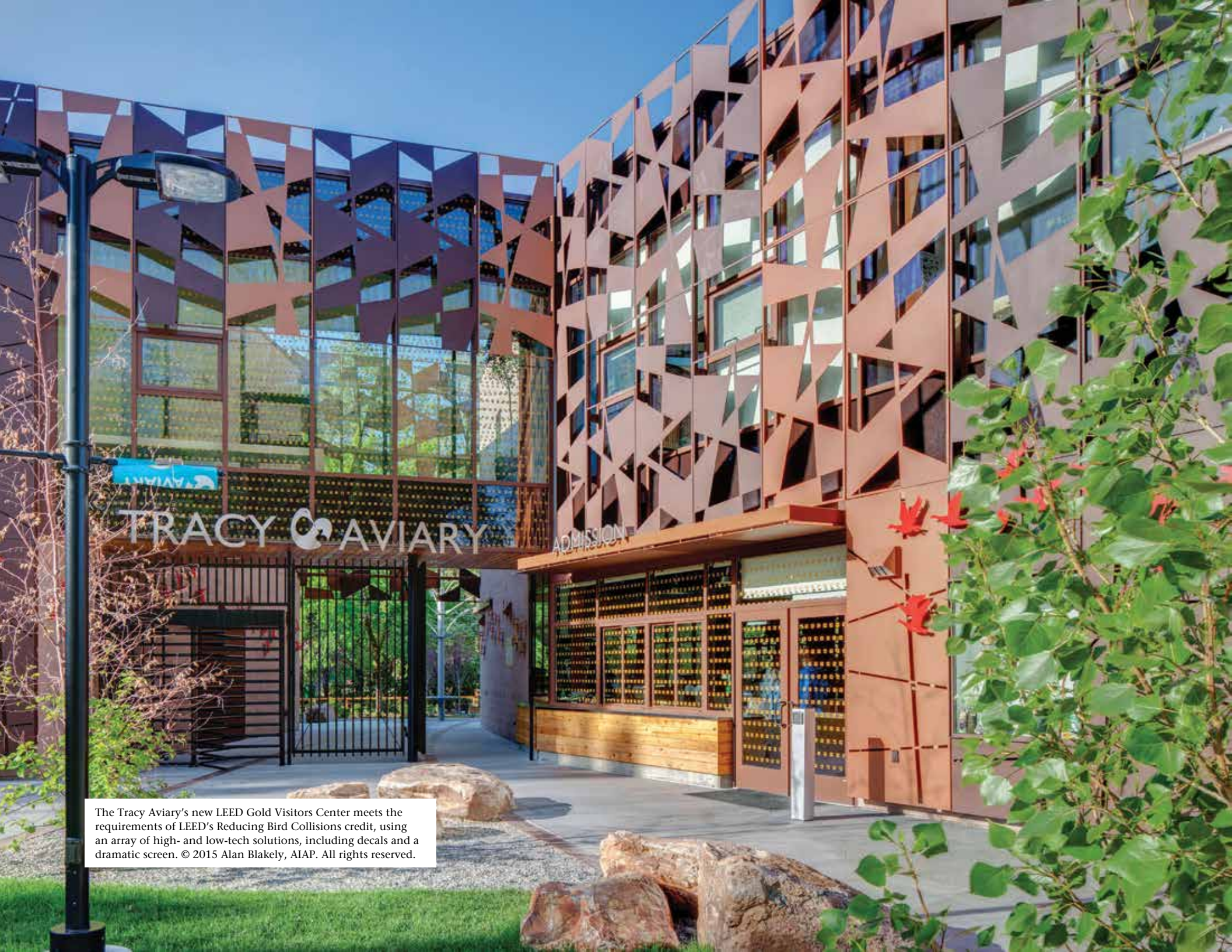
Impact of Collisions on Bird Populations

About 25% of species are now on the U.S. Watch List of birds of conservation concern (abcbirds.org/birds/watchlist), and even many common species are in decline. Habitat destruction or alteration of both breeding and wintering grounds remains the most serious man-made problem, but collisions with buildings are second only to domestic cats as direct fatality threats. Nearly one-third of the bird species found in the United States—more than 258 species, from hummingbirds to falcons—are documented as victims of collisions. Unlike natural hazards that predominantly kill weaker individuals, collisions kill all categories of birds, including some of the strongest, healthiest birds that would otherwise survive to produce offspring. Without action, the cumulative effect of these deaths will result in significant population declines. Most of the mortality is avoidable. This document is one piece of a strategy to keep building collisions from increasing and, ultimately, to reduce them.

Bird Collisions and Sustainable Architecture

In recent decades, advances in glass technology and production have made it possible to construct tall buildings with all-glass walls, and we have seen a general increase in the amount of glass used in all types of construction. This is manifest in an increase in picture windows in private homes, glass balconies and railings, bus shelters, and gazebos. New applications for glass are being developed all the time. Unfortunately, as the amount of glass increases, so does the incidence of bird collisions.

The Cape May campus of Atlantic Cape Community College inherited a building with large areas of glass that did not have coatings or film to control temperature and glare—and there were many collisions. The addition of Collidescape has eliminated the threat to birds while reducing heating and cooling costs. Photo by Lisa Apel-Gendron



The Tracy Aviary's new LEED Gold Visitors Center meets the requirements of LEED's Reducing Bird Collisions credit, using an array of high- and low-tech solutions, including decals and a dramatic screen.

In recent decades, growing concern for the environment has stimulated the creation of "green" standards and rating systems for development. The best known is the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design, or LEED. While the USGBC concurred that sustainable buildings should not kill birds, it was initially difficult to create recommendations within the LEED credit system. The solution was based on a technique called "tunnel testing," a non-lethal method using live birds that permits a relative threat score to be assigned to patterned glass and other materials. (The section on Research in Chapter 6 reviews the work underlying the assignment of threat scores.)

On October 14, 2011, USGBC added Pilot Credit 55: Bird Collision Deterrence to its Pilot Credit Library. The credit was drafted by American Bird Conservancy (ABC), members of the Bird-Safe Glass Foundation, and the USGBC Sustainable Sites Technical Advisory Group (TAG). Building developers that wish to earn this credit must quantify the threat level to birds posed by various materials and design details. These threat factors are used to calculate an index, or weighted average, representing the building's façade; that index must be below a standard value to earn the credit. The index is intended to provide wide latitude in creating designs that meet the criteria. The credit also requires adopting interior and exterior lighting plans and post-construction monitoring.

Pilot Credit 55 is one of the most widely used credits in the pilot library. A revised version of the credit, posted in the fall of 2015, expands its availability to all LEED rating systems except "neighborhoods."

ABC is a registered provider of the American Institute of Architects (AIA) Continuing Education System, offering classes on bird-friendly design and LEED Pilot Credit 55 in face-to-face and webinar formats. Contact Christine Sheppard, csheppard@abcbirds.org, for more information.

Defining What's Good for Birds

It is increasingly common to see the term "bird-friendly" used in a variety of situations to demonstrate that a particular product, building, legislation, etc., is not harmful to birds. All too often, however, this term is unaccompanied by a clear definition and lacks a sound scientific foundation to underpin its use. Ultimately, defining "bird-friendly" is a subjective task. Is bird-friendliness a continuum, and if so, where does friendly become unfriendly? Is "bird-friendly" the same as "bird-safe?" How does the definition change from use to use, situation to situation? It is impossible to know exactly how many birds a particular building will kill before it is built, and so, realistically, we cannot declare a building to be bird-friendly before it has been carefully monitored for several years.

There are factors that can help us predict whether a building will be particularly harmful to birds or generally benign, and we can accordingly define simple "bird-friendly building standards" that, if followed, significantly reduce potential hazard to birds. That said, a 75% reduction of mortality at a structure that kills 400 birds a year means that structure will still kill 100 birds a year. Because window kills affect reproductively active adult birds, the cumulative effect of saving some birds is amplified by their reproductive output. Because a 100% reduction in mortality may be difficult to achieve, ABC takes the position that it is better to take reasonable available actions immediately than to put off taking action until a perfect solution is possible or to take no action at all.

Hariri Pontarini Architects with Robbie/Young + Wright Architects used botanical imagery in 3M laminates to depict the plants that produce many of the compounds used by students at the University of Waterloo School of Pharmacy, Canada. Photo by Christine Sheppard, ABC

Problem: Glass

The glass in this Washington, D.C., atrium poses a double hazard, drawing birds to plants inside as well as reflecting sky above. Photo by Christine Sheppard, ABC

Properties of Glass

Glass, as a structural material, can range in appearance from transparent to mirrored to opaque. Its surface can completely reflect light or let virtually 100% of light pass through. A particular piece of glass will change appearance depending on environmental factors, including position relative to the sun, the difference between exterior and interior light levels, what may be reflected, and the angle at which it is viewed. Combinations of these factors can cause glass to look like a mirror or a dark passageway, or be completely invisible. Humans do not actually "see" clear glass, but are cued by context such as mullions, dirt, or window frames. Birds, however, do not perceive right angles and other architectural signals as indicators of obstacles or artificial environments: they take what they see literally. While local birds may become familiar with individual pieces of glass, they do not ever grasp the concept "glass."

The glass-walled towers of the Time Warner Center in New York City appear to birds as just another piece of the sky. Photo by Christine Sheppard, ABC

Reflection

Under the right conditions, even transparent glass on buildings can form a mirror, reflecting sky, clouds, or nearby habitat attractive to birds. When birds try to fly to the reflected habitat, they hit the glass. Reflected vegetation is the most dangerous, but birds also attempt to fly past reflected buildings or through reflected passageways, with fatal results.

Transparency

Birds strike transparent windows as they attempt to access potential perches, plants, food or water sources, or other lures seen through the glass, whether inside or outside. Large planted atria are frequent problems, as are glass balcony railings and "skywalks" joining buildings. The increasing trend toward glass used in landscapes, as walls around roof gardens, as handrails or walkway dividers and even gazebos is dangerous because birds perceive an unobstructed route through them to habitat beyond.

Black Hole or Passage Effect

Birds often fly through small gaps, such as spaces between leaves or branches, into nest cavities, or through other small openings that they encounter. In some light, the space behind glass can appear black, creating the appearance of just such a cavity or "passage" with unobstructed access through which birds try to fly.

Transparent handrails are a dangerous trend for birds, especially when they front vegetation. Photo by Christine Sheppard, ABC

Large facing panes of glass can appear to be a clear pathway. Photo by Christine Sheppard, ABC

The same glass can appear transparent or highly reflective, depending on weather or time of day.

Photos by Christine Sheppard, ABC

Factors Affecting Rates of Bird Collisions for a Particular Building

Every site and every building can be characterized as a unique combination of risk factors for collisions. Some of these, particularly aspects of a building's design, are very building-specific. Many problem design features can be readily improved, or, in new construction, avoided. Others of these—for example, a building's location relative to migration stopover sites, regional ecology, and geography—are difficult if not impossible to modify.

Building Design

People like glass and it has become a popular building material. All-glass buildings have become more and more common as glass has become a low-cost material for construction. Glass causes virtually all bird collisions with buildings. Studies based on monitoring data have shown a direct relationship between the amount of glass on a building and the number of collisions at that site—the more glass, the more bird deaths.

Mirrored glass is often used intentionally to make a building "blend" into a vegetated area by reflecting its surroundings, making those buildings especially deadly to birds. However, all-glass buildings are coming increasingly into question. According to groups like the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the International Code Council, when there is more than 30-40% glass on a façade, heating and cooling costs begin to increase.

Building Size

Glass skyscrapers, because of their height and visibility, are often the main focus of collision documentation, and they do account for more collisions per building than smaller structures. However, because there are many more homes and low-rise buildings, the latter account for more total mortality. A study published by scientists at the Smithsonian in 2014 estimated 508,000 annual bird deaths for high-rises, 339 million for low-rises, and 253 million for homes. More collisions probably occur at glass on lower floors, where most bird activity takes place, but when monitors have had access to setbacks and roofs, they have consistently found at least some carcasses, indicating that glass at any level can be a threat.

Orientation and Siting

Because migrating birds are frequent collision victims, it is often assumed that more collisions will occur on north- and south-facing façades. However, most building collisions take place during the day, and building orientation in relation to compass direction has not been implicated as a factor. Siting of buildings with respect to surrounding habitat and landscaping has more

Birds flying from a meadow on the left are channeled toward the glass doors of this building by a rocky outcrop to the right of the path. Photo by Christine Sheppard, ABC

Mirrored glass is dangerous at all times of day, whether it reflects vegetation, sky, or simply open space through which a bird might try to fly. Photo by Christine Sheppard, ABC

Plantings on setbacks and rooftops can attract birds to glass they might otherwise avoid. Chris Sheppard, ABC

implications. Physical features like walkways that provide an open flight path through vegetated landscape, or obstacles like outcrops of rock or berms, can channel birds toward or away from glass and should be considered early in the design phase. Movement patterns of birds within surrounding habitat may cause unanticipated collisions. Birds often fly between landscape features, for example, between two stands of trees, and may be at risk from structures along their route.

Glass that reflects shrubs and trees causes more collisions than glass that reflects pavement or grass. Studies that measured vegetation within only 15 to 50 feet of a façade have led to the misconception that plantings beyond a certain distance don't influence collisions, but vegetation at much greater distances can easily be visible in reflections. Vegetation around buildings will bring more birds into the vicinity of the building; the reflection of that vegetation brings more birds into the glass. Taller trees and shrubs correlate with more collisions. It should be kept in mind that vegetation on slopes near a building will reflect in windows above ground level. Studies using bird feeders (Klem *et al*. 1991) have shown that fatal collisions result when birds fly toward glass from more than a few feet away.

Time of Day

Collisions tend to happen most when birds are most active. Many studies have documented that although collisions peak during the early morning, they can happen at almost any time of day. Most monitoring programs have focused on early morning before cleaning crews have swept sidewalks because of the increased likelihood of finding birds and because it is easier to obtain volunteer searchers in the pre-work hours.

Green Roofs and Walls

Green roofs bring elements attractive to birds to higher levels, but often they are built in close proximity to glass. However, recent work shows that well-designed green roofs can become functional ecosystems, providing food and even nest sites for birds. Siting of green roofs, as well as green walls and rooftop gardens, should therefore be carefully considered, and glass adjacent to these features should have protection for birds.

Green roofs and walls can provide food and other resources to birds, but they can also attract birds to glass that they might not otherwise encounter. Emilio Ambasz's ACROS building in Fukuoka, Japan, is an interesting example. Photo by Kenta Mobuchi

This atrium has more plants than anywhere nearby on surrounding streets, making the glass deadly for birds seeking food or shelter in this area. Photo by Christine Sheppard, ABC

Solutions: Glass

It is possible to design buildings that can reasonably be expected to kill few or no birds. Numerous examples already exist, not necessarily designed with birds in mind but simply to be functional and attractive. These buildings may have many windows, but their screens, latticework, louvers, and other devices outside, or patterns integrated into the glass, warn birds before they collide. Finding glass treatments that can eliminate or greatly reduce bird mortality, while minimally obscuring the glass itself, has been the goal of several researchers, including Martin Rössler, Daniel Klem, and Christine Sheppard. Their work, discussed in more detail in the Science chapter, has focused primarily on the spacing, length, width, opacity, color, and orientation of elements marked on glass, and has shown that patterns covering as little as 5% of the total glass surface can deter most strikes under experimental conditions. They have shown that as a general rule, most songbirds will not attempt to fly through horizontal spaces less than 2 inches high or through vertical spaces 4 inches wide or less. We refer to this as the 2 x 4 rule, and it is clearly related to the size and shape of birds in flight. (See chart on page 47).

Designing a new structure to be bird-friendly does not require restricting the imagination or adding to the cost of construction. Architects around the globe have created fascinating and important structures that incorporate little or no dangerous glass. In some cases, inspiration has been borne out of functional needs, such as shading in hot climates; in others, from aesthetics. Being bird-friendly usually has been incidental. Now, however, buildings are being designed with birds in mind, and materials designed for this purpose are multiplying. Until recently, retrofitting existing buildings has been more difficult and costly than it is today. However, new materials are appearing and costs can be controlled by targeting problem areas rather than entire buildings.

(Opposite) The external glass screen on the GSA Regional Field Office in Houston, Texas, designed by Page Southerland Page, helps control heat but also reduces the likelihood of collisions. Photo by Timothy Hursley

Bird-friendly materials and design features often overlap in function with materials to control heat and light, security measures, and decorative design details. Bird-friendly building-design strategies also fall into three general categories, although all three could be combined in a single structure. These are:

1. Using minimal glass (Bronx Call Center, U.S. Mission to the United Nations)
2. Placing glass behind some type of screening (de Young Museum, Cooper Union)
3. Using glass with inherent properties that reduce collisions (Brooklyn Botanic Garden Visitors Center; Student Center at Ryerson University, Toronto; and Cathedral of Christ the Light)

Awnings and Overhangs (Not Recommended)

Overhangs have been frequently recommended to reduce collisions. However, there are many situations in which overhangs do not eliminate reflections and only block glass from the view of birds flying above. They are thus of limited effectiveness as a general strategy. Overhangs work best when glass is shadowed from all sides. Functional elements such as balconies and balustrades can block the view of glass, protecting birds while providing an amenity for residents.

Angled Glass (Not Recommended)

In a study (Klem et al., 2004) comparing bird collisions with vertical panes of glass to those tilted 20 or 40 degrees, the angled glass resulted in less mortality. Klem speculated that this was because the glass reflected the

The Brooklyn Botanic Garden's Visitors Center, designed by Weiss/Manfredi, was intended to be bird-friendly from its inception—a challenge, as it makes extensive use of glass. Photo @ Alber Vecerka, ESTO

Glass walls and doors at the Brooklyn Botanic Garden's Visitors Center include a custom fritting pattern that meets bird-friendly criteria. Monitoring for collisions after the building opened indicates that the design was successful. Photo by Christine Sheppard, ABC

Overhangs block viewing of glass from some angles, but do not necessarily eliminate reflections. Photo by Christine Sheppard, ABC

Reflections in this angled façade can be seen clearly over a long distance, and birds can approach the glass from any angle. Photo by Christine Sheppard, ABC

ground, not vegetation. Using angled glass has become a common recommendation as a bird-friendly feature. However, while angled glass may be useful in special circumstances, the birds in the study were flying parallel to the ground from nearby feeders, hitting the glass at acute angles, with less force than a perpendicular strike. In most situations, however, birds may approach glass from any angle.

Netting, Screens, Grilles, Shutters, Exterior Shades

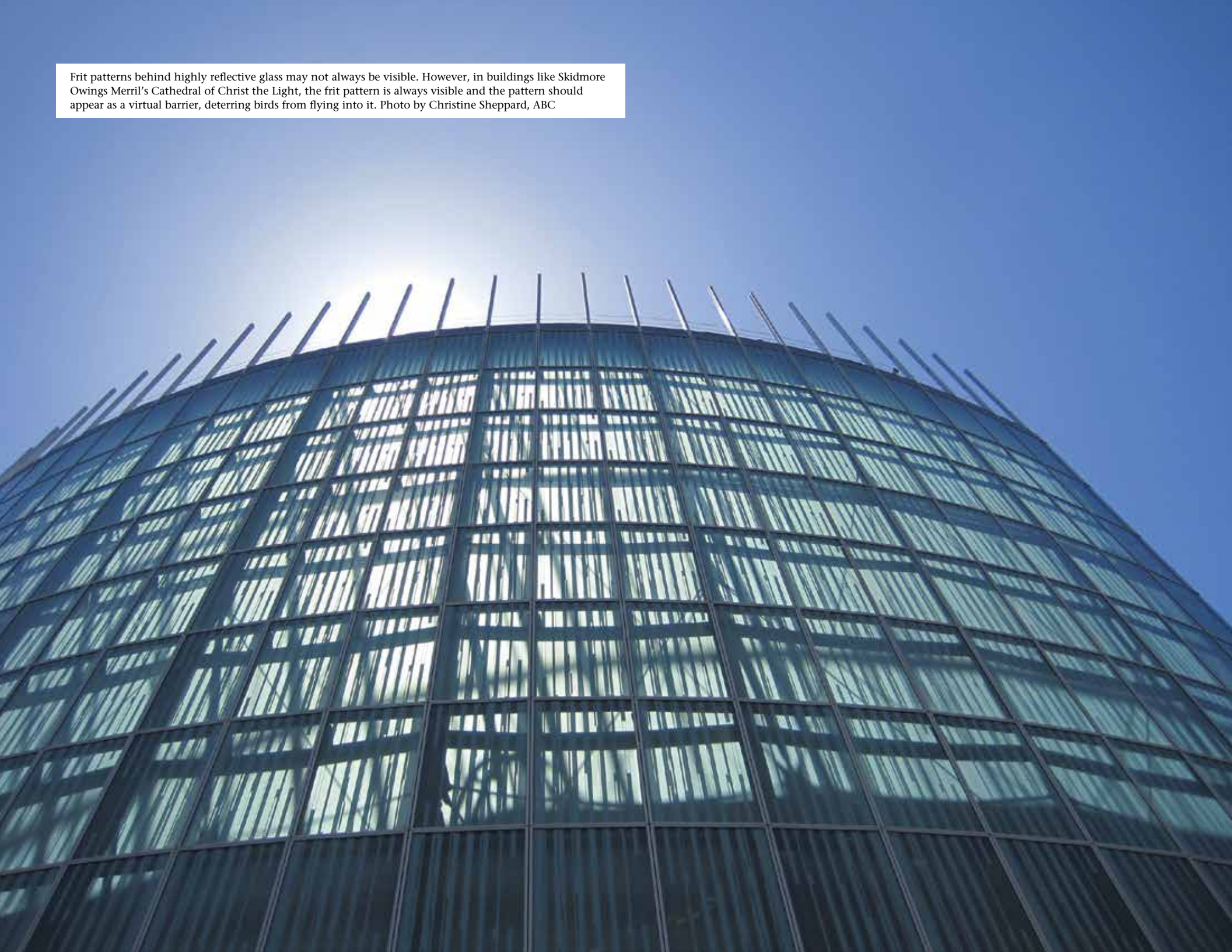
There are many ways to combine the benefits of glass with bird-friendly design by incorporating elements that preclude collisions while providing light and views. Some architects have designed decorative façades that wrap entire structures. Decorative grilles are also part of many architectural traditions. Exterior, motorized solar screens and shades are effective at controlling heat and light, increase security, and can be adjusted to maximize view or bird and sun protection at different times. Netting, grilles, and shutters are common elements that can make glass safe for birds on buildings of any scale. They can be used in retrofit or be an integral part of an original design and can significantly reduce bird mortality.

Before the current age of unopenable windows, screens protected birds in addition to serving their primary purpose of keeping bugs out. Screens are still among the most cost-effective methods for protecting birds, and, if insects are not an issue, nearly invisible netting can often be installed. Screens and netting should be installed at some remove from the window so that the impact of a strike does not carry birds into the glass. Several companies sell screens that can be attached with suction cups or eye hooks for small areas of glass. Others specialize in much larger installations. (Find sources at collisions.abcbirds.org).

Patterns on Glass

Ceramic dots, other types of "frits," and other materials can be screened, printed, or otherwise applied to glass surfaces. This is often done to reduce the transmission of light and heat and can also provide design detail. In some cases, frit patterns are hardly visible, but when designed according to the 2 x 4 rule (see p. 47), patterns on glass can also prevent bird strikes. Patterns on the outside surface of glass deter collisions most effectively because they are always visible, even with strong reflections. This type of design, useful primarily for new construction, is currently more common in Europe and

A custom frit pattern was designed by Ennead Architects for Vassar College's Bridge for Laboratory Sciences building. Elements of the pattern occur on two separate surfaces, increasing visibility to birds in flight, who will see a constantly changing pattern that may appear to move. Photo by Christine Sheppard, ABC



Frit patterns behind highly reflective glass may not always be visible. However, in buildings like Skidmore Owings Merril's Cathedral of Christ the Light, the frit pattern is always visible and the pattern should appear as a virtual barrier, deterring birds from flying into it. Photo by Christine Sheppard, ABC

While some internal fritted glass patterns can be overcome by reflections, Frank Gehry's IAC headquarters in Manhattan is so dense that the glass appears opaque. Photo by Christine Sheppard, ABC

Ornilux Mikado's pattern reflects UV wavelengths. The spiderweb effect is visible only from very limited viewing angles. Photo courtesy of Arnold Glass

Asia, but is being offered by an increasing number of manufacturers in the United States. New technologies allowing printing of ceramic inks on the outside surface of glass may greatly increase options for bird-friendly design in the U.S.

More commonly, frit is applied to an internal surface of insulated glass units. This type of design may not be visible if the amount of light reflected by the frit is insufficient to overcome reflections on the outside surface of the glass or if frit is applied as dots below the visual threshold of birds. Some internal frits may only help break up reflections when viewed from some angles and in certain light conditions. However, with the right combination of surface reflectivity and frit application, a pattern on an inside surface can still be effective. The headquarters of the internet company IAC in New York City, designed by Frank Gehry, is composed entirely of fritted glass, most of high density and always visible. No collision mortalities have been reported at this building after two years of monitoring by New York City Audubon. FXFOWLE's Jacob Javits Center, also in Manhattan, reduced collisions by as much as 90% with a renovation that eliminated some dangerous glass and replaced other glass with a visible frit pattern. Another example of a visible internal frit pattern is seen in Skidmore Owings Merril's Cathedral of Christ the Light in Oakland, California.

UV Patterned Glass

Songbirds, gulls, parrots, and other birds can see into the ultraviolet (UV) spectrum of light, a range largely invisible to humans (see page 41). Other bird types, including raptors, kingfishers, hummingbirds, and pigeons, are less sensitive to UV. Ultraviolet reflective and/or absorbing patterns "invisible to humans but visible to birds" are frequently suggested as the optimal solution for many bird collision problems, but few such products are available commercially as of 2015. Progress in development of bird-friendly UV glass has been slow, but with legislation in multiple locations mandating bird-friendly design, glass manufacturers and distributors, as well as window-film manufacturers, are taking an active role in developing new solutions for this application. Research indicates that UV patterns need strong contrast to be effective, especially in the early morning and late afternoon, when UV in sunlight is at low levels. However, UV patterns may be ineffective for many species that have been reported as victims of collisions with glass, including hummingbirds, flycatchers, American Woodcock, and woodpeckers.

Opaque and Translucent Glass

Opaque, etched, stained, or frosted glass and glass block are excellent options to reduce or eliminate collisions, and many attractive architectural applications exist. They can be used in retrofits but are more commonly used in new construction. Frosted glass is created by acid etching or sandblasting transparent glass. Frosted areas are translucent, but various finishes are available with differing levels of light transmission. An entire surface can be frosted, or frosted patterns can be applied. Patterns should conform to the 2 x 4 rule described on page 47. For retrofits, glass also can be frosted by sandblasting on site. Stained glass is typically seen in relatively small areas but can be extremely attractive and is not conducive to collisions. Glass block is versatile, can be used as a design detail or primary construction material, and is also unlikely to cause collisions. Another promising material is photovoltaic glass, which has been used in stained-glass windows and highway noise barriers. This solution is especially interesting, because

The Wexford Science and Technology Building in Philadelphia, designed by Zimmer, Gunsul, Frasca, uses translucent glass to provide light without glare, making it safe for birds. Photo courtesy of Walker Glass

transparent highway noise barriers can cause collisions, and such barriers are beginning to be installed in the United States.

Window Films

Most patterned window films were initially intended for use inside structures as design elements or for privacy. Now, outside surface applications intended to reduce bird collisions are coming onto the market, and some have proved highly effective and popular. The oldest such product creates an opaque white surface on the outside of glass that still permits viewing from the inside. Patterns can be printed on this material, although images of trees and other habitat are not recommended.

A film with a pattern of narrow, horizontal stripes has eliminated collisions at the Philadelphia Zoo Bear Country exhibit for over five years (see photo opposite) and has been similarly successful in other installations when applied to outside surfaces of glass. In these cases, the response has been positive. Another option is to apply vinyl patterns like window film but with the transparent backing removed.

A Zen Wind Curtain is an inexpensive but extremely effective way to deter collisions. Lengths of parachute cord or similar materials are strung vertically, every four inches, in front of problem glass, creating both a visual and a physical barrier. Photo by Glenn Phillips

Solutions Applied to Interior Glass

Light colored shades have been recommended as a way to deter collisions. However, when visible, they do not effectively reduce reflections, and reflections may make them completely invisible. Closed blinds have the same problems, but if visible and partly open, they can produce the appearance of a 2 x 4 pattern. If an exterior solution is not possible and tape or sticky notes are applied to the inside of windows, be sure to check the windows several times a day to ensure that these materials are visible.

Decals and Tape

Decals are probably the most familiar solution to bird collisions, but their effectiveness is widely misunderstood. Birds do not recognize decals as

This window at the Philadelphia Zoo Bear Country exhibit was the site of frequent bird collisions until window film was applied. Collisions have been eliminated for over five years, with no complaints from visitors about visibility of bears! Photo courtesy of the Philadelphia Zoo

ABC BirdTape

ABC, with support from the Rusinow Family Foundation, has produced ABC BirdTape to make home windows safer for birds. This easy-to-apply tape lets birds see glass while letting you see out, is easily applied, and lasts up to four years. For more information, visit abcbirdtape.org

Photos by Dariusz Zdziebkowski, ABC

silhouettes of falcons, spiderwebs, or other natural objects, but simply as obstacles that they may try to fly around. Decals can be very effective if applied following the 2 x 4 rule on the outside of glass, but in general, they must be replaced frequently, at least annually. Tape is generally more cost effective and quicker to apply, but most household tapes don't stand up well to the elements. Tape intended to last for several years on the outside of windows has become commercially available and is effective when applied following the 2 x 4 guide.

The Consilium Towers, a mirror-glass complex in Toronto, once killed thousands of birds each year. After being taken to court, its owners retrofitted the lower 60 feet of glass with a Feather Friendly dot pattern that has greatly reduced bird mortality.

Reflected in this glass is Michael Mesure, the founder of Toronto's Fatal Light Awareness Program. Photos by Christine Sheppard, ABC

Temporary Solutions

In some circumstances, especially for homes and small buildings, quick, low-cost, temporary solutions, such as making patterns on glass with paint, stickers, or even post-its, can be very effective in the short term. Even a modest effort can reduce collisions. Such measures can be applied when needed and are most effective following the 2 x 4 rule. (For more information, see ABC's flyer "You Can Save Birds from Flying into Windows" and other sources at collisions.abcbirds.org).

ABC BirdTape was effective at the Forest Beach Migratory Reserve in Wisconsin (left), and also performed well in tunnel tests conducted in Austria. Photo by Christine Sheppard, ABC

REMEDIATION CASE STUDY: Javits Center

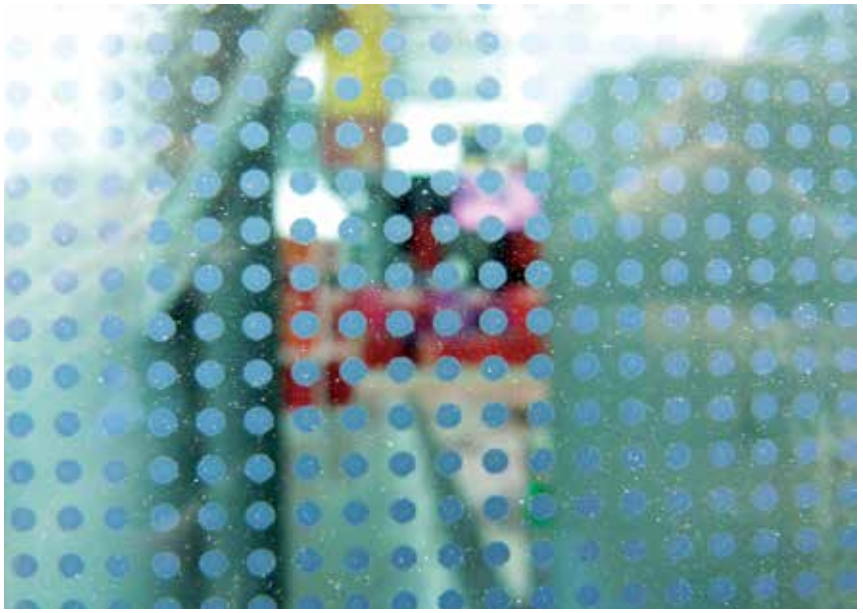
In 2009, the New York City Audubon Society identified the Jacob K. Javits Convention Center as having one of the highest bird-collision mortality rates in New York City.

A major renovation and expansion, designed by the bird-friendly architectural firm of FXFOWLE, was completed in 2014. Some especially deadly glass at street level was replaced with opaque panels. Large panes of clear fritted glass with varying surface characteristics were brought to the site and compared to find the right combination for birds and people.

A 6.75-acre green roof, with adjacent translucent glass, crowns the building and is already providing resources for birds.

Best of all, collisions at the now much larger site have been reduced by 90%.

From a distance, the Javits Center looks like a potential threat to birds.



At close range, a visible pattern of frit dots breaks up reflections, making the glass safe for birds.
Photos by Glenn Phillips

Light: Problems and Solutions

Fixtures such as these reduce light pollution, saving energy and money and reducing negative impacts on birds. Photo by Dariusz Zdziebkowski, ABC

Birds evolved complex complementary systems for orientation and vision long before humans developed artificial light. We still have much more to learn, but recent science has begun to clarify how artificial light poses a threat to birds, especially nocturnal migrants. Although most glass collisions take place during daylight hours, artificial lighting at night plays a role in the number and distribution of collisions across the built environment. Unfortunately, the details of how birds respond to night lighting are less well understood than has been commonly believed.

Many collision victims, especially songbirds, are ordinarily active by day and have eyes specialized for color vision and bright light. But although they migrate at night, these birds have poor night vision. Instead, they have magnetic senses that allow them to navigate using the Earth's magnetic field. One of these is located in the retina and requires dim blue natural light to function. Red wavelengths found in most artificial light have been shown to disrupt that magnetic sense. Studies in Germany and Russia have documented birds flying through beams of light and diverting from their course anywhere from a few degrees to a full circle. Areas with significant light pollution may be completely disorienting to birds.

Birds are attracted to relative brightness, and by day often orient toward the sun. If a songbird flies into a home, darkening the room and opening a bright window is the best way to release it. Birds are thought to be attracted to artificial light at night, but we don't know what light level at what distance is sufficient to cause attraction or other behavioral impacts. Gauthreaux and Belser, discussing impacts of night lighting on birds, speculated that in fact, birds affected by night lighting may simply be on course to pass over the lights, not necessarily attracted from a distance. Marquenie and Van de Laar, studying birds and lights on a drilling rig in the North Sea, estimated that when all the lights on the platform were lit, they affected birds up to 3 to 5 kilometers away, causing many to circle the platform.

The science is inconclusive: Lights may only impact birds as they end a migratory stage and come down close to the built environment, or lights may divert birds that would ordinarily pass by. Bad weather can cause birds to fly lower and closer to lights, while also eliminating any visual cues. The interactions that produce correlations between building light emissions and collisions may take place at relatively close range. Once birds come close to a light source, the electromagnetic radiation actively interferes with their magnetic orientation mechanism.

Overly lit buildings waste electricity and increase greenhouse gas emissions and air pollution levels. They also pose a threat to birds. Photo by Matthew Haines

Houston skyline at night. Photo by Jeff Woodman

Examples of Acceptable/Unacceptable Lighting Fixtures

Reprinted courtesy of DarkSkySociety.org

Some combination of attraction and disorientation may result in larger numbers of birds in the vicinity of brighter buildings and thus, by day, in more collisions. Interestingly, there seem to be no reports of lights attracting or disorienting migrants as they take off on a new migratory stage.

There has been a tendency to associate collision events with very tall structures, though published reports clearly document impact from light at all levels. Early reports of this phenomenon came from lighthouses. Contemporary reports of light-associated circling events are common at oceanic drilling rigs, and disoriented birds have been reported at night skiing sites. A study in Toronto, using the number of lighted windows on a series of buildings as an index of emitted light, found that the amount of light emitted, not the height of the building, was the best predictor of bird mortality.

Solutions

Poorly designed or improperly installed outdoor fixtures add over $1 billion to electrical costs in the United States every year, according to the International Dark Skies Association. Recent studies estimate that over two-thirds of the world's population can no longer see the Milky Way, just one of the nighttime wonders that connect people with nature. Glare from poorly shielded outdoor light fixtures decreases visibility and can create dangerous conditions, especially for older people, and recent studies suggest that long-term exposure to night lighting can increase the risk of breast cancer, depression, diabetes, obesity, and sleep disorders. Together, the ecological, financial, and cultural impacts of excessive building lighting are compelling reasons to reduce and refine light usage.

Reducing exterior building and site lighting has proven effective at reducing mortality of night migrants at

individual buildings, but achieving overall reduction in collisions will require applying those principles on a wider scale. At the same time, these measures reduce building energy costs and decrease air and light pollution. Efficient design of lighting systems plus operational strategies to reduce light trespass or "spill light" from buildings while maximizing useful light are both important strategies. In addition, an increasing body of evidence shows that red light and white light (which contains red wavelengths) particularly confuse birds, while green and blue light may have far less impact.

Light pollution is largely a result of inefficient exterior lighting, and improving lighting design usually produces savings greater than the cost of changes. For example, globe fixtures permit little control of light, which shines in all directions, resulting in a loss of as much as 50% of energy, as well as poor illumination. Cut-off shields can reduce lighting loss and permit use of lower powered bulbs. Most "vanity lighting" is unnecessary. However, when it is used, down-lighting causes less trespass than up-lighting. Where light is needed for safety and security, reducing the amount of light trespass outside of the needed areas can help by eliminating shadows. Spotlights and searchlights should not be used during bird migration. Communities that have implemented programs to reduce light pollution have not found an increase in crime.

Using automatic controls, including timers, photosensors, and infrared and motion detectors, is far more effective than relying on employees turning off lights. These devices generally pay for themselves in energy savings in less than a year. Workspace lighting should be installed where needed, rather than in large areas. In areas where indoor lights will be on at night, minimize perimeter lighting and/or draw shades after dark.

Switching to daytime cleaning of office buildings is a simple way to reduce lighting while also reducing costs.

Lights Out Programs

Despite the complexity of reducing bird collisions with glass, there is one simple way to decrease mortality: turn lights off. Across the United States and Canada, "Lights Out" programs at the municipal and state levels encourage building owners and occupants to turn out lights visible from outside during spring and fall migration. The first of these, Lights Out Chicago, was started in 1995, followed by Toronto in 1997. The programs themselves are diverse. Some are directed by environmental groups, others by government departments, and still others by partnerships of organizations. Participation in most, such as Houston's, is voluntary. Minnesota mandates turning off lights in state-owned and leased buildings.

Powerful beams of light, even in a landscape of urban light pollution, can entrap migrating birds, seen here circling in the beams of the 9/11 Memorial Tribute in Light in New York City. Because birds may circle for hours, monitors watch all night, and the light beams are temporarily turned off to release large accumulations of birds. Photo by Jason Napolitano

Many jurisdictions have monitoring components. Monitoring programs can provide important information in addition to quantifying collision levels and documenting solutions. Ideally, lights-out programs would be in effect year-round and be applied widely, saving birds and energy costs and reducing emissions of greenhouse gases. ABC stands ready to help develop new programs and to support and expand existing programs.

Solutions: Policy

Legislation

Changing human behavior is generally a slow process, even when the change is uncontroversial. Legislation can be a powerful tool for modifying behavior. Conservation legislation has created reserves, reduced pollution, and protected threatened species and ecosystems. Policies that promote bird-friendly design and reduction of light pollution have recently proliferated across the United States and Canada, following the early examples of Toronto and San Francisco. They vary considerably in scope and detail, often reflecting local politics. (A real-time database of ordinances and other instruments mandating or promoting bird-friendly action, including links to source language, can be found at collisions.abcbirds.org).

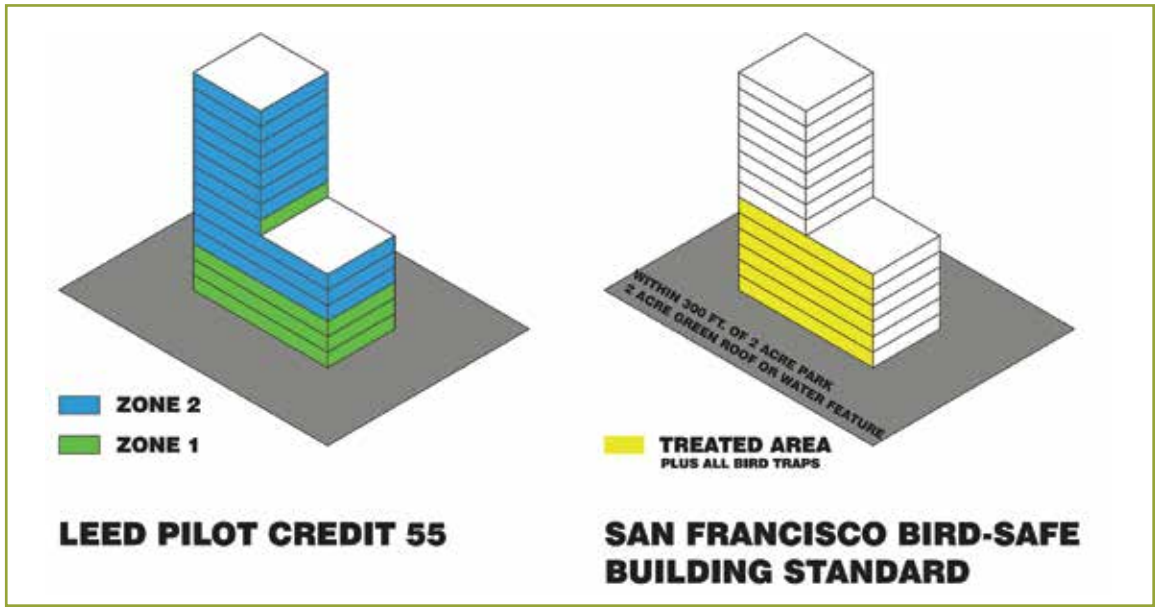
An early challenge in creating effective legislation was the lack of objective measures that architects could use to accomplish their task. For example, a common recommendation, to "increase visual noise," because it was unquantified and undefined, made it difficult for architects and planners to know whether a particular design complied with requirements. Material testing (see p. 45) has made it possible to assign relative threat factors to various building façade materials and to use those scores to create quantitative guidelines and mandates.

The illustration to the right broadly compares San Francisco's Bird-safe Building Standard with LEED Pilot Credit 55, both based on the use of materials with quantified threat levels. San Francisco's standard applies generally to new construction and is restricted to façades within 300 feet of a two-acre park or pond. The LEED credit is intentionally very flexible. It applies to all building facades and allows for restricted amounts of high-threat glass, or larger amounts of bird-friendly glass. Because birds are found throughout the built environment, ABC prefers the LEED model. (ABC's model legislation can be found on page 35.)

Bird lovers across the country are proposing bird-friendly design ordinances at both local and state levels. ABC is ready to actively support such efforts. Both mandatory and voluntary instruments can be effective. Voluntary guidelines are easier to modify if they prove to have unintended consequences and can lead to a mandate, but can also be ignored. Generally ABC recommends mandatory guidelines, beginning with a small subset of buildings and expanding as community support increases and resistance decreases.

Incorporating bird-friendly design issues into local sustainability policies is another way to drive change. An interesting example of this is the Fairfax County, Virginia, proffer system. New construction projects are required to address a series of sustainability issues, including potential bird mortality, and either to describe

The design of the Grange Insurance Audubon Center in Columbus, Ohio, includes many panels of glass, fritted with the silhouettes of species of birds in flight. Photo by Christine Sheppard, ABC



courtesy of Deborah Laurel

(Opposite) United States Capitol, Washington, D.C. Photo by stock.xchng

For its new Visitors Center in Sempach, opened in May 2015, the Swiss Ornithological Institute designed a mandala from bird silhouettes (below) that was applied on the inside of all glass using digital printing. The design provides 40-50% coverage and generates much discussion among visitors, an achievement second only to preventing bird collisions.

Photos by Hans Schmid

how these will be addressed by the project or explain why such action is not possible.

Priorities for Policy Directives

ABC generally recommends against attempting to map locations where bird-friendly design is required because birds can be found in almost every environment, even in seemingly inhospitable ones. However, there may be occasions when it is necessary to compromise on the scope of legislation. In such cases, it must be recognized that proximity to undeveloped land, agricultural areas, parks, and water often correspond to increased bird populations and therefore increased risk of collisions. In addition, areas located in between landscape features desirable to birds may also pose higher risks. For example, in New York City some evidence suggests that birds approach Central Park from due south during spring migration, creating a greater risk zone directly south of the park. Also, building features such as green roofs should be considered when determining greater risk zones for policy purposes.

Sustainability Rating Programs

Another driver of bird-friendly policies consists of sustainability rating programs like the Green Building Council's LEED program, Green Globes, Living Building Challenge, and others. There is general agreement that sustainable buildings should not kill birds. This tenet appears with differing levels of robustness in different systems, with the most specific being the LEED program, which grants Pilot Credit 55: Bird Collision Deterrence. The credit is calculated using a weighted average of the relative threat rating of each material on a building's façade. The credit has attracted a lot of attention, with many projects applying for it. The new Vassar Bridge for Laboratory Sciences on the cover of this publication was one of the first to be designed with the credit in mind and to earn the credit.

Because a number of glass-walled buildings have been awarded LEED certification at the highest level, at one point there was concern that sustainable design was not compatible with bird-friendly design. This was ironic, as in addition to providing natural light, glass on sustainable buildings is intended to link people inside with the natural world outside. However, according to both ASHRAE and ICC, costs for heating and cooling increase when total glass surface exceeds 30-40% of the total building envelope, depending on climate. This is more than sufficient for providing light and views when glass placement is considered thoughtfully. This is a great place to start the design of a bird-friendly structure.

The façade of the WÜRTH Building in Switzerland is mostly glass, laminated with a fabric that is black on the inside but aluminium-coated outside. The inner surface delivers good visibility, and the fabric provides shade and interesting visual effects outside. Preliminary studies by the Swiss Ornithological Institute suggest that the materials used in this building may also deter bird collisions. Photo by Hans Schmid

Model Ordinance for Bird-Friendly Construction

[ORDINANCE Name] Sponsored by:
[list names]

WHEREAS, birds provide valuable and important ecological services,

WHEREAS, [location] has recorded [ ] species of resident and migratory bird species,

WHEREAS, birding is a hobby enjoyed by 64 million Americans and generates more than $40 billion a year in economic activity in the United States,

WHEREAS, as many as one billion birds may be killed by collisions with windows every year in the United States,

WHEREAS, reducing light pollution has been shown to reduce bird deaths from collisions with windows,

WHEREAS, new buildings can be designed to reduce bird deaths from collisions without additional cost,

WHEREAS, there exist strategies to mitigate collisions on existing buildings,

WHEREAS, more than 30% glass on a façade usually increases costs for heating and cooling

WHEREAS, bird-friendly practices often go hand-in-hand with energy efficiency improvements,

And WHEREAS [any additions specific to the particular location]

NOW, THEREFORE, BE IT ORDAINED, by [acting agency] [title of legislation and other necessary language]

(a) In this section the term "Leadership in Energy and Environmental Design (LEED)" means a green building rating system promulgated by the United States Green Building Council (USGBC) that provides specific principles and practices, some mandatory but the majority discretionary, that may be applied during the design, construction, and operation phases, which enable the building to be awarded points from reaching present standards of environmental efficiency so that it may achieve LEED certification from the USGBC as a "green" building.

b) [acting agency] does hereby order [acting department] to take the steps necessary to assure that all newly constructed buildings and all buildings scheduled for capital improvement are designed, built, and operated in accordance with the standards and requirements of the LEED Green Building Rating System Pilot Credit 55: Bird Collision Deterrence.

(c) The USGBC releases revised versions of the LEED Green Building Rating System on a regular basis; and [acting department] shall refer to the most current version of the LEED when beginning a new building construction permit project or renovation.

(d) New construction and major renovation projects shall incorporate bird-friendly building materials and design features, including, but not limited to, those recommended by the American Bird Conservancy publication *Bird-Friendly Building Design*.

(e) [acting department] shall make existing buildings bird-friendly where practicable.

The Studio Gang's Aqua Tower in Chicago was designed with birds in mind. Strategies included fritted glass and balcony balustrades. Photo by Tim Bloomquist

The Science of Bird Collisions

Hundreds of species of birds are killed by collisions. These birds were collected by monitors with FLAP in Toronto, Canada. Photo by Kenneth Herdy

Magnitude of Collision Deaths

The number of birds killed by collisions with glass every year is astronomical. Quantifying mortality levels and impacts on populations has been difficult, however. Until recently, local mortality studies—despite producing valuable information—aimed more at documenting mortality than quantifying it, and did not follow rigorous protocols. Loss *et al*. (2012) created methodology and techniques of analysis to determine the magnitude of anthropogenic mortality, using existing data sets. The authors comprehensively acquired published and unpublished data sets on collisions with buildings (Loss *et al*., 2013). Data sets were filtered using a variety of criteria to ensure that they could be used in single analyses. Loss *et al*. (2014b) have also comprehensively described how to collect meaningful data on collisions.

The authors calculated the median annual mortality at homes at 253 million, or 2.1 birds per structure. Urban residences without feeders account for 33% of this mortality cumulatively, as there are more such residences, even though residences with feeders produce more collisions individually. Rural residences without feeders account for 31% of residential mortality, followed by urban residences with feeders (19%) and rural residences with feeders (17%). Median mortality at low-rise buildings (4 to 11 stories), calculated from two data sets, was averaged as 339 million, or 21.7 birds per building. High-rises, although collectively causing the least mortality (508,000), individually had the highest median rate of 24.3 bird collisions per building. Combining all building classes produces an estimate of 365 and 988 (median 599) million birds killed annually in the United States.

Machtans, *et al*. (2013) estimated that about 25 million (ranging from 16 to 42 million) birds are killed by colliding with windows in Canada annually, with 90% of building-related mortalities caused by houses, slightly less than 10% by low-rise buildings, and approximately 1% by tall buildings. In both cases, the total mortality caused by houses is a function of their large number compared to the two other classes of buildings.

Previously, Dunn (1993) surveyed 5,500 people who fed birds at their homes and recorded window collisions. She derived an estimate of 0.65-7.7 bird deaths per home per year for North America. Klem (1990) estimated that each building in the United States kills one to 10 birds per year. Using 1986 U.S. census data, he combined numbers of homes, schools, and commercial buildings for a maximum total of 97,563,626 buildings, producing an estimate of 100 million to one billion birds killed annually.

Klem *et al*. (2009a) used data from New York City Audubon's monitoring of 73 Manhattan building façades to estimate 0.5 collision deaths per acre per year in urban environments, for a total of about 34 million migratory birds annually colliding with city buildings in the

This Barn Swallow illustrates the type of acrobatic flying that may keep swallows from being frequent collision victims. If birds do identify glass as a barrier at close range, perhaps by sound or air movements, most species may be unable to react fast enough to avoid striking the surface. Photo by Keith Ringland

A sample of collision victims from Baltimore.
Photo by Daniel J. Lebbin, ABC

Sharp-shinned Hawk. Photo by Ted Ardley

United States. However, there could be major differences in collision patterns in cities across the United States, and these numbers should be confirmed using data from additional locations.

In *The American Bird Conservancy Guide to Bird Conservation* (Lebbin *et al.*, 2010) the authors state "…we have reached a point in history when the impacts of human activities are so profound and far-reaching that from now on, it will always be impossible to untangle the completely natural declines from those that are partially or completely anthropogenic. From a conservation standpoint, it is largely irrelevant, anyway. Any human-caused stress that we can alleviate from a declining species can potentially benefit its population, and we should take action to lessen that stress if we can." This is abundantly true for bird mortality from glass because there are actions that many, if not most, individuals can take themselves, directly, to reduce the toll taken by existing glass.

Patterns of Mortality

It is difficult to get a complete and accurate picture of avian mortality from collisions with glass. Collision deaths can occur at any time of day or year. Monitoring programs focus on cities, and even intensive monitoring programs cover only a portion of a city, usually visiting the ground level of a given site at most once a day and often only during migration seasons. Many city buildings have stepped roof setbacks that are inaccessible to monitoring teams. Some studies have focused on reports from homeowners on backyard birds (Klem, 1989; Dunn, 1993) or on mortality of migrants in an urban environment (Gelb and Delacretaz, 2009; Klem *et al.*, 2009a; Newton, 1999). Others have analyzed collision victims produced by single, large-magnitude incidents (Sealy, 1985) or that have become part of museum collections (Snyder, 1946; Blem *et al.*, 1998; Codoner, 1995). There is general support for the fact that birds killed in collisions are not distinguished by age, sex, size, or health (for example: Blem and Willis, 1998; Codoner, 1995; Fink and French, 1971; Hager *et al.*, 2008; Klem, 1989), but the majority of work has focused on data taken during migratory periods, primarily east of the Mississippi River.

Species at Risk

Snyder (1946), examining window collision fatalities at the Royal Ontario Museum, noted that the majority were migrants and "tunnel flyers"—species that frequently fly through small spaces in dense, understory habitat. Conversely, resident species well adapted to and common in urban areas, such as the House Sparrow and European Starling, are not prominent on lists of fatalities, possibly because individuals surviving their first collision may teach offspring to avoid windows.

It is well known that zoo birds in exhibits with glass walls can and do learn about specific pieces of glass, but birds do not learn about glass as a general concept.

Dr. Daniel Klem maintains running totals of the number of species reported in collision events in countries around the world. (This information can be found at http://tinyurl.com/ob3nc4s). In 2015, the site identifies 868 species globally, with 274 from the United States. The intensity of monitoring and reporting programs varies widely from country to country, however.

Hager *et al.* (2008) compared the number of species and individual birds killed at buildings at Augustana College in Illinois with the density and diversity of bird species in the surrounding area. The authors concluded that the

total window area, the habitat immediately adjacent to windows, and behavioral differences among species were the best predictors of mortality patterns, rather than the mere size and composition of the local bird population. Kahle *et al*. (2015) reached similar conclusions in an analysis of five years of data at the California Academy of Sciences, also finding that migrants do not make up the preponderance of birds killed and that males are overrepresented relative to their abundance in habitats adjacent to the museum. Dunn (1993), analyzing winter data from homes with bird feeders, found that the frequency distribution of birds at the feeders closely paralleled the distribution of species killed by nearby windows. Dunn found few collisions on windows of less than one square meter, and an increase in collisions with an increase in window size.

Species such as the White-throated Sparrow, Ovenbird, and Common Yellowthroat appear consistently on top 10 lists from urban areas. It is possible that these species respond more readily to light and thus are more likely to end migratory stages in the built environment, but this needs to be confirmed. Additionally, Loss *et al*. (2013) noted that Golden-winged Warbler, Painted Bunting, Canada Warbler, Wood Thrush), Kentucky Warbler, and Worm-eating Warbler—species identified as birds of conservation concern—were also disproportionately represented in building kills. Hager (2009) noted that window-strike mortality was reported for 45% of raptor species found frequently in urban areas of the United States and was the leading source of mortality for Sharp-shinned Hawks, Cooper's Hawks, Merlins, and Peregrine Falcons. Because most data on glass collisions are from the eastern half of the United States, these lists are presumably biased toward species occurring in that range.

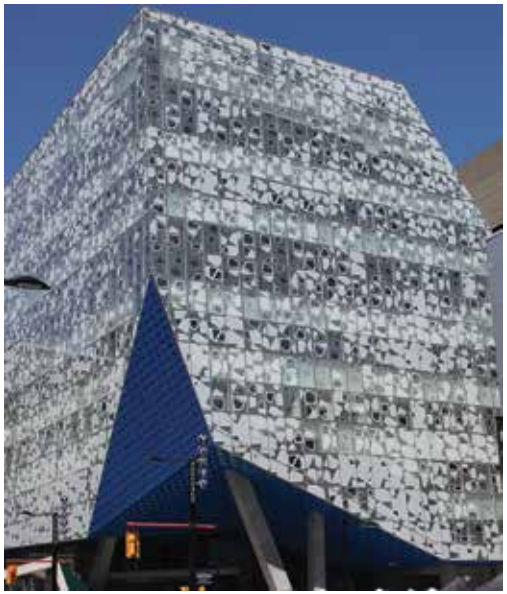
Common Yellowthroat. Photo by Owen Deutsch

Characteristics of Buildings

Amount of Glass

From a study of multiple buildings in Manhattan, Klem *et al.* (2009a) concluded that both the proportion and absolute amount of glass on a building façade best predict mortality rates, calculating that every increase of 10% in the expanse of glass correlates to a 19% increase in bird mortality in spring and 32% in fall. How well these equations predict mortality in other cities remains to be tested. Collins and Horn (2008), studying collisions at Millikin University in Illinois, concluded that total glass area and the presence/absence of large expanses of glass predicted mortality level. Hager *et al.* (2008, 2014) came to the same conclusion, as did Dunn (1993) and Kahle *et al.* (2015). However, the "patchiness" of glass across a façade—how many pieces, their size, how they are separated, etc. (another way of saying "visual noise")—has not yet been explored in detail but could be important.

The façade of the New York Times building, by FXFOWLE and Renzo Piano, is composed of ceramic rods, spaced to let occupants see out while minimizing the extent of exposed glass—good for controlling heat and light, and safe for birds. Photo by Christine Sheppard, ABC



Snohetta's Student Learning Centre at Ryerson University is one of the first constructed under Toronto's design law. Photo by Rick Ligthelm

Time of Day

Most monitoring programs focus on early morning hours to document mortality during migration, often starting monitoring routes at dawn, before sidewalks are cleared. This can, however, lead to the misperception that night-flying migrants are crashing into lighted buildings at night, or only in early morning, whereas in fact most collisions take place during the day. It should be noted that "dawn" is a time that varies among species (Thomas *et al.* (2002), with some bird species active before humans start to see light in the sky.

Hager and Craig (2014), in a study of resident population collisions in northwestern Illinois between June and early August, found that 66% of birds died between sunrise and 4:00 p.m., with no collisions between 4:00 p.m. and sunset. Delacretaz and Gelb (2006) found collisions from early morning until mid-afternoon, but with a peak during morning hours. This finding is confirmed by monitoring programs like that of Pennsylvania Audubon, where routes were followed three times in succession early each day, with birds found at each pass (Keith Russell, pers. comm.) and where people living or working in buildings report window strikes through afternoon hours (Olson, pers. comm).

Local Landscape

Gelb and Delacretaz (2006, 2009) evaluated data from collision mortality at Manhattan building façades. They found that sites where glass reflected extensive vegetation were associated with more collisions than glass reflecting little or no vegetation. Of the 10 buildings responsible for the most collisions, four were "low-rise." Klem (2009) measured variables in the space immediately associated with building façades in Manhattan as risk factors for collisions. Both increased height of trees and increased height of vegetation increased the risk of collisions in fall. Ten percent increases in tree height and the height of vegetation corresponded to 30% and 13% increases in collisions in fall. In spring, only tree height had a significant influence, with a 10% increase corresponding to a 22% increase in collisions. Confusingly, increasing "facing area," defined as the distance to the nearest structure, corresponded strongly with increased collisions in spring and with reduced collisions in fall. Presumably, vegetation increases risk both by attracting more birds to an area and by being reflected in glass.

Bayne *et al.* (2012) confirmed that the risk of bird–window collisions varies according to location (urban versus rural, home versus apartment, with or without feeders, and age of neighborhood). They used online surveys and determined that rural residences had more collisions than urban ones and residences with feeders had almost twice as many collisions as those without feeders. For urban dwellings, incidence of collisions increased with age of neighborhood, associated with presence of mature trees. Frequency of collisions varied seasonally: 24% in fall, 35% summer, 25% spring, 16% winter. Mortality patterns were similar: 26% fall, 31% summer, 26% spring, 17% winter. Forty-eight species were reported.

Hager *et al.* (2013) noted that estimates of bird-collision mortality often postulate a relatively constant range of collisions at all buildings (for example, Klem, 1990). However, they suggested that each building in a landscape has its own mortality "signature," based not only on characteristics of the structure but also on the distribution of resources throughout the local landscape, including land cover, habitat type, water, and pavement. Their protocol selected buildings at random and has recently been expanded to multiple other sites across North America.

Avian Vision and Collisions

Bird species like falcons are famous for their acute vision, but taking a "bird's-eye view" is much more complicated than it sounds. To start with, where human color vision relies on three types of sensors, birds have four, plus an array of color filters that together allow birds to discriminate between many more colors than people (Varela *et al.* 1993) (see figure this page).

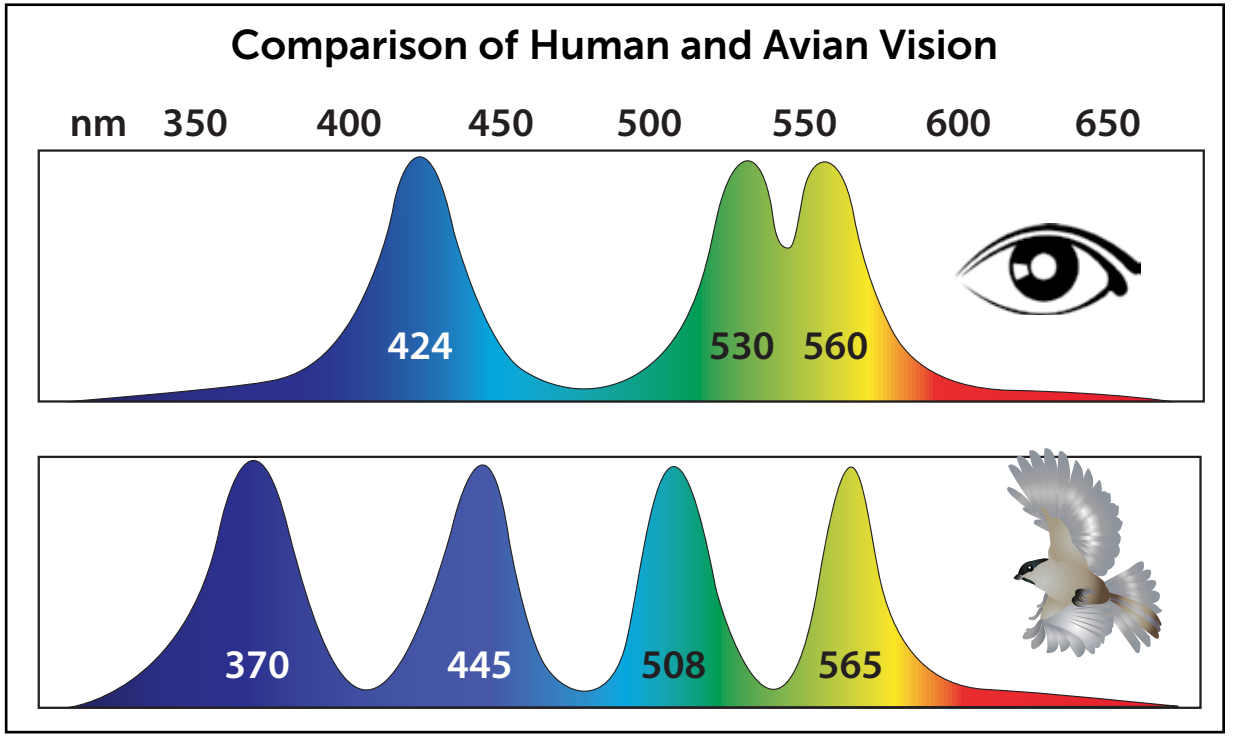
There is also variation in vision among different groups of birds. While some birds see only into the violet range of light, many birds, including most passerines (Ödeen and Håstad, 2003, 2013) see into the ultraviolet spectrum (UVS species).

Ultraviolet can be a component of any color (Cuthill *et al.* 2000). Whereas humans see red, yellow, or red + yellow, birds may see red + yellow, but also red + ultraviolet, yellow + ultraviolet, and red + yellow + ultraviolet—colors for which we have no names. Every object absorbs, reflects, and transmits ultraviolet light along with the other wavelengths in the visible spectrum. UV patterns on glass are often cited as desirable solutions to collisions—visible to birds but not to humans. However, aside from manufacturing complexities, many bird taxa that collide frequently with glass, including raptors, pigeons, woodpeckers, and hummingbirds, may not be able to perceive UV patterns (Håstad and Ödeen, 2014). Additionally, birds are often active in early morning, when UV light levels are low.

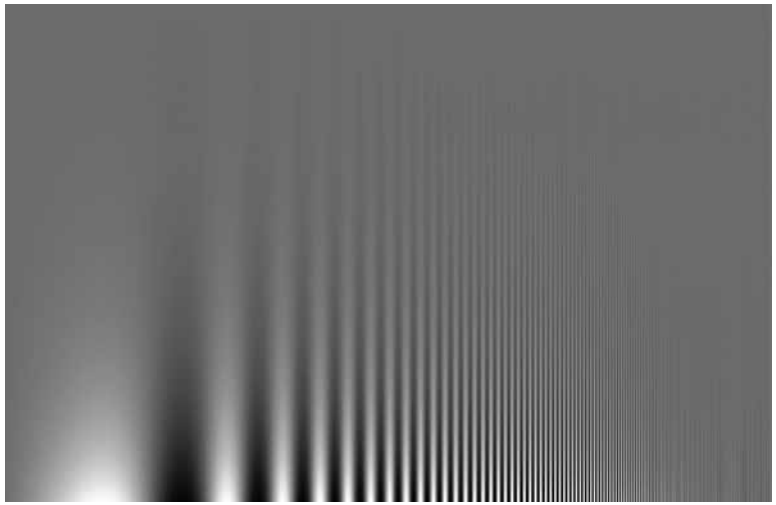
Humans and other primates have relatively flat faces, with eyes close together. The overlap of visual fields means that humans have good depth perception and a tendency to focus on what is ahead. Most birds have eyes at the sides of their heads, giving them excellent peripheral vision but poor depth perception, often limited to the length of their beaks, presumably to judge potential food items. They may be much less intent on what is in front of them (Martin 2011, 2012) but able to watch for potential predators to the side or behind them. Many species' most acute vision is to the side. Without much 3D vision, birds use a mechanism called "visual flow fields" to judge their speed and rate of progress in flight by the passage of environmental features to their sides (Bhagavatula *et al.* 2011). Collisions with glass may be partly a result of birds expecting open air ahead, combined with relatively poor forward vision.

Birds process images faster than humans; where we see continuous motion in a movie, birds would see flickering images (D'Eath, 1998; Greenwood *et al.* 2004; Evans *et al.* 2006). This speed helps many birds maneuver quickly in

Painted Bunting. Photo by Ted Ardley



Based on artwork by Sheri Williamson



Contrast sensitivity is a measure of the limit of visibility for low-contrast patterns. Each person's contrast sensitivity can be measured by the extent to which he or she can see the bars that form an arch in this photograph. The exact location of the peak of the curve varies with one's distance from the image; the area within the arch is larger when one is closer. For a given distance, the area under the arch is smaller for birds. Image courtesy of Izumi Ozawa, Berkeley Neuroscience Laboratory

response to unexpected obstacles as they fly through complex habitats. In one respect however—spatial contrast sensitivity—human vision outperforms avian (Ghim and Hodos, 2006). Contrast sensitivity is "the ability of the observer to discriminate between adjacent stimuli on the basis of their differences in relative luminosity (contrast) rather than their absolute luminances." Birds' lack of contrast sensitivity may be an impediment to creating signals to prevent collisions that are effective for birds but not visually intrusive to humans.

Avian Orientation and the Earth's Magnetic Field

In the 1960s, it was discovered that migrating birds possess the ability to orient themselves using cues from the sun, polarized light, stars, the Earth's magnetic field, visual landmarks, and possibly even odors to find their way. Exactly how this works—and it likely varies among species—is still being investigated. (For a comprehensive review of the mechanisms involved in avian orientation, see Wiltschko and Wiltschko, 2009).

The Earth's magnetic field can provide both directional and positional information. It appears that night-flying migrants, and perhaps all bird species, have magnetic field-detecting structures in the retina of the eye that depend on light for function and provide compass orientation. This magnetic sense is wavelength-dependent. Experiments have shown that the compass is disrupted by long wavelength light but requires low-intensity short wavelength light (Wiltschko *et al.* 2007). This research has taken place only in laboratories, and it is important to determine how it translates to the real world.

In addition, anthropogenic electronic noise, found throughout urban environments, has recently been shown to disrupt magnetic compass orientation in European Robins at very low intensities (Engels *et al.* 2014). This finding may have serious implications for strategies aimed at reducing collisions by reducing artificial night lighting alone and should be a priority for additional work.

A second magnetic mechanism, providing birds with positional information, has been postulated, but its details have not been determined. (For a review of magnetoreception and its use in avian migration, see Mouritsen, 2015.)

Birds and Light Pollution

The earliest reports of mass avian mortality caused by lights were from lighthouses, but this source of mortality essentially disappeared when steady-burning lights were replaced by rotating beams (Jones and Francis, 2003). Flashing or interrupted beams apparently allowed birds to continue to navigate, which has also been found more recently at cell towers with strobe lighting (Gehring *et al.* 2009). The emphasis on tall structures by Lights Out programs ignores the fact that light from many sources, from urban sprawl to parking lots, can affect bird behavior and potentially strand birds in the built environment (Gauthreaux and Belser, 2006). Evans-Ogden (2002) showed that light emission levels of 16 buildings, ranging in height from 8 to 72 floors and indexed by the number of lighted windows observed at night, correlated directly with bird mortality, and

that the amount of light emitted by a structure was a better predictor of mortality level than building height, although height was a factor. Parkins *et al.* (2015) made similar findings.

Mass collision events of migrants associated with light and often with fog or storms have been frequently reported (Weir, 1976; Avery *et al.* 1977; Avery *et al.* 1978; Crawford, 1981a, 1981b; Gauthreaux and Belser, 2006; Newton, 2007). But these are no longer the predominant sources of mortality, possibly because the night landscape has changed radically since early reports of mass collision events at tall structures like the Washington Monument and Statue of Liberty. These and other structures were once beacons in areas of relative darkness, but are now surrounded by square miles of light pollution. While collisions at structures like cell towers continue to take place at night, the majority of collisions with buildings now take place during the day. (Hager, 2014; Kahle *et al.*, 2015; Olson, pers. comm.)

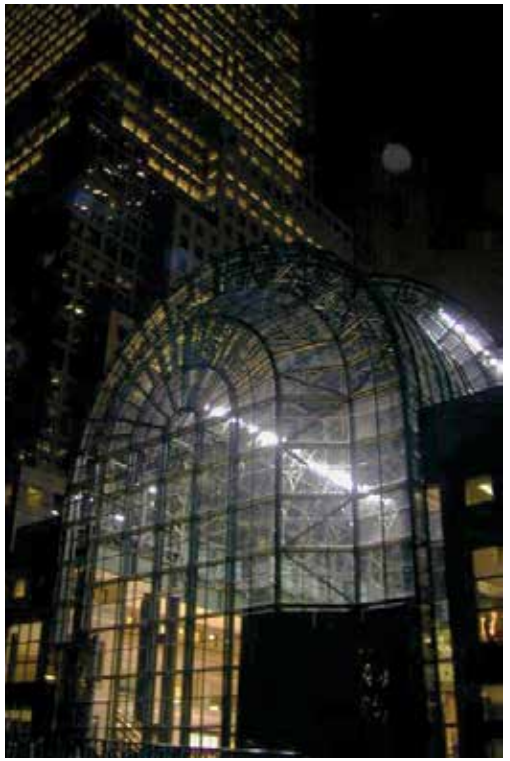
Patterns of light intensity seem to play a role in the distribution of collisions in the built environment, however. Birds may land in patterns dictated by the pattern of light intensity in an area, so the brightest buildings are the most likely to cause collisions early in the day. As birds move through the landscape seeking food, patterns related to distribution of vegetation appear. Studies using radar to map movement of birds through the built environment are starting to appear, but we need information at the level of species and individuals to truly understand how light is impacting birds.

It is often said that birds are attracted to lights at night (Gauthreaux and Belser, 2006; Poot *et al.* 2008). However, we do not have direct evidence that birds are, in fact, attracted to lights; they may simply *respond* to lights they encounter. Gauthreaux and Belser quote Verheijen as suggesting that "capture" might be a better word for birds' response to night lighting. While "capture" does seem appropriate to describe the phenomenon of birds circling drilling platforms, or in the lights of the 9/11 Memorial's Tribute in Light in Manhattan, "disorientation" is a term that covers more of the spectrum of behaviors seen when birds interact with light at night. Gauthreaux and Belser (2006), reporting unpublished data, stated that "exposure to a light field causes alteration of a straight flight path (for example hovering, slowing down, shifting direction, or circling)," and this has been reported by other authors.

Larkin and Frase (1988, in Gauthreaux and Belser, 2006) used portable tracking radar to record flight paths of birds near a broadcast tower in Michigan. Birds showed a range of response, from circling to arcs to linear flight. Haupt and Schillemeit (2011) described the paths of 213 birds flying through up-lighting from several different outdoor lighting schemes. Only 7.5% showed no change in behavior, while the remainder deviated from their courses by varying degrees, from minimal course deviation through circling. It is not known whether response differences are species related.

Bolshakov *et al.* (2010) developed the Optical-Electronic Device to study nocturnal migration behaviors of songbirds. Inspired by the more limited techniques of moon watching and watching birds cross ceilometer light beams, the device uses searchlights to illuminate birds from the ground, while a recording unit documents the birds' movements. With this technique, they can study 1) ground- and airspeed; 2) compensation for wind drift on the basis of direct measurements of headings and track directions of individual birds; 3) wing-beat pattern and its variation depending on

Swainson's Thrush. Photo by Owen Deutsch



The glass walls of this atrium, coupled with nighttime illumination, create an extreme collision hazard for birds. Photo courtesy of New York City Audubon


Canada Warbler. Photo by Ted Ardley

wind direction and velocity. In some cases, species can be identified. Bolshakov *et al.* (2013) examined the effects of wind conditions on numbers of birds aloft and flight trajectories of birds crossing the light beam from the apparatus. They determined that numbers of birds do differ with wind strength, but that birds may be attracted to the light beam under calm conditions. They also found that the light beam disturbs straight flight trajectories, especially in calm wind conditions. Regression models suggest that the probability of curved flight trajectories is greater for small birds, especially when there is little or no moon.

Bulyuk *et al.* (2014) used the same device to compare behaviors of night-migrating passerines under natural nocturnal illumination (at the Courish Spit of the Baltic Sea) with birds passing through an urban light environment (inside the city limits of St. Petersburg, Russia). Songbirds were distinguished as either small passerines or thrushes. The illuminated background caused a decrease in image quality. The shape of flight tracks was compared for the two groups, and a larger proportion of small songbirds changed flight path while crossing the light. This could be explained by flight type or flight speed. The proportion of songbirds changing flight trajectory in the lighted condition was much smaller than under the dark condition.

To understand exactly how light affects birds and what actions must be taken to reduce those effects, we need to know much more. For example, at what range (horizontal and vertical) and under what conditions do birds feel disruption from light, and of what intensity and wavelength composition? How do these factors change their behavior? Does night lighting have any effect on birds departing at the beginning of migratory stages? Do we ever actually see birds changing course to move toward a bright light source?

Light Color and Avian Orientation

Starting in the 1940s, ceilometers—powerful beams of light used to measure the height of cloud cover—came into use and were associated with significant bird kills. Filtering out long (red) wavelengths and using the blue/green range greatly reduced mortality, although we don't know whether the intensities of these two colors of lights were equal. Later, replacement of fixed-beam ceilometers with rotating beams essentially eliminated the impact on migrating birds (Laskey, 1960). A complex series of laboratory studies in the 1990s demonstrated that birds required light in order to sense the Earth's magnetic field. Birds could orient correctly under monochromatic blue or green light, but longer wavelengths (yellow and red) caused disorientation (Rappli *et al.,* 2000; Wiltschko *et al.,*1993, 2003, 2007). Wiltschko *et al.* (2007) showed that above intensity thresholds that decrease from green to UV, birds showed disorientation. Disorientation occurs at light levels that are still relatively low, equivalent to less than half an hour before sunrise under clear sky.

Poot *et al.* (2008) demonstrated that migrating birds exposed to various colored lights in the field responded the same way as they do in the laboratory. Birds responded strongly to white and red lights and appeared disoriented by them, especially under overcast skies. Green light provoked less response and minimal disorientation; blue light attracted few birds and did not disorient those that it did attract. Birds were not attracted to infrared light. Evans *et al.* (2007) also tested different light colors but did not see aggregation under red light. However, they subsequently determined that the intensity of red light used was less than for other wavelengths, and when they repeated the trial with higher intensity red, they did see aggregation (Evans, pers. comm. 2011).

Scientists working in the Gulf of Mexico (Russell, 2005), the North Atlantic (Wiese *et al.* 2001), and the North Sea (Poot *et al.* 2008) report that bright lights of oceanic drilling rigs induce circling behavior and mortality in birds at night. Working on a rig in the North Sea, Marquenie *et al.* (2013), estimated that birds were affected up to five kilometers away. Replacing about half the lights with new bulbs emitting minimal red light reduced circling behavior by about 50%. The authors speculate that completely re-lamping the platform would reduce bird aggregation by 90%. Gehring *et al.* (2009) demonstrated that mortality at communication towers was greatly reduced if strobe lighting was used as opposed to steady-burning white, or especially red lights. At the 9/11 Memorial Tribute in Light in Manhattan, when birds aggregate and circle in the beams, monitors turn the lights out briefly, releasing the birds (Elbin, 2015, pers. comm.). Regular, short intervals of darkness, or replacement of steady-burning warning lights with intermittent lights, are excellent options for protecting birds, and manipulating light color also has promise, although additional field trials for colored lights are needed.

Research: Deterring Collisions

Systematic efforts to identify signals that can be used to make glass visible to birds began with the work of Dr. Daniel Klem in 1989. Testing glass panes in the field and using a dichotomous choice protocol in an aviary, Klem (1990) demonstrated that popular devices like "diving falcon" silhouettes were effective only if they were applied densely, spaced two to four inches apart. Owl decoys, blinking holiday lights, and pictures of vertebrate eyes were among items found to be ineffective. Grid and stripe patterns made from white material, one inch wide, were tested at different spacing intervals. Only three were effective: a 3 x 4-inch grid; vertical stripes spaced four inches apart; and horizontal

Glass panes are being tested at the Powdermill Tunnel, as seen from the outside. Photo by Christine Sheppard, ABC

Susan Elbin tests a bird in the tunnel at the Carnegie Museum's Powdermill Banding Station in southwestern Pennsylvania. Photo by Christine Sheppard, ABC

The tunnel: an apparatus for safely testing effectiveness of materials and designs for deterring bird collisions. Photo by Christine Sheppard, ABC

A bird's-eye view of glass in the tunnel. Photo by Christine Sheppard, ABC

stripes spaced about an inch apart across the entire surface. (A summary of Klem's results can be found at collisions.abcbirds.org).

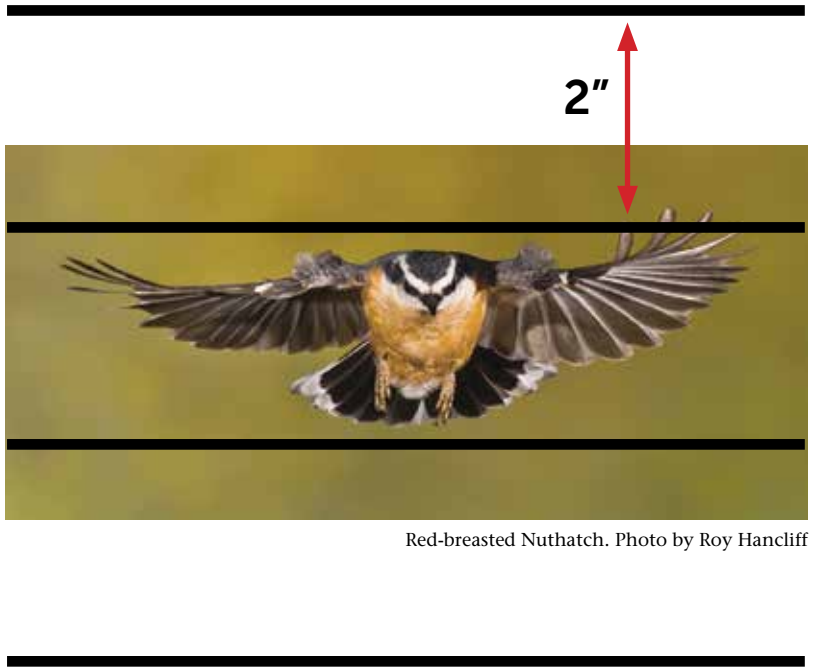
Building on Klem's findings, Rössler developed a testing program in Austria starting in 2004 and continuing to the present (Rössler and Zuna-Kratky, 2004; Rössler, 2005; Rössler, *et al.,* 2007; Rössler and Laube, 2008; Rössler, 2010; Rössler, 2012; Rössler, 2013). The banding center at the Hohenau Ringelsdorf Biological Station outside Vienna, Austria, offered a large sampling of birds for each test, in some instances permitting comparisons of a particular pattern under differing intensities of lighting. This program has focused primarily on geometric patterns, evaluating the impact of spacing, orientation, and dimensions. Birds are placed in a "tunnel," where they can view two pieces of glass: one unmodified (the control) and the other with the pattern to be tested. Birds fly down the tunnel and are scored according to whether they try to exit through the control or the patterned glass. A mist net keeps the bird from hitting the glass, and it is then released. The project focuses not only on finding patterns effective for deterring collisions, but also on effective patterns that cover a minimal part of the glass surface. To date, some patterns that cover only 5% of the glass have been found to be highly effective. (A summary of Rössler's results can be found at collisions.abcbirds.org).

The tunnel at Powdermill, showing the framework where the background will be mounted. Photo by Christine Sheppard, ABC

Building on Rössler's work, ABC collaborated with the Wildlife Conservation Society, New York City Audubon, and the Carnegie Museum to construct a tunnel at Powdermill Nature Reserve's banding station, primarily to test commercially available materials. Results from the first season showed that making an entire surface UV-reflective was not an effective way to deter birds. With UV materials, contrast seems to be important. Glass fritted in patterns conforming to the 2 x 4 rule, however, scored well as deterrents. (A summary of results from Powdermill can be found at collisions.abcbirds.org).

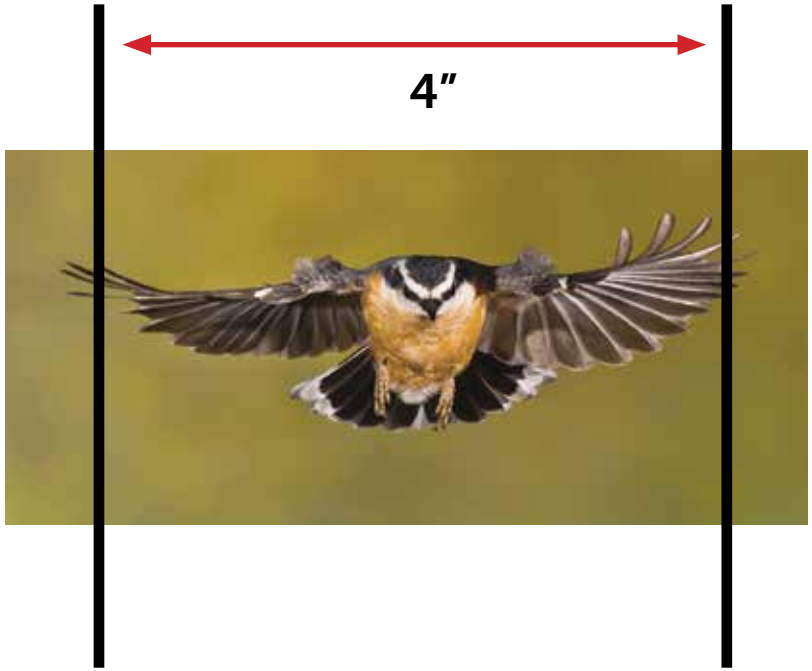
Most clear glass made in the United States transmits about 96% and reflects about 4% of light falling perpendicular to the outside surface. The amount of light reflected increases at sharper angles: clear glass reflects about 50% of incident light at angles over 70 degrees. Light on the inside of the glass is also partly reflected and partly transmitted. The relative intensities of light transmitted from the inside and reflected from the outside surfaces of glass combined with the viewing angle determine whether the glass appears transparent or mirrors the surrounding environment. Patterns on the inside surfaces of glass and objects inside the glass may not always be visible. These changeable optical properties support the argument that patterns applied to the outer surface of glass are more effective than patterns applied to the inner surface. Efforts have been made to model freestanding glass, glass installed on a building, and reflections on glass in some trials. (The testing protocol for freestanding glass, developed at Hohenau, and the testing protocols used at Powdermill can be found at collisions.abcbirds.org).

Horizontal lines with a maximum spacing of 2 inches



Red-breasted Nuthatch. Photo by Roy Hancliff

Vertical lines with a maximum spacing of 4 inches



The 2 x 4 Rule

Research on songbirds, the most numerous victims of collisions, has shown that horizontal lines must be two or fewer inches apart to deter the majority of birds. Vertical spaces must be four or fewer inches apart. This difference presumably has to do with the shape of a flying bird. (Narrower spacing is required to deter collisions by hummingbirds.) Schiffner *et al.* (2014) showed that budgies have a very precise understanding of their own physical dimensions. Trained to fly in a tunnel, the birds were then challenged to pass through ever narrowing gaps. They were able to assess the width of the gaps relative to their body size and adjust their flight behavior accordingly. It seems likely that this is a general avian trait, useful for navigating complex environments at flight speed. Bhagavatula *et al.* (2011) used the same tunnel setup to investigate how optical flow cues guide flight. It appears that birds balance the speeds of images perceived by both eyes, in this case, images to the birds' sides. This reinforces the suggestion of Martin (2011) that humans experience the world as something ahead of them, while for birds in flight, what is ahead of them is not necessarily their primary focus.

Evaluating Collision Problems—A Toolkit for Building Owners

American Woodcock are often victims of collisions. This bird hit a window in Washington, D.C., in March, 2011, and was recovered by ABC's Jason Berry. Photo by Dariusz Zdziebkowski, ABC

Often, only part of a building is responsible for causing most of the collisions. Evaluation and documentation can help in the development of a program of remediation targeting that area. Remediation can be almost as effective as modifying the entire building, as well as less expensive. Documentation of patterns of mortality and environmental features that may be contributing to collisions is essential. Operations personnel are often good sources of information for commercial buildings, as they may come across bird carcasses while performing regular maintenance activities. People who work near windows are often aware of birds hitting them.

Regular monitoring not only produces data on the magnitude and patterns of mortality, but also provides a baseline for demonstrating improvement. The best monitoring programs feature consistent effort, careful documentation of collision locations, and accurate identification of victims. Effective monitoring should document at least 18 months of collisions before mitigation is attempted, unless collision rates are especially high. (Resources for monitoring, from simple to sophisticated, can be found at collisions.abcbirds.org).

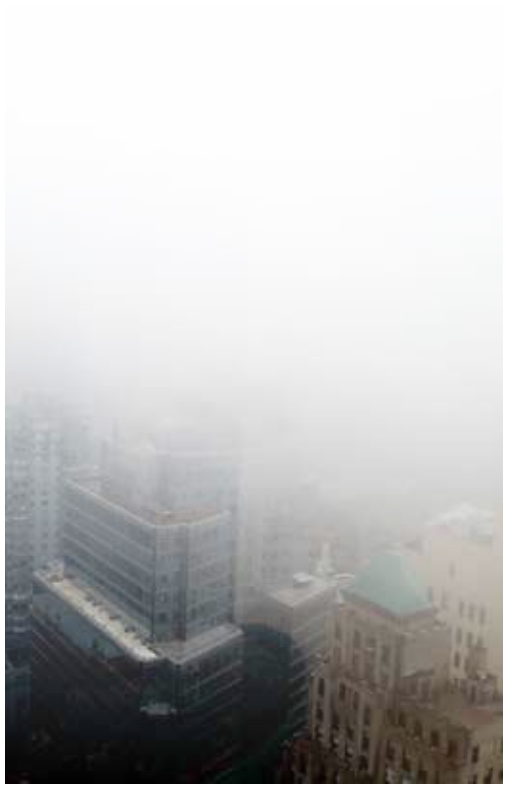
Solutions

Many factors come into play in selecting how to make glass safe for birds. The table below compares common solutions according to their effectiveness, appearance, relative cost, ease of application, longevity, and required maintenance. Effective patterns on the exterior surface of glass will combat reflection, transparency, and passage effect. Within the 2 x 4 guidelines, however, considerable variation is possible when devising bird-friendly patterns. We recommend that lines be at least ¼-inch wide, but it is not necessary that they be only vertical or horizontal. Contrast between pattern and background is important, however, and designers should be aware that the background—building interior, sky, vegetation—may change in appearance throughout the day.

This security grille creates a pattern that will deter birds from flying to reflections. Photo by Christine Sheppard, ABC

COMPARISON OF RETROFIT OPTIONS

Material	Effectiveness	Cost	Application	Appearance	Longevity	Upkeep
Seasonal, temporary solutions	*****	$	*	*	na	na
Netting	*****	$$	**	***	****	***
Window film	*****	$$$	****	*****	***	****
Screens	*****	$$	***	****	*****	****
Shutters	*****	$$$	***	****	*****	****
Grilles	*****	$$$	****	*****	*****	****
Replace glass	*****	$$$$$	*****	*****	*****	****
5 stars/dollars =	**highly effective**	**expensive**	**easy**	**attractive**	**long-lasting**	**minimal**



Fog increases the danger of light both by causing birds to fly lower and by refracting light so it is visible over a larger area. Photo by Christine Sheppard, ABC

The following questions can guide the evaluation and documentation process by helping to identify features likely to cause collisions and other important factors.

Seasonal Timing

Do collisions happen mostly during migration or fledging periods, in winter, or year round? If collisions happen only during a short time period, it may be possible to apply inexpensive, temporary solutions during that time and remove them for the rest of the year. Some birds will attack their own reflections, especially in spring. This is not a true collision. Territorial males, especially American Robins and Northern Cardinals, perceive their reflection as a rival male. They are unlikely to injure themselves, and temporarily blocking reflections in the offending window (and those nearby) from the outside should resolve the problem. Taping up paper and smearing a soap paste can both be effective.

Weather

Do collisions coincide with particular weather conditions, such as foggy or overcast days? Such collisions may be light-related, in which case an email notification system, asking building personnel to turn off lights when bad weather is forecast, is advisable.

Diurnal Timing

Do collisions happen at a particular time of day? The appearance of glass can change significantly with different light levels, direct or indirect illumination, and sun angles. It may be possible to simply use shades or shutters during critical times.

Lower-floor windows are thought to be more dangerous to birds because they are more likely to reflect vegetation. Photo by Christine Sheppard, ABC

Location

Are there particular windows, groups of windows, or building façades that account for most collisions? If so, it may be cost effective to modify only those sections of glass. Is glass located where birds fly between roosting or nesting and feeding sites? Are there areas where plants can be seen through glass—for example, an atrium, courtyard, or glass building connectors?

Are there architectural or landscaping features that tend to direct birds toward glass? Such features might include a wall or rock outcropping or a pathway bordered by dense vegetation. Solutions include using a screen or trellis to divert flight paths. Are there fruit trees, berry bushes, or other plants near windows that are likely to attract birds closer to glass? These windows should be a high priority for remediation. The glass itself can be modified, but it may also be possible to use live or inanimate landscaping elements to block the view between food sources and windows.

Local Bird Populations

What types of birds are usually found in an area? Local bird groups or volunteers may be able to help characterize local and transitory bird populations, as well as the most likely routes for birds making short flights around the area. The American Birding Association, *Bird Watchers Digest*, Audubon chapters, and Birding.com are good places to start finding such resources. Universities, colleges, and museums may also be helpful.

Post-Mitigation Monitoring

Monitoring efforts should continue for at least 18 months after mitigation efforts are made, and for at least two peak collision seasons (often the fall in urban areas, but spring and summer may also be peak seasons in more rural locations). Collision rates vary along with local bird populations, so a year of high population and high collisions may be followed by a year of low populations and low collisions, regardless of the effectiveness of any mitigation.

Use of glass with a highly effective horizontal frit pattern, together with sunshades, earned this retrofitted building on the SUNY Brockport campus the LEED "collision deterrence" credit. Photo by Paul Tankel

This Ovenbird survived a collision and was recovered alive during a Lights Out monitoring effort in Baltimore, Maryland. Photo by Daniel J. Lebbin, ABC

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A dramatic use of glass block characterizes the Hecht Warehouse in Washington, D.C., designed by Abbott and Merkt. Photo by Sandra Cohen-Rose/Colin Rose

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The World Trade Center of New Orleans, designed by Edward Durrell Stone, uses a simple bird-friendly strategy; almost all windows have exterior shutters. Photo by Christine Sheppard, ABC

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For the Langley Academy in Berkshire, U.K., Foster + Partners used louvers to control light and ventilation, also making the building safe for birds. Photo by Chris Phippen Ofis

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The Institut Arabe du Monde in Paris, France, provides light to the building interior without using glass. Photo by Joseph Radko, Jr.

American Bird Conservancy is the Western Hemisphere's bird conservation specialist—the only organization with a single and steadfast commitment to achieving conservation results for native birds and their habitats throughout the Americas. With a focus on efficiency and working in partnership, we take on the toughest problems facing birds today, innovating and building on sound science to halt extinctions, protect habitats, eliminate threats, and build capacity for bird conservation.

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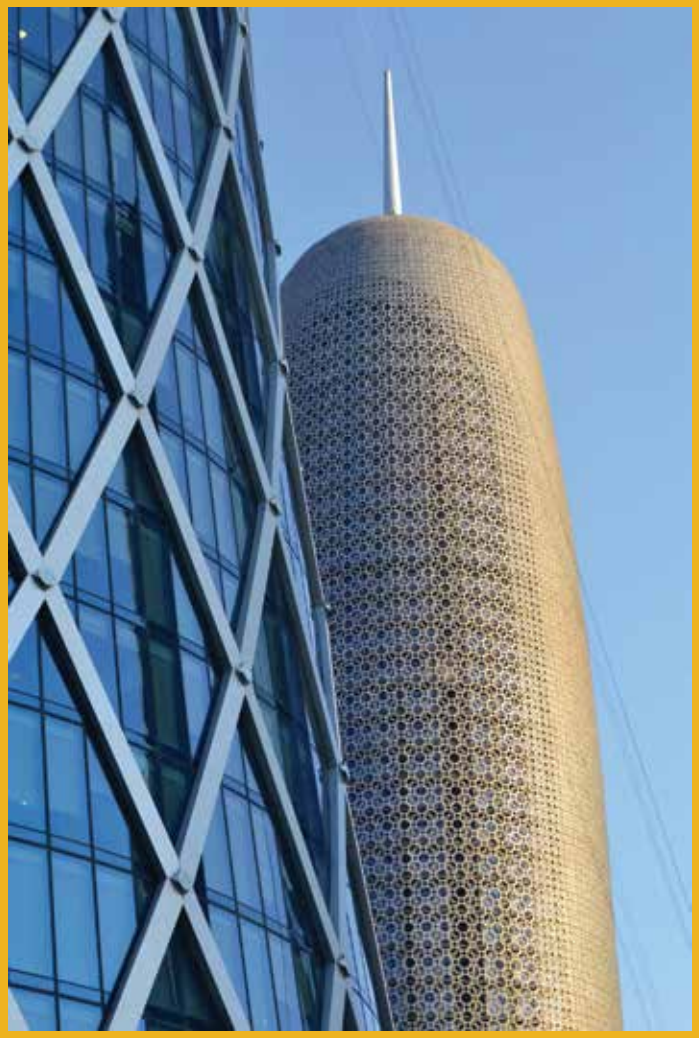
The Orange Cube, a commercial and cultural complex, was designed by Jacob + McFarlane Architects as part of redevelopment of the harbor in Lyons, France. The external skin virtually eliminates threats to birds while permitting natural illumination of the interior and sightlines for those inside. Photo © Nicolas Borel

American Bird Conservancy's Bird-Friendly Building Standard

Briefly, a bird-friendly building is one where:

- At least 90% of the material in the exposed façade from ground level to 40 feet (the primary bird collision zone) has a threat score of 30 or less, derived from controlled experiments.
- At least 60% of material in the exposed façade above the collision zone meets the above standard.
- All glass surrounding atria or courtyards meets the above standard.
- There are no "see through" passageways or corners.
- Outside lighting is appropriately shielded and directed to minimize attraction to night migrating or nocturnal birds.
- Interior lighting is turned off at night if not in use and designed to minimize light escaping through windows during night operation.
- Landscaping is designed without features known to increase collisions.
- Actual bird mortality is monitored and compensated for (for example, in the form of habitat preserved or created elsewhere, mortality from other sources reduced, etc.).



The Burj Qatar, designed by Jean Nouvel, was named Best Tall Building Worldwide in 2012. The façade, created with multi-layered screens, expresses local culture while providing protection from high temperatures and sand. Photo by Marc Desbordes

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David Chipperfield's expansion of the Anchorage Museum has a surface of mirror glass, made bird-friendly by a frit pattern that conforms with 2 x 4 recommendations. Museum staff confirm that while collisions do occur in the area, the museum sees few, if any. Photo by Larry Vincent

AMERICAN BIRD CONSERVANCY

Bringing back the birds

Christine Sheppard, testimony on behalf of American Bird Conservancy in support of INT 1482-A-2019

I am Dr. Christine Sheppard, Director of the Glass Collisions Program for American Bird Conservancy (ABC) and I have worked to conserve birds for over 40 years. I helped create the LEED Pilot Credit #55: Reducing Bird Collisions. I teach continuing education classes on bird-friendly design approved by both the American Institute of Architects and LEED and I authored Bird-friendly Building Design.

Birds have evolved to contend with nature -- predators, extremes of weather, finding shelter and food, and migration. Manmade threats upset this natural balance. Now, more than a third of America's birds are in a decline – something that can only be reversed by action on the part of humans.

Everyone has experienced the ugly thump of a bird hitting a window, but few realize it is not a rare occurrence. According to a study by the Smithsonian, glass kills up to a billion birds every year in the U.S. alone. Artificial lights at night compound this by attracting birds closer to the dangers posed by buildings

Why do we care? Aside from birds' intrinsic value, birds are an integral part of the world we all depend on. Among other things, birds disperse seeds, maintaining and restoring habitats, and eat tremendous numbers of insects that might otherwise damage crops and forests or spread diseases like West Nile virus.

Luckily, architects have been designing bird-friendly structures for decades, without knowing it. Many features of sustainable design, especially those related to control of sunlight and heat and security, are also bird-friendly. Bird-friendly design neither requires relinquishing the openness and light provided by glass nor seriously impedes building marketability. It is critical, however, that the elements of bird-friendly design be considered at the beginning of the design process and carried through to a building's completion. Legislation is the only way that this will be assured.

ABC recommends the following adjustments to the bill, which are articulated in written comments submitted by the Bird-Safe Building Alliance:

- Clarify that the bill applies to new buildings and alterations.
- Clarify that the provision for 90% coverage below 75' is relative to overall exposed vertical surface area, not glass area, and that 75' be measured from grade.
- Define 'parallel glass' & 'glass corners' more clearly.
- Require 100% of parallel glass & glass corners below 75' be bird-safe.
- Require 100% of all glass balcony railings be bird-safe (even over 75').
- Require the Building Commissioner to produce compliance guidelines with the assistance of local experts on the issue.

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Written Comments of the Bird-Safe Buildings Alliance to New York City Council Introduction 1482-A (2019)

September 9, 2019

This document sets out the comments of the Bird-Safe Buildings Alliance[1] to New York City Council Introduction 1482-A (2019). Exhibit A contains all of the Alliance's comments to Intro 1482 in "redline" form, and Exhibit B contains the Alliance's comments in "clean" form.

Applicability to Retrofits

The Alliance suggests amending Intro 1482 to clarify that retrofits involving exterior glazing are within its scope. By including this provision, Intro 1482 will hasten the adoption of bird-safe glass in the city. The Alliance's suggested language is as follows:

> The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

Non-Glass Surfaces

Intro 1482 requires a minimum of 90% of exterior glazing on the lowest 75 feet of any building and on the 12 feet above any green roof system to consist of bird-friendly glass. However, stating the requirement as a percentage of exterior glazing has the unfortunate effect of imposing the most stringent requirements on buildings that use relatively small amounts of glass, even though these buildings tend to present a relatively small hazard to birds. In effect, buildings would not get any "credit" for using bird-safe materials other than glass. The Alliance suggests stating the requirement in terms of all materials, including opaque non-glass materials such as brick or wood (which have a threat factor of zero under the ABC Threat Factor Reference Standard described above). This would require replacing the term "bird safe glass" with "bird safe material" and restating the 90% requirement, as follows:

> **BIRD FRIENDLY MATERIAL.** A material that has, or has been treated to have, a maximum threat factor of 25 as defined...

> **2403.7 Bird friendly material.** A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material...

[1] The Bird-Safe Buildings Alliance includes representatives from the American Bird Conservancy, the American Institute of Architects, and New York City Audubon.

Glass Corners and Parallel Glass

Intro 1482 requires bird friendly glass to be used for 100% of all exterior glazing on "all balcony railings, all parallel glass and all glass corners." These features can present hazardous conditions because a bird can see through them to foliage or open sky on the other side and may therefore attempt to fly through them. However, Intro 1482 does not define "parallel glass" or "glass corners," and the Alliance believes that rather than attempting to define them separately, they should be merged into a single term, "fly-through condition," that addresses the common hazard that they present:

> **FLY-THROUGH CONDITION.** Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.[2]

Moreover, the Alliance believes that requiring bird-safe glass for parallel glass and glass corners is only cost-justified in the same zone of the building where 90% bird-safe materials are called for. The Alliance believes that glass balcony railings, by contrast, should be constructed with bird-safe glass wherever they are located. Therefore the Alliance recommends the following language:

> **2403.7 Bird friendly material.** A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all exterior glazing on all fly-through conditions on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all glazing used in balcony railings shall consist of bird friendly material.

[2] This definition is drawn from the definition of "Trap" contained in the B3 Guidelines in effect in Minnesota. Section 325 of Chapter 16B of the Minnesota Statutes authorizes the Minnesota Department of Administration and Minnesota Department of Commerce to develop guidelines governing all new buildings receiving funding from the state's bond proceeds fund after January 1, 2004 and all major renovations receiving proceeds from the state's bond proceeds fund after January 1, 2009. The current version of the B3 Guidelines related to bird-safe glass can be found at the following link:
https://www.b3mn.org/guidelines/3-1/s_5/

Height Requirements

Intro 1482 regulates the surface of the lowest 75 feet of a building as well as the 12 feet above any green roof system. The Alliance suggests a minor change to the legislation clarifying that the 75 foot zone of the building is measured from the grade plane. This change will make it clear that underground portions of a building are irrelevant for measuring the regulated zone of the building:

> A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) above the grade plane of any building...

Bird Safe Guidelines

The Alliance suggests the publication of guidelines for bird safe building design:[3]

> **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.

ABC Threat Reference Standard

In 2011, the American Bird Conservancy published the "Bird Collision Deterrence Material Threat Factor Reference Standard."[4] This document lists building materials and assigns each material a "threat factor," ranging from 0 to 100, representing the material's danger to birds. Intro 1482 incorporates the ABC Threat Factor Reference Standard into its definition of "Bird Friendly Glass." However, the reference to the Threat Factor Reference Standard in Intro 1482 is incorrect. The correct reference is as follows:

> The Bird Collision Deterrence Material Threat Factor Reference Standard created by the American Bird Conservancy.

[3] The guidelines produced by the City of Toronto can be found at the following link: https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/design-guidelines/bird-friendly-guidelines/

[4] The threat factor reference standard can be found in PDF form at the following link: http://collisions.abcbirds.org/pdf/MaterialThreatFactors_2011_1007.pdf

Exhibit A

Intro 1482 with the Alliance's Comments Added (redline)

The following represents Intro 1482 with the Alliance's comments reflected (new text is underlined and in italics, deleted text is in red strikethrough):

Be it enacted by the Council as follows:

Section 1. Section 2402.1 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding ~~a~~ new definition*s* of "BIRD FRIENDLY ~~GLASS~~*MATERIAL*" *and "FLY-THROUGH CONDITION"* in appropriate alphabetical order to read as follows:

BIRD FRIENDLY ~~GLASS~~*MATERIAL*. ~~Glass or glazing~~*A material* that has, or has been treated to have, a maximum threat factor of 25 as defined by the Bird Collision *Deterrence Material* Threat *Factor Reference Standard* ~~Rating Calculation Spreadsheet~~ created by the American Bird ~~Conservatory~~*Conservancy* ~~and adopted as pilot credit SSpc55 by the United States Green Building Council based upon the Council's Leadership in Energy and Environmental Design (LEED) credit system~~.

FLY-THROUGH CONDITION. *Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.*

§ 2. Section BC 2403 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding a new section 2403.7 to read as follows:

2403.7 Bird friendly ~~glass~~*material*. A minimum of 90 percent of all exterior ~~glazing~~*surfaces* on the lowest 75 feet (22860 mm) *above the grade plane* of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly ~~glass~~*material*. 100 percent of all exterior glazing on all ~~glass balcony railings, all parallel glass and all glass corners~~*fly-through conditions on the lowest 75 feet (22860 mm) above the grade plane of any building and on the 12 feet (3657.6 mm) above any green roof system* shall consist of bird friendly ~~glass~~*material*. *100 percent of all glazing on balcony railings shall consist of bird friendly material.*

§ 3. This local law takes effect 120 days after it becomes law, except that the commissioner of buildings may take such measures as are necessary for the implementation of this local law, including the promulgation of rules, prior to such effective date.

§ 4. The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

*§ 5. **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.*

Exhibit B

Intro 1482 with the Alliance's Comments Added (clean)

The following represents Intro 1482 with the Alliance's comments included.

Be it enacted by the Council as follows:

Section 1. Section 2402.1 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding new definitions of "BIRD FRIENDLY MATERIAL" and "FLY-THROUGH CONDITION" in appropriate alphabetical order to read as follows:

BIRD FRIENDLY MATERIAL. A material that has, or has been treated to have, a maximum threat factor of 25 as defined by the Bird Collision Deterrence Material Threat Factor Reference Standard created by the American Bird Conservancy.

FLY-THROUGH CONDITION. Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.

§ 2. Section BC 2403 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding a new section 2403.7 to read as follows:

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§ 3. This local law takes effect 120 days after it becomes law, except that the commissioner of buildings may take such measures as are necessary for the implementation of this local law, including the promulgation of rules, prior to such effective date.

§ 4. The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

§ 5. **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.

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> The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

Non-Glass Surfaces

Intro 1482 requires a minimum of 90% of exterior glazing on the lowest 75 feet of any building and on the 12 feet above any green roof system to consist of bird-friendly glass. However, stating the requirement as a percentage of exterior glazing has the unfortunate effect of imposing the most stringent requirements on buildings that use relatively small amounts of glass, even though these buildings tend to present a relatively small hazard to birds. In effect, buildings would not get any "credit" for using bird-safe materials other than glass. The Alliance suggests stating the requirement in terms of all materials, including opaque non-glass materials such as brick or wood (which have a threat factor of zero under the ABC Threat Factor Reference Standard described above). This would require replacing the term "bird safe glass" with "bird safe material" and restating the 90% requirement, as follows:

> **BIRD FRIENDLY MATERIAL.** A material that has, or has been treated to have, a maximum threat factor of 25 as defined...

> **2403.7 Bird friendly material.** A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material...

[1] The Bird-Safe Buildings Alliance includes representatives from the American Bird Conservancy, the American Institute of Architects, and New York City Audubon.

Glass Corners and Parallel Glass

Intro 1482 requires bird friendly glass to be used for 100% of all exterior glazing on "all balcony railings, all parallel glass and all glass corners." These features can present hazardous conditions because a bird can see through them to foliage or open sky on the other side and may therefore attempt to fly through them. However, Intro 1482 does not define "parallel glass" or "glass corners," and the Alliance believes that rather than attempting to define them separately, they should be merged into a single term, "fly-through condition," that addresses the common hazard that they present:

> **FLY-THROUGH CONDITION.** Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.[2]

Moreover, the Alliance believes that requiring bird-safe glass for parallel glass and glass corners is only cost-justified in the same zone of the building where 90% bird-safe materials are called for. The Alliance believes that glass balcony railings, by contrast, should be constructed with bird-safe glass wherever they are located. Therefore the Alliance recommends the following language:

> **2403.7 Bird friendly material.** A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all exterior glazing on all fly-through conditions on the lowest 75 feet (22860 mm) of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all glazing used in balcony railings shall consist of bird friendly material.

[2] This definition is drawn from the definition of "Trap" contained in the B3 Guidelines in effect in Minnesota. Section 325 of Chapter 16B of the Minnesota Statutes authorizes the Minnesota Department of Administration and Minnesota Department of Commerce to develop guidelines governing all new buildings receiving funding from the state's bond proceeds fund after January 1, 2004 and all major renovations receiving proceeds from the state's bond proceeds fund after January 1, 2009. The current version of the B3 Guidelines related to bird-safe glass can be found at the following link:
https://www.b3mn.org/guidelines/3-1/s_5/

Height Requirements

Intro 1482 regulates the surface of the lowest 75 feet of a building as well as the 12 feet above any green roof system. The Alliance suggests a minor change to the legislation clarifying that the 75 foot zone of the building is measured from the grade plane. This change will make it clear that underground portions of a building are irrelevant for measuring the regulated zone of the building:

> A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) above the grade plane of any building...

Bird Safe Guidelines

The Alliance suggests the publication of guidelines for bird safe building design:[3]

> **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.

ABC Threat Reference Standard

In 2011, the American Bird Conservancy published the "Bird Collision Deterrence Material Threat Factor Reference Standard."[4] This document lists building materials and assigns each material a "threat factor," ranging from 0 to 100, representing the material's danger to birds. Intro 1482 incorporates the ABC Threat Factor Reference Standard into its definition of "Bird Friendly Glass." However, the reference to the Threat Factor Reference Standard in Intro 1482 is incorrect. The correct reference is as follows:

> The Bird Collision Deterrence Material Threat Factor Reference Standard created by the American Bird Conservancy.

[3] The guidelines produced by the City of Toronto can be found at the following link: https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/design-guidelines/bird-friendly-guidelines/

[4] The threat factor reference standard can be found in PDF form at the following link: http://collisions.abcbirds.org/pdf/MaterialThreatFactors_2011_1007.pdf

Exhibit A

Intro 1482 with the Alliance's Comments Added (redline)

The following represents Intro 1482 with the Alliance's comments reflected (new text is underlined and in italics, deleted text is in red strikethrough):

Be it enacted by the Council as follows:

Section 1. Section 2402.1 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding ~~a~~ new definition*s* of "BIRD FRIENDLY ~~GLASS~~*MATERIAL*" *and "FLY-THROUGH CONDITION"* in appropriate alphabetical order to read as follows:

BIRD FRIENDLY ~~GLASS~~*MATERIAL*. ~~Glass or glazing~~*A material* that has, or has been treated to have, a maximum threat factor of 25 as defined by the Bird Collision *Deterrence Material* Threat *Factor Reference Standard* ~~Rating Calculation Spreadsheet~~ created by the American Bird ~~Conservatory~~*Conservancy* ~~and adopted as pilot credit SSpc55 by the United States Green Building Council based upon the Council's Leadership in Energy and Environmental Design (LEED) credit system~~.

FLY-THROUGH CONDITION. *Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.*

§ 2. Section BC 2403 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding a new section 2403.7 to read as follows:

2403.7 Bird friendly ~~glass~~*material*. A minimum of 90 percent of all exterior ~~glazing~~*surfaces* on the lowest 75 feet (22860 mm) *above the grade plane* of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly ~~glass~~*material*. 100 percent of all exterior glazing on all ~~glass balcony railings, all parallel glass and all glass corners~~*fly-through conditions on the lowest 75 feet (22860 mm) above the grade plane of any building and on the 12 feet (3657.6 mm) above any green roof system* shall consist of bird friendly ~~glass~~*material*. *100 percent of all glazing on balcony railings shall consist of bird friendly material.*

§ 3. This local law takes effect 120 days after it becomes law, except that the commissioner of buildings may take such measures as are necessary for the implementation of this local law, including the promulgation of rules, prior to such effective date.

§ 4. The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

*§ 5. **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.*

Exhibit B

Intro 1482 with the Alliance's Comments Added (clean)

The following represents Intro 1482 with the Alliance's comments included.

Be it enacted by the Council as follows:

Section 1. Section 2402.1 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding new definitions of "BIRD FRIENDLY MATERIAL" and "FLY-THROUGH CONDITION" in appropriate alphabetical order to read as follows:

BIRD FRIENDLY MATERIAL. A material that has, or has been treated to have, a maximum threat factor of 25 as defined by the Bird Collision Deterrence Material Threat Factor Reference Standard created by the American Bird Conservancy.

FLY-THROUGH CONDITION. Transparent-sided walkways (e.g., skyways with both sides glazed, covered walks with glazing on both sides), or any other condition where multiple transparent or translucent surfaces on the exterior of the building can be seen through simultaneously (e.g., a small atrium, or glazed corners. Fly-through conditions also include transparent exterior railings (e.g., a glass or plexiglass panel in an exterior railing system), transparent wind breaks, and other transparent elements exterior to a building.

§ 2. Section BC 2403 of the New York city building code, as amended by local law number 141 for the year 2013, is amended by adding a new section 2403.7 to read as follows:

2403.7 Bird friendly material. A minimum of 90 percent of all exterior surfaces on the lowest 75 feet (22860 mm) above the grade plane of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all exterior glazing on all fly-through conditions on the lowest 75 feet (22860 mm) above the grade plane of any building and on the 12 feet (3657.6 mm) above any green roof system shall consist of bird friendly material. 100 percent of all glazing on balcony railings shall consist of bird friendly material.

§ 3. This local law takes effect 120 days after it becomes law, except that the commissioner of buildings may take such measures as are necessary for the implementation of this local law, including the promulgation of rules, prior to such effective date.

§ 4. The Department of Buildings shall, no later than [date], require that construction documents for installing, repairing, retrofitting or replacing glass in balcony railings or on a building's exterior walls comply with Section BC 2403.7 of the New York city building code.

§ 5. **Design Practices.** A guide of best practices for limiting bird collisions and utilizing bird friendly glass shall be made publicly available by the Department of Buildings no later than [date]. Registered design professionals, building owners and managers, and ornithologists shall be consulted to develop this guide of best practices.

Please support Int 1482-2019!

Jack and Neha MacIlwinen
Prospect Pl.
Brooklyn NY 11216

September 9, 2019

Robert E. Cornegy, Jr.
1360 Fulton Street, Suite 500
Brooklyn, NY 11216

Dear Representative Cornegy,

We are writing to you today to urge you to support Int 1482-2019. As Brooklyn residents, you are our voice in this matter, and we passionately back this initiative.

New York City is the best city in the world, and it should have building codes that reflect its status. Part of what makes New York City so amazing is how such a modern city can co-exist with nature around it; our thriving local parks are a testament to this balance.

A huge contribution to the health of those parks are both the resident and migratory birds that call New York City home (or travel through multiple times a year). Making our city safer for birds will mean more vibrant parks - and thus a happier community.

Finally, it is simply the moral thing to do - not supporting Int 1482-2019 "flies" in the face of reason, and is out of step with New York City's culture and the views of the members of your district.

Support Int 1482-2019!

Sincerely,
Proud residents of District 36
Jack and Neha MacIlwinen

neha.macilwinen@gmail.com

September 10, 2019

Testimony in Support of Intro. 1482 - Bird-Friendly Glass

Good morning Chair Cornegy, Committee members,

My name is David Karopkin, I am a lifelong Brooklyn resident, Wildlife Advisor to and on the Board of Directors of VFAR, Voters for Animal Rights, a 501(c)4 non-profit organization that helps elect candidates who support animal protection, lobbies for strong laws to stop animal cruelty, and holds elected officials accountable to humane voters.

I am also the founder and former director of GooseWatch NYC, an organization that worked for several years to protect and advocate for coexistence with urban wildlife in New York City, work that I am now continuing to pursue with VFAR.

I am submitting testimony in support of Intro. 1482, which would require using bird-friendly glass on newly constructed or altered buildings.

In our view, New Yorkers are incredibly fortunate to share our city with hundreds of species of wildlife who live among us, including migratory birds who pass through our city each year. These animals are our neighbors representing a diverse ecosystem, and we have a responsibility to coexist with them.

Each year, tens if not hundreds of thousands of migratory birds are killed or injured crashing into New York City's glass skyscrapers on their migration, a number that is in the billions across the country. These birds are unable to see glass and mistake their reflections for blue sky or inviting habitat, and crash into these buildings. Some die instantly while others fall to the ground with concussions, broken limbs or wings, and other injuries, only to suffer in severe pain. As a New York State licensed wildlife rehabilitator, I receive dozens of phone calls every year from New Yorkers requesting assistance with birds found injured in this tragic and preventable way. Bird-friendly glass has been shown to reduce these casualties by 90%.

This legislation would better allow our concrete jungle to serve as the wildlife habitat it should and can be. We are excited that New York City is moving forward with significant improvements in the availability and application of ethical and effective wildlife management policy and gratified for initiatives such as this. We thank Council Member Espinal and the other bill sponsors for their leadership. VFAR and our thousands of members and supporters look forward to this legislation passing into law swiftly.

Testimony in Support of Intro 1482 (Bird Friendly Glass) – Denise Kelly, Avian Welfare Coalition

I am a New York City resident and President of the Avian Welfare Coalition, http://www.avianwelfare.org an alliance dedicated to the protection and welfare of captive birds.

I am writing as an experienced and concerned bird advocate and on behalf of the Avian Welfare Coalition **to urge that you pass Intro 1482, a bill to require that glass installed on newly constructed or altered buildings be treated to reduce bird strikes and fatalities.**

Our organization fully supports any measure that will help to reduce the number of bird strikes with glass throughout New York City as well as to provide more safety for both our resident and migratory birds.

Over the years, I have witnessed hundreds of bird fatalities as a result of strikes with glass. I've also encountered numerous situations where bloodied, injured birds lying on city streets that were in need of immediate medical care as a result of colliding with reflect glass or transparent glass buildings. On numerous occasions, I've personally taken birds to rehabilitation centers for treatment.

These instances are very disturbing, and they also pose a threat to the survival of many bird species that are already experiencing significant population declines.

With increasing heights in new building construction in New York City, it is more necessary than ever to implement changes in building codes that will help alleviate the number of avian injuries and deaths.

A growing number of cities, including Toronto, San Francisco, Minneapolis, Oakland and Calgary, have already adopted progressive Bird Friendly Buildings Initiatives into building codes. Additionally, legislation to address this problem is now pending in several states and at the federal level.

Lastly, birds serve a vitally important role to maintaining healthy thriving ecosystems worldwide, which benefits all living beings.

For these reasons and more, **I urge you to vote in support of Intro 1482** so that New York City can be among the leaders in adopting bird friendly building code standards that will help make our city 's skies safer for birds and reduce bird strike fatalities.

Thank you.

Denise Kelly, NYC Resident & President, the Avian Welfare Coalition
333 East 75th Street, New York, NY 10022

Master Plumbers Council
of the City of New York, Inc.
Aka
Licensed Plumbing Association of New York City, Inc.
240-21 Braddock Avenue, Bellerose, NY 11426
Phone: (718) 793-6300 • Fax: (516) 677-5374 Website: www.nycmpc.org

September 10, 2019

Honorable Robert Cornegy, Chairperson
Committee on Housing & Buildings
New York City Council
250 Broadway
New York, NY 10074

Re: Intro. No. 1481

Dear Council Member Cornegy:

We thank the City Council for the opportunity to submit comments on Intro. No. 1481. The Master Plumbers Council of the City of New York, Inc. (the "NYCMPC") is a professional trade association whose membership consists of Licensed Master Plumbers and their affiliates in the City of New York. The NYCMPC strives to promote the licensed plumbing industry and the benefits of hiring a licensed and insured firm. In addition, we provide education and clarification on a wide assortment of Code issues. This not only benefits the trade, but all NYC property owners who are concerned about a legal and safe plumbing installation.

The current Code revision process has provided the Department of Buildings with the opportunity to update the Plumbing Code and to continue to maintain the highest level of public safety for the residents of New York City. Most of the proposed changes were made to update the Code to be consistent with the 2015 International Plumbing Code. Technological advances in methods and materials that may work in other parts of the country are not always suitable for use in a major metropolitan area such as NYC. We live and work in a unique location that requires special modifications and these proposed changes are reflected in the document now under consideration.

Over the past two years, members of our association have been privileged with the opportunity to serve and participate in the NYC Department of Buildings (DOB) Code Revision Committee process. We greatly appreciate the fact that the DOB has taken all of the committee's suggestions and concerns seriously. The body of work contained in Intro. 1481 is an accumulation of hundreds of hours of hard work and dedication by the entire committee.

Master Plumbers Council

of the City of New York, Inc.

Aka

Licensed Plumbing Association of New York City, Inc.
240-21 Braddock Avenue, Bellerose, NY 11426
Phone: (718) 793-6300 • Fax: (516) 677-5374 Website: www.nycmpc.org

The Master Plumbers Council supports this bill as written. We appreciate the fact that this document has been reviewed by all interested parties and that there will be suggestions to improve it. The MPC would be fully supportive of any modifications that would further improve this Code. We understand that the DOB and the Council have the final say in the legislation. However, we respectfully request that before any amendments are made, the published protocols are followed and the entire committee is afforded the opportunity to review the proposed changes. Members of this committee have been selected because they are subject matter experts. In our opinion, the committee is the best source for the Council to utilize when considering any proposed modifications.

The main goal of the MPC and the Council is consistent. This goal is to best protect the public safety of the residents of NYC. To accomplish this essential task, we need to provide them with a Plumbing Code that is modern, efficient and affords them the highest level of public safety. Plumbers are the first line of defense when it comes to protecting the public's health.

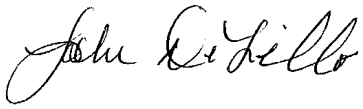
Conclusion

The Master Plumbers Council would like to thank the NYC Council for consideration of our comments and we look forward to the entire committee being able to review any proposed amendments.

If you have any questions, concerns or comments, please do not hesitate to contact me.

Sincerely,

Regards,



John F. DeLillo, Jr.
Executive Director
The Master Plumbers Council of the City of New York
240-21 Braddock Avenue
Bellerose, NY 11426
718-793-6300

Support for Int. 1482A

Hello, I am a NYC resident, in Bill Perkins's district, and longtime animal rescuer. I strongly support Int. 1482A, which would require using bird-friendly glass on newly constructed or altered buildings.

More than 100,000 migratory birds are killed in NYC each year as a result of crashing into windows. I've come across birds with broken wings, concussions, and other brain injuries countless times on our sidewalks after they mistake a glass siding for the sky's reflection and crash directly into the building. Moreover, numerous times in my almost ten years in NYC, I've come upon dead birds on the sidewalk at the foot of the building, likely killed upon impact.

We all take pride in our city's great infrastructure, but the way it has been built has proved deadly to these birds who are simply following their natural instincts. Humans created this problem and the animals should not suffer as a result. Fortunately, it is not difficult for us to make changes to prevent such unnecessary suffering and death. Bird-friendly glass, which this bill would require on all new buildings, could eliminate most of these strikes.

I send my sincere thanks to Council Member Espinal and the other bill sponsors.

Kind regards,
Kaitlyn Zafonte
W. 126th St
New York, NY 10027

kaitlyn.zafonte@gmail.com

Bird-safe Buildings Alliance

Comments to New York City Council Committee on Housing and Buildings
Regarding Introduction INT 1482-A-2019
Testimony provided by Stefan Knust on behalf of the Bird-safe Buildings Alliance (BSBA)
September 9, 2019

Good morning. My name is Stefan Knust. I am an architect and the Director of Sustainability at Ennead Architects. I am also an active member of AIANY. Our office helped create LEED Pilot Credit 55 - Bird Collision Deterrence, which has become the most popular pilot credit in the US Green Building Council LEED Certification program.

I am testifying as a member of the **Bird-safe Buildings Alliance**, an advocacy organization that serves as the Technical Advisory Group for Pilot Credit 55. We assist designers, manufacturers, and vested stakeholders in applying the scientific knowledge behind this credit to their projects. The Bird-safe Buildings Alliance appreciates this opportunity to express our support for INT 1482-A 2019.

Awareness about this issue has increased exponentially in recent years, and it is driving successful innovation by leading glass manufacturers. Legislation is of critical importance for greater adoption, but so are design guidelines, and we highly recommend that the requirement for the development of such guidelines are included in the final language of INT 1482-A.

It is staggering to imagine that the equivalent of (1) New York City is being built every month, globally, for the next 40 years - that's almost 480 *New* New York Cities around the world by 2050.

This means that today - and every night and day for the foreseeable future - manufacturing plants are producing never-ending float-lines of glass to serve this tremendous growth, not to mention the emerging retrofit markets for existing buildings.

We believe that New York City prides itself in being referenced as a model city - as a measure of what is possible - and as a leader by example. This legislation provides such an opportunity. The impacts of the decisions we make locally truly do affect the lives of migratory birds at a global scale.

We have submitted technical comments on 1482-A 2019 in which we recommend the following:

- Apply also to permitted **retrofit** projects that replace windows;
- Clarify that the 75' high zone of projection is measured from **grade level**;
- Require 100% of parallel glass & glass corners **only below 75'** to be bird safe.
- Require 100% of all glass railings to be bird safe (**even over 75' high**)
- Improve **definitions** to add Bird Friendly Material and "Fly-through" Conditions;
- Apply to 90% of all **exterior surfaces** rather than only to glazing in order to give Developers credit for all of the bird friendly materials utilized on their projects.
- Include the requirement for the creation of **Compliance Guidelines**.

Thank you.

September 10, 2019

Ned Boyajian
West 96 Street

New York, NY 10025

The New York City Council

Dear Sirs and Madams,

This letter is to offer enthusiastic support for Int. 1482.

As a lifelong birder, I was shocked when I learned in the Spring of 1998 of the vast number of migratory birds killed or injured by flying into New York City's windows.

I immediately signed up for what was to become New York City Audubon's Project Safe Flight—was, in fact, the second volunteer in that program. For many years I was an active "dawn patroller" … waking up early one or two mornings a week during Spring and Fall migrations to monitor sites Downtown and in Midtown for injured birds.

The personal horror of seeing these beautiful creatures dead or suffering is more than I can put into words. Sometimes my colleagues and I would find dozens of injured or dead at a time. The thought of their pain is only compounded by the realization that this is a significant conservation concern. And that this is largely preventable.

Thank you for considering this legislation. I urge you please to support it.

Regards,

Ned Boyajian
646-239-5857

TESTIMONY OF THE REAL ESTATE BOARD OF NEW YORK TO THE COMMITTEE ON HOUSING AND BUILDINGS OF THE NEW YORK CITY COUNCIL IN SUPPORT OF A LOCAL LAW TO AMEND THE NEW YORK CITY BUILDING CODE, IN RELATION TO BIRD FRIENDLY GLASS, INT. 1482-A

September 10, 2019

The Real Estate Board of New York (REBNY) is the City's leading real estate trade association representing commercial, residential, and institutional property owners, builders, managers, investors, brokers, salespeople, and other organizations and individuals active in New York City real estate. REBNY supports the goal of achieving a more bird-friendly building environment and reducing bird collisions and deaths below the tree canopy. Any city approach should be based in science and take a practical approach to implementation. REBNY has concerns with the bill as drafted and further study is necessary.

Int. 1482-A would amend the New York City building code to require "bird-friendly glass," as defined as glass with a threat level of 25 or less, on 90% of exterior glazing on the lowest 75 feet of any building. The code would also be amended to require bird-friendly glass for the 12 feet above any green roof system in addition to 100% of exterior glazing on glass balcony railings, parallel glass and glass corners. As amended, this bill appears to be generally aligned with the recommendations of the New York Audubon Society and is improved from the original version. However, further refinement is necessary to ensure no conflicts in implementation with state legislation and the city's zoning resolution, along with additional clarification on the applicability of this requirement to existing buildings.

As the Council may already be aware, Senate Bill S25B will establish a council representing relevant interest groups and experts to promote the use of bird-friendly design and construction practices. The council has been designated to conduct a study to assess the magnitude of the problem of birds colliding with buildings, recommend criteria for identifying buildings which pose a danger to bird species, identify strategies, technology and products to mitigate the issue, and identify potential funding sources for the retrofitting and/or replacement of windows of existing buildings that pose a threat to birds. REBNY has publicly stated its support for the state created-council. The bill awaits the Governor's signature for this initiative to begin.

There are a number of practical constraints that impede implementation.

First, only four manufacturers today produce bird friendly glass. This is a relatively new innovation that is not widely available for purchase and use. As a niche issue, not very many materials have official test scores, which will create a lot of uncertainty about how to achieve the mandated ratings. Most of the products as currently envisioned are geared toward new construction, not retrofits, so costs are also highly variable. One manufacturer cited increased costs to the membership ranging from 3% for tinted glass, 12% to adhesive film, and as much as 50% more for either wire-enforced or specialty treated glass. Quite frankly, all orders may be considered specialty as there are no commercially available supply. Even if an individual residential or commercial unit wished to install a window there would be none available at a construction supply store. Given just the constraints on bird-friendly glass supply it is even more critical that the state should be allowed to conclude its work before the city approves this bill.

Furthermore, the lack of commercial availability speaks to the need to exempt existing buildings from this requirement. Existing buildings should be excluded from the requirement when they are undergoing routine exterior work. Clear definitions and scope of work that would trigger the replacement should defined up front. It does not make sense to necessitate a window change on a unit-by-unit basis, for brick re-pointing or when a significant percentage of the overall façade is already visible to birds. For a storefront business such as restaurant, which already has significant permitting and upfront capital costs and only 40% survive past the first year, this requirement could lead to significant delays in waiting for a custom glass order. There is no standard glass storefront.

Second, there is an apparent conflict with the goals of this legislation and the zoning statute that should be resolved prior to the start of an effective date. The glazing and treatment options to discourage bird collisions requires further review. As an example, tinted glass may be more cost effective but can have a negative impact on the streetscape and conflict with the zoning resolution. The City of New York Zoning Resolution (ZR) Minimum Transparency Requirements (Section 37-34) in commercial districts requires ground floor street level walls along primary street frontages or designated retail streets to be "glazed with transparent materials which may include "show windows, transom windows or glazed portions of doors." According to the Zoning Resolution, transparent materials must occupy "50 percent of the surface area of ground floor street walls between a height of two feet and 12 feet, or the height of the ground floor ceiling, whichever is higher." A text amendment may be necessary to strike the proper balance between this bill's stated policy goal and past efforts by the council to encourage "eyes on the street" streetscape design and retail activity in commercial districts, along the waterfront, for FRESH supermarkets, and adjacent to POPS (privately owned public spaces). The effective date and implementation should be set accordingly.

The bill should be further refined to be clear in its applicability and not foreclose on other options to make the city more bird friendly. Considering other municipalities' legislation, it would be better for the requirement to reflect that a variety of materials provide visual markers to birds, and that if only 10% of the overall façade below 75' is un-treated glass that the goal is still met. There should also be special consideration for landmarks, rent-stabilized buildings, and new affordable housing. Bird safety is a laudable goal and a complementary grant program to offset the cost of retrofits or inclusion has been allocated in other mandates for new technology and materials for these classes of buildings. The state council would be a logical place to discuss a financial incentive program.

Last, the city bill should allow the Department of Buildings and Landmarks Commission ample time to make any necessary rule changes by which to implement the new requirements. Further clarification is necessary as to the applicability of these laws for buildings currently under renovation, pending DOB approval, or filed permits that have not yet begun construction.

REBNY ultimately supports the goals of the legislation but is troubled by the lack of a holistic city study looking at the impact to storefronts, the urban streetscape, and commercial availability of the product. Additional clarification and detail are required to effectively implement this goal in a meaningful way.

Thank you for the time and consideration of these points.

# # #

CONTACT(S):
Basha Gerhards
Vice President
Policy & Planning
Real Estate Board of New York (REBNY)
(212) 616-5254
bgerhards@rebny.com

Bird Friendly Glass Bill

Hi Speaker Johnson,

Please support the passing of the Bird Friendly Glass Bill (int. 1482) tomorrow at 10AM during the hearing.

Migratory birds are New Yorkers too and are an important part of our ecosystem.

Preventing them from injuring themselves via glass strikes is something that we can and should prevent.

Thank you for your support,
Sarah DeThomasis
West Village resident
Jane street

More via the below link:
https://www.instagram.com/p/B2M25Lbl4gL/?igshid=mxpuhd8yjscx

--
Sarah DeThomasis
sarahdethomasis@gmail.com

Dear City Council Members:

I think it's vitally important for us to protect our wildlife in this city so I implore you to pass the Bird Friendly Glass bill (Int. 1482).

As we live in a city that continually encourages development of tall structures, we must understand the role our city skies play in migratory bird patterns and our birds that live below.

Every year we New Yorkers are witness to numerous bird collisions and the horrifying result as they lay on sidewalks either stunned or dead. Many of us attempt to rescue by picking them up and transporting them to avian rehab centers throughout the city. These tragedies must be slowed, if not stopped. Birds are innocent victims whose fate is being imposed by man's need to reach the sky.

We must do better.

As other cities are considering, if not already passing, laws to protect migratory birds, it's time for New York City to champion this cause. Ensuring the birds' safety is vital to their existence while also a reward we reap from them.

I hope you see the significance of passing this bill.

Thank you for your time.
valerie

valeriebarnesfilmllc.
Grand Street
New York City 10002
website • valeriebarnesfilm.com
instagram • @valeriebarnesfilm

Bird Safe Glass Int 1482-2019A

Please bring the bird safe glass bill 1482-2019A to the floor doe discussion to get it passed. I alone brought 4 birds this past year to Wild Bird Fund for rehab that had hit windows in Manhattan. At least one has died. Our wildlife is a precious commodity. There is NO reason builders can’t use the proper glass. AND incorporate other measures.

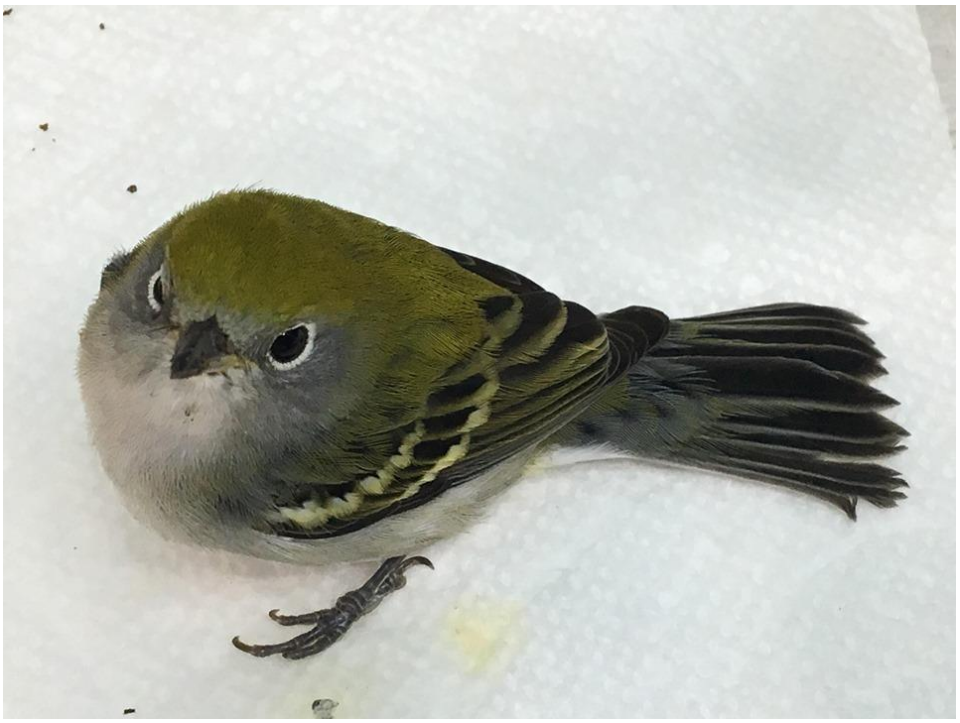
Thank you for all you do.

GAIL TAUBER
08taubg@gmail.com

Bird Safe Design Critically Needed in NYC

This chestnut-sided warbler crashed into a window in our neighborhood on Sunday. She has a concussion & an eye injury, but she's one of the lucky few who didn't die on impact & received help. Another 90,000 to 240,000 birds die this way every year in NYC.

I support bird-safe design of buildings in NYC & hope you will too.



Thank you.

Beth McCrea
W. 57th St.
NY, NY 10019

bethgmccrea@gmail.com

Bird Safe Design Bill, Int 1482

Hello Speaker Johnson,

I've just learned of the Bird Safe Design Bill and wanted to contact you and urge you to support it. Birds succumb to window strikes at staggering numbers, and Manhattan is especially volatile in this regard. Please do your part to make the city more bird-friendly.

Thank you,

Christine Genova

geauxgirl@me.com

Init. 1482

Dear City Council members,

I am writing in support of Int. 1482. I'm sure that you are away that **90,000** to **230,000** birds die per year in New York City as a result of colliding with reflective or transparent glass buildings. We have the capability and the obligation to prevent this. Migrating birds need our help.

Just last week I found a young yellow warbler who had had a collision with a window. He was one of the lucky ones, and he was able to recover, but I have seen many others, dead on the sidewalks who weren't so lucky. We are the stewards of this earth, and it's increasingly obvious that we are failing in our responsibilities.

Passing this initiative is the right thing to do. Unlike developers, birds can't advocate for themselves; I hope you will speak in their stead, and in their defense.

Respectfully,

Bethany Tulloch
West 76th Street
New York, NY 10023

bethtulloch@gmail.com

Statement in Support of Int 1482, Bird friendly glass

To Members of the New York City Council,

I am a New York City resident writing in support of Int 1482 in advance of your meeting on September 12 2019. As a conservation biology professional, I am always excited when I see legislators making strides towards easy, common sense solutions to the problems plaguing the wildlife with which we must share our physical spaces.

I have many times found dead and injured birds next to buildings with large glass panels. Each time served as a reminder of the many ways in which our way of life, even something as passive and stationary as our buildings, harms wildlife. Many migratory birds passing through NYC are vulnerable or endangered. Instead of making their spring and fall passage safe, we are putting obstacles in their path.

Fortunately, dead birds are NOT a mandatory side effect of having buildings.

The solution- whether bird decals, tape, or other simple, effective, and cheap solutions, are in use all over the world, and work perfectly well.

During my 2 years working with the United Nations Environment Program (UNEP) in Germany, I saw such decals on all sorts of glass surfaces, such as large windows and bus shelters. They are ubiquitous and effective. It is embarrassing that the greatest city in the USA still hasn't adopted this measure yet.

I hope we can quickly and easily rectify the situation with the passage of Int 1482.

Sincerely,

Yelizaveta Protas
81st Street
Jackson Heights NY
11372
<lizzaprotas@hotmail.com>

WE SUPPORT Int.1482.

Good Afternoon,
A public hearing has been scheduled for the Bird Friendly Glass bill (Int. 1482) in the City Council.

WE NEED BIRD-FREINDLY GLASS IN ALL NEW YORK CITY WINDOWS.
I SUPPORT **Int. 1482**.

This important hearing will take place on Tuesday, September 10th at 10am in the Council Chambers in City Hall.

90,000 to 230,000 birds die per year in New York City as a result of colliding with reflective or transparent glass buildings. This bill will require newly constructed or altered buildings to use bird-friendly glass on 90% of the building's surface (up to 75 feet high) and above green roofs.

I, myself, have brought many injured birds to the Wild Bird Fund of NYC for recovery from collision with windows. Millions of birds migrate through New York City - they are not meant to die here. Birds are, as are humans, an imperative part of the planet's eco system and should not die of unnatural causes = due to collisions with buildings.

THANK YOU for your attention.
Anna Hooton
NYC Resident of Hell's Kitchen

To read more about Bird Friendly Buildings initiatives across the country, read the latest from James Crugnale for *Audubon Magazine*.

A <investigatecx@gmail.com>

Bird Friendly Glass Bill (Int. 1482) Testimony

Dear City Council Members,

This email is pertaining to the Bird Friendly Glass Bill (Int. 1482) that is being brought to public hearing on Tuesday, September 10th 2019. I am unable to attend the hearing, but would like to contribute my personal testimony in support of this bill.

Yesterday - Sunday, September 8th, 2019 - I found a small bird on the sidewalk outside of 42 Maspeth Ave in Brooklyn. The little thing was dazed - breathing heavily and with eyes closed - and I knew that it must have been a victim of flying into a window, as it so closely resembled the posts I had seen about birds injured by window accidents on the Wild Bird Fund's Instagram (@wildbirdfund).

I managed to scoop the bird off to a safer area, but unfortunately, there is no guarantee that my helping hand ultimately did anything for him. The damage of flying into a window was likely already done. I think it is no coincidence that I saw a post about the Bird Friendly Glass Bill this morning. Having had the experience first-hand confirms for me personally that the infrastructure of our city is negatively effecting the flight patterns of the wildlife that we are so lucky to have with us.

Please find the picture I took yesterday attached for your viewing pleasure. It is my hope that by passing this bill and making positive changes in the future, we can create a more environmentally sustainable place for the birds that also call this city home.

Thanks for your time,

Caroline Sanchez

Wilson Ave
Brooklyn, NY 11237

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In support of Intro 1482-A

My name is Jessica Zafonte. I am an attorney and longtime animal rescuer, with a focus on waterfowl and other birds. I live in Harlem in Bill Perkins' district.

I am strongly in support of Int. 1482-A, which would require that buildings use bird-friendly glass on newly constructed or altered buildings.

Every single year in NYC alone, upwards of 100,000 migratory birds (and as many as 250,000) are killed as a result of window strikes as they try to pass through NYC.
They are unable to see glass, often confusing the reflection for sky, and crash head on into the buildings. Many will die instantly. Those that survive fall to the ground and suffer broken wings, limbs, concussions and other head injuries. Those not killed immediately will die slowly on city sidewalks. I have picked up many birds like this—some make it and many do not. All suffer terribly.

These animals are doing nothing more than peacefully going about their lives, but our infrastructures has posed a deadly hurdle. Thankfully, it is not an undue burden for us to implement changes to prevent such extensive, and unnecessary, suffering and death. Bird-friendly glass has been shown to eliminate most of these strikes.

I urge all involved to pass this bill swiftly. And my deepest thanks to Council Member Espinal and the other bill sponsors. It makes me proud to live in a progressive city that shows compassion to even its smallest and most vulnerable members.

Jessica H. Zafonte, Esq.

<jessica.zafonte@gmail.com>

I Support Int. 1482

Dear New York City Councilmembers,

I'm writing to voice my strong support for **Int. 1482.**

I've been a New Yorker for two decades and am proud to live and work in one of the absolute best urban environments in the world for birding. For me and many others, it's a pleasure to spend time in Riverside Park, Central Park, or Prospect Park and recharge by observing scarlet tanagers, magnolia warblers, Cooper's Hawks, and so many more species of migratory and resident birds.

New York is a crucial stop on the Eastern Flyway for migrating birds as they rest and refuel on their long journeys, but many thousands of birds die unnecessarily each year after colliding with urban windows and becoming disoriented in bright city lights.

These deaths are entirely preventable, as architects and city councils elsewhere in the U.S. have demonstrated through progressive designs and policies.

New York can continue to raise the bar of progress by making our city a safer place for birds, and **require newly constructed or altered buildings to use bird-friendly glass.**

Pass Int. 1482!

Sincerely,

Tara Craig
Westminster Rd.
Brooklyn, NY 11230
<taracraig510@gmail.com>

Testimony in support of Int-1482

My name is Joshua Malbin. I live in Brooklyn and have been birdwatching there for the last 15 years. That isn't very long compared to many people, but it has been long enough that I have seen some species become more scarce, reflecting what is going on everywhere: bird populations are falling. And after habitat loss and cats, window strikes are the single biggest thing killing birds in the United States. Birds don't know glass exists, see only the reflection of surrounding trees, and slam right into it and die.

Humans built New York City right in the middle of one of the major migration highways in North America. It's one of the reasons those of us who love birds get to see so many of them here. But it also means that they run into buildings here in big numbers. New York City Audubon estimates that 90,000 to 230,000 birds die by flying into buildings every year. I have found their bodies on the streets myself, including this year a beautiful American Woodcock on the sidewalk outside my office at Brookfield Place in lower Manhattan. We keep putting up more and more modern buildings along the rivers and around our green spaces that are covered in reflective glass. Every time I see another being built, I know it means more birds will die.

The council has a chance to do something about it. Instead of new construction in New York meaning more bird deaths whittling away at already diminished populations, new construction in New York can mean safer buildings for birds and fewer small bodies on the sidewalks. Please support I-1482.

Sincerely,

Joshua Malbin

<joshuamalbin@gmail.com>

A Letter in Support of Int. 1482

To Whom it May Concern:

I'm writing to express my support for Int. 1482. Birds, especially the birds that migrate through our area in the spring and the fall, need our help.

90,000 to 230,000 birds die per year in New York City as a result of colliding with reflective or transparent glass buildings. Those numbers are devastating, and it's urgent that we do something about it. By implementing the Bird Friendly Glass Bill we would be making NYC safer for migratory birds - many of which are declining in large numbers and are on the brink of becoming endangered.

Since moving to NYC in 1994 I've personally found countless avian casualties of collisions with reflective glass lying stunned or lifeless on the sidewalk, both as a volunteer for NYC Audubon's Project Safe Flight and as a regular pedestrian. I'm an enthusiastic birdwatcher, and this past spring migration I saw five dead oven birds on different sidewalks throughout the city, all glass strike victims, before I saw a single live one on a birdwatching walk. Oven birds are a favorite of mine so it was especially heartbreaking. Young hawks and other birds of prey are equally at risk of flying into the reflective glass that covers so many of the buildings in our skyline, as are all the birds that call NYC home year-round.

Please, please support Int. 1482 and give the migrating birds beloved by so many a fighting chance to pass through NYC unharmed. We must do absolutely everything we can to protect the creatures that have no choice but to share and maneuver through the city we built.

Thank you so much.

Sincerely,

Michelle Talich
Ocean Parkway
Brooklyn, NY 11218
<mltalich@gmail.com>

In support of Int. 1482.

Dear Council Members,

I was unable to attend the hearing yesterday but am writing because I ardently support the Bird Safe Glass Bill you are currently considering. Between climate change, habitat loss and destruction, light pollution, and human interference and disruption migratory birds have the odds stacked against them. I personally have found three song birds that died from glass collisions in Manhattan within the past 12 months. Construction and urbanization continues apace but we must find ways to co-exist with other species. Bird Safe Glass is one step we can take to lessen our impact on their environment. Please vote in favor of this important and urgently needed bill.

Kind regards,
Renee Lucier
West 67th Street
New York, NY 10023
<reneelucier145@gmail.com>

Support for INT 1482

Dear NYCity Council,

I write today in support of INT 1482 requiring bird-friendly glass on new and renovated buildings. I've seen the appalling toll it takes on wild birds in the city. Many of the new products also save on heating and cooling costs, so we feed two birds with one scone, as they say, in our efforts to build a sustainable city.

Thank you,

Kellye Rosenheim
505 West End Ave.
New York, NY 10024
<kellye.rosenheim@gmail.com>

Comments to
NEW YORK CITY COUNCIL COMMITTEE ON HOUSING AND BUILDINGS
Regarding
Introduction 1482-A

September 10, 2019

My name is Molly Adams and I am the founder of the Feminist Bird Club, a birdwatching club for members of the LGBTQ+ community, women, and people of color dedicated to inclusivity and fundraising for various human rights organizations. I am writing on behalf of our over 1,000 members in New York City, and to represent the voices of our chapters from seven different cities in the United States, Toronto, and the Netherlands.

I wholeheartedly support Introduction 1482-A and thank Council Member Rafael L. Espinal, Jr., Council Speaker Corey Johnson, and their respective staffs, and the Council's legislative team for their diligent work on this important bill.

I have been working in environmental education and conservation for the past ten years, and the issue of birds dying as a result of window collisions is one of the most deeply frustrating and painful examples of a preventable conservation concern that I have ever faced.

Birdwatching is a hobby that has changed my life for the better. It can serve as an escape from the stress of daily life, and a calming way to connect with the environment around you. After moving to NYC from Long Island, it became devastatingly clear that many of the same bird species seen while taking an after-work walk through the park, could then be seen dead on the sidewalk the following morning. My hobby, which has significantly improved my physical and mental health, now raises several concerns. These birds are dying at an alarming rate and many deaths are caused by the buildings that we live and work in.

I've spent years volunteering at wildlife refuges and as injured bird transporters, but no experience has been quite as upsetting as watching one of my favorite bird species fly straight into a building and fall to its death on a city sidewalk. Thankfully, there are solutions that have been outlined by New York City Audubon, American Bird Conservancy, and more. Passing Introduction 1482-A can save birds lives.

Sincerely,
Molly Adams
President, Feminist Bird Club
feministbirdclub@gmail.com

FEMINIST BIRD CLUB
2019

46 West 89th Street
New York, NY 10024

September 11, 2019

In support of Int. 1482 (Bird Friendly Glass Bill)

Dear A Brandford, J Cond, C Kim, A Son, and G Zilkha:

I regret that I was unable to attend the Council session in which the Bird Friendly Glass Bill was discussed.

Please pass along my urgent support for this bill.

All around us nature is under assault, especially animals whose habitats have been destroyed as the number of human beings on the Earth has reached planet-threatening numbers.

While we still can, we must do everything in our power to protect vulnerable wildlife…and birds are among the most vulnerable

It's hard to believe anyone would be against this bill. Not only is nature not ours to destroy, not only would we be robbing all future human beings of their rightful heritage, but we are in danger of so throwing nature out of whack as to endanger the planet's ability to sustain human life. Seriously, we are drawing near a precipice…

Builders must learn to take using bird-safe glass for granted. The cost would be a mere decimal dot in the huge budgets for the buildings we put up right smack on the yearly migration routs of millions of birds.

Let's be New York City: let's lead the world in this as in so many other ways.

Thank you!

Suzanne P. Elliott

46 West 89th Street
NYC 10024

I'm registered, and I vote.

Bird Friendly Glass Bill - Int. 1482

Hello Austen,

My name is Julie Pereira and I support the Bird Friendly Glass bill (Int. 1482). I live at 16 E 19th St, BK, NY 11226 and it's because I live in here that I support this bill. In Brooklyn, there are more and more tall buildings being developed, and as such there needs to be some protection in place for our native bird species. Passing this bill is truly such a small thing that could have a positive impact to our environment and, by extension, our community.

Thank you,

Julie Pereira

<julie.pereira24@gmail.com>

Peter S. Kalikow
Chairman

Grand Central
PARTNERSHIP

Alfred C. Cerullo, III
President/CEO

STATEMENT REGARDING

Int. 1482-A - Proposed amendment of the New York City building code to require bird-friendly glass

September 11, 2019

The Grand Central Partnership (GCP) manages one of the world's oldest and largest Business Improvement Districts (BIDs) on behalf of the Grand Central District Management Association. GCP serves approximately 70 square blocks in Midtown East, which include 73 million square feet of commercial, residential, and retail building space. GCP supports the goal of achieving a more bird-friendly building environment. However, any local effort to create this environment should take a practical approach to implementation and be fact-based.

As the Council may already be aware, State Senate Bill S25B will establish a council representing relevant interest groups and experts to promote the use of bird-friendly design and construction practices. The council will be charged with conducting a study to assess the magnitude of the problem of birds colliding with buildings, and identify strategies, technology, and products to mitigate the issue. The bill currently awaits the Governor's signature for this initiative to begin.

GCP supports the State's effort to establish the council and believes that the council will help to identify solutions to two critical issues that impede the implementation of Int. 1482-A, namely, the lack of commercial availability of bird-friendly glass, and the need to exempt some existing commercial buildings and landmarks from the new requirements. Given the need for more detail around these issues, GCP recommends that the City Council allow the state to conclude with its work before approving Int. 1482-A.

Furthermore, the City Council should allow the Department of City Planning, the Department of Buildings and the Landmarks Preservation Commission ample time to make any necessary rule changes by which to implement the new requirements. Further clarification is necessary as to the applicability of these laws for buildings currently under renovation, pending DOB approval, or filed permits that have not yet begun construction.

GCP ultimately supports the goals of the legislation, but believes additional clarification and detail is required to effectively implement them in a significant way.

Thank you for the time and consideration of these points.

The Chanin Building • 122 East 42nd Street, Suite 601, NY, NY 10168 (212) 883-2420 Fax (212) 661-4384
www.grandcentralpartnership.nyc

Dear City Council members:

We are a members of the **American Museum of Natural History** and we support and participate in Linnaean Society public initiatives.

Therefore, we are writing to urge you to support **Int. 1482** also known as "Bird-Friendly" Glass Bill.

Thank you for you kind attention and support,

Robert Morningstar
Jill Benzer
UWS Residents Association

robert.morningstar@gmail.com

To: Honorable City Council Members

I write to ask your consideration and support for Int. 1482. This is something I hav e only learned about
recently. Therefore, I cannot claim to be a long time supporter of this initiative an d I have no expert
qualifications to offer other than my general interest and compassion for the bird s in our environment as creatures of God.

It has come to my attention that many thousands of birds die each year as a result of colliding into
transparent glass buildings. I understand newly constructed buildings can address this by use of "bird
friendly glass." Like many issues we face today, we do have answers and solution s but not always the will to enforce them. So, I ask for your specific consideration and support of Int. 1482.

Sincerely,
Julie Leak

leak.julie@yahoo.com

Bird Friendly Buildings

Dear Councilpersons,

I'm writing today to urge you to support Int. 1482, Bird Friendly Glass Bill. I think as our city heads into a future marked by climate disaster we need to do everything we can to make sure that our ecosystem—along with our conservation efforts and our redefining corporations' roles in climate change—is a safe space for all species.

An integrated approach of care and conservation for our urban environments will not only save avian life, but send a message of goodwill to *all* living beings in our city.

This past spring I was celebrating the wedding of a friend when I came across a dead Tennessee Warbler, dead on the ground outside the venue. This small, green bird migrates through our city twice a year and it is a real travesty for this bird's remarkable journey to be cut short by unsafe glass.

I'm excited and hopeful you'll make a great decision for NYC's wildlife, in favor of Int. 1482.

Thank you for your time,

Ian Russell
863 Lafayette Ave
Brooklyn NY 11221
<ianrussell823@gmail.com>

Bird Friendly Glass bill (Int. 1482)

Greetings, all! First, many thanks for all your good work keeping this the greatest city on the globe. Second, I urge you to support the Bird Friendly Glass bill (Int. 1482).

Although I've never owned a car or a country house in my 64 years, since moving here in 1976 I've found that maintaining my equanimity has depended on my outdoor activities and support of this country's natural resources. Birding is an increasing part of these outdoor pursuits. And *mirabile dictu*, most of my birding is done in our very own Central Park. Needless to say, Int. 1482 is vitally important to me and all my fellow citizen-scientists.

Just as important, perhaps, is keeping our city at the cutting-edge of preserving a co-existence of Nature and metropolis. If we're to remain the capital of the world, we should lead by example. Support Int. 1482!

With gratitude, I remain,

Yours sincerely,
Raymond Mendez
420 East 72nd St.
NY NY 10021

Raymond Mendez
Brittany Capital Group, Inc.
575 Madison Avenue, 10th Floor
New York, NY 10022
Office: 212-265-6046
rm@britcap.com
www.britcap.com
(575 Madison is between 56th and 57th)
Member FINRA

Bird friendly glass bill

I just wanted to quickly voice my support of the Bird Friendly Glass bill (Int. 1482). I live in a Clinton Hill midrise and have experienced a few bird strikes on my windows and quite frankly it ruins my whole month every time. Birds are New York residents too, we should look out for our neighbors.

Thanks for your time,

Melinda Caric
185 Hall St
Brooklyn NY 11205
<melindacaric@gmail.com>

Int. 1482 (bird-safe glass bill)

The New York City Council
250 Broadway
New York, NY 10007

11 September 2019

To the Members of the City Council:

I write to support Int. 1482, regarding the use of bird-friendly glass in future and altered NYC buildings. I'm grateful to you for considering this extremely important bill. It has the potential not only to protect the city's neotropical migratory birds, but to reduce energy costs--a real savings, over the decades.

I want to make clear that I am pro-development, and believe that, over the years to come, we must upzone much of the city: to make housing affordable, and to encourage less carbon-intensive lifestyles, we need to build densely and as high as possible. But building tall, dense, affordable housing does not have to result in the extremely reflective glass facades you see at Hudson Yards or at Circa Central Park. For example, if you look at the affordable apartment complexes in Fort Greene or Boerum Hill, these buildings are very likely already meeting the bill's specifications: their windows, especially those with insect screens or child-safety window guards, do not involve large swathes of reflective glass. They are not killing dozens of birds each morning, as the "statement" glass facades may often do. In consultation with bird-safe design teams, we can cut down on the ongoing ecological problem while not putting an excessive financial burden on developers.

I do have one suggestion about the bill's language: it might help to tweak the bill's wording from "A minimum of 90 percent of all exterior glazing on the lowest 75 feet" to "A minimum of 90 percent of all building materials on the lowest 75 feet" (so that a residential building that uses 90% brick and three-feet-tall windows would be in compliance).

I want to stress how crucial it is for New York City, *in particular*, to adopt this bill, as soon as possible. While I have been interested in birds for years, it wasn't until I moved to New York City that I began to see what glass facades are doing to migratory birds. The city is positioned right on the Atlantic Flyway, the path that migratory birds are programmed to take each fall and spring. The city's lights draw the birds in and confuse them; the reflective and transparent glass kills them in genuinely unsustainable numbers. For a number of threatened and declining species, New York is likely the most dangerous city they will travel through. And with every building that goes up with purely reflective or transparent glass, the problem will become worse.

Unfortunately, most people don't realize what a problem unaltered glass can be. Last week, for example, I found a warbler that had been stepped on so many times that I could not tell what species it was; apparently, nobody even noticed it was on the sidewalk. These birds are tiny, and many of them are camouflaged; often they are just swept into the gutter. It's understandable that most New Yorkers haven't realized how many birds are dying; custodians and environmentalists are the ones who often see the damage first-hand.

Today, we have increasingly good options for aesthetically appealing, bird-friendly, affordable glass—ones that work for both humans and birds. We need legislation right away, before more unaltered glass buildings go up: relying on developers and designers to understand the issue is not enough. I very much hope that the current City Council will decide to leave a legacy that will have an impact decades from now: birds will still be flying through New York, and it is up to the Council to decide whether they will enter an increasingly deadly array of mirrors, or a city that is proactive and inventive in protecting American wildlife.

Yours sincerely,

Sarang Gopalakrishnan

279 Henry Street
Brooklyn, NY
11201-4679

<Sarang.Gopalakrishnan@csi.cuny.edu>

Sarang Gopalakrishnan
Assistant Professor of Physics
CUNY College of Staten Island and CUNY Graduate Center
1N-225, 2800 Victory Blvd, Staten Island, NY 10314

Int. 1482

Dear NYC Council Members,

Unfortunately, I was unable to attend yesterday's Council session in which Int. 1482 was discussed. I am a New York State licensed wildlife rehabber and the conservation committee chair of the Linnaean Society.
I have seen countless unnecessary bird deaths over the past several years and think it is imperative for New York City to step up and become an environmental leader.

Birds fill an invaluable role in many ecosystems, and while their efforts are not often seen first hand in New York, the many beautiful parks and green areas in our city serve as a refuge for many as they travel from to and from their breeding grounds. It is immoral to think that there might be solutions at hand that would prevent the death of countless individuals, many of species that are experiencing serious declines, and no action taken. I know there is evidence that bird safe glass provides extra energy efficiency to our buildings, but do we even need to know that in order to approve of Int. 1482? Preventing unnecessary deaths of so many avian species should be enough.

Please support Int. 1482!

Sincerely,

Rochelle Thomas
172 W. 109th Street
New York, NY 10025
<rochelleleethomas@gmail.com>

Support the Bird Friendly Glass Bill (Int. 1482)

Members of the City Council,

I am writing in support of the Bird Friendly Glass Bill (Int. 1482).

I am a bird enthusiast and have lived in New York for 15 years. As our city grows and evolves, we must do so ethically and responsibly. We have the opportunity to protect our wildlife and set an example to other cities.

Birds a vital part of our ecosystem and New York is an important migratory location. As birds migrate through New York, many are injured or killed due to glass collisions.

We must take action now to prevent these unnecessary deaths. Please join me in supporting the Bird Friendly Glass Bill.

Thank you.

Michael J. Silber
michaeljsilber@gmail.com
michaeljsilber.com

Please Support Int. 1482 (Bird Friendly Glass bill)

To Whom It May Concern:

I am writing to express my support for Int. 1482, the Bird Friendly Glass bill.

Please help protect birds and keep their beauty alive and well in NYC. I'm struck by the dissonance of watching children and adults stop in the streets to admire their songs and colors, and the number of birds I see dead on the ground. Sitting at a cafe outside on a recent lovely day, my neighbors stopped to admire a singing male cardinal, and we all exchanged smiles at the unexpected beauty in our midst. I follow photographer Heather Wolf's work documenting the amazing variety of birds in Brooklyn Bridge Park; it would be such a shame not to help these creatures thrive. Thank you for taking my comments.

Sincerely,

Jessica Schoen
570 Henry Street
Brooklyn, NY 11231
<schoenjessica@gmail.com>

Testimony for Proposed Int. No 1428

September 12, 2019

New York City Council Members
250 Broadway
New York, NY 10007

Dear New York City Council Members:

As a student and constituent, I urge you to support a law that requires bird friendly glass on 90% of windows on the lowest 75 feet on any building. New York is a major stopping point for many migratory bird species. In fact, 40% of migratory birds that pass through New York City are endangered.[1]

Species of special concern include:

- Red-shouldered Hawk
- Broad-winged Hawk
- Scarlet Tanager
- Black Skimmer
- Osprey

The Wild Bird Fund is just one of the important rehabilitators in the city, and on several occasions I have seen birds that have hit building glass and resulted in severe brain damage. Some lucky ones may survive but often it is a fatal injury.

I am very concerned about the state of our avian species in NYC, as they are very important for controlling insect populations, pollinating native flowers, and being a source of eco-tourism for the city. Protecting our wildlife should be a priority. We have a responsibility to ensure that migrating birds do not die in our city while on route to their destination.

I hope you consider this law seriously because it could save the lives of thousands of birds and their future young.

Thank you,

Alyssa Bueno

[1] Audubon, "Birds of Conservation Concern", https://ny.audubon.org/birds-0/birds-conservation-concern (2019)

ETHAN STRELL
2727 Palisade Avenue, Apt. 11E, Bronx, NY 10463

September 12, 2019

Hon. Robert Cornegy, Jr., Chair
Members of the Committee on Housing & Buildings
New York City Council
City Hall
New York, NY 10007

(via email: ABrandford@council.nyc.gov, JConde@council.nyc.gov, ASon@council.nyc.gov, CKim@council.nyc.gov, GZilkha@council.nyc.gov)

RE: Int 1482-A (Bill to require bird-visible glass)

Dear Chair Cornegy and Members of the Committee:

Thank you for considering this long-past-due law. Too many New Yorkers are unaware of the abundance of wildlife within the five boroughs, particularly during the spring and fall, when millions of migratory birds pass through and stop in New York on their arduous journey, many travelling from northern Canada to Central and South America.

Far beyond pigeons, squirrels, and the Mandarin duck, New York City's parks and open spaces are crucial feeding and rest stops for hundreds of species of migratory birds. From the eagles, hawks, falcons, and vultures soaring down the Hudson, to tiny, yellow warblers chasing insects high in the trees, the variety and number are astounding. Many people are surprised to learn that during the spring and fall, Central Park is one of the greatest birding destinations in the country. To illustrate, I have included photographs I have taken of amazing birds throughout New York City.

Until recently, I was oblivious to this wonder right in front of our noses. One day, I heard a noise on my living room window. I found a tiny gray bird with a bright, yellow Mohawk stunned on my terrace. I did some research and learned that it was a Golden-crowned kinglet, likely heading south from its nesting grounds in northern Canada. I soon learned more about migration, and about the perils of glass.

Birds are remarkable, but windows are deadly to birds. They simply cannot see the glass, or are fooled by reflections of foliage. Consequently, birds often fly full speed into buildings. Even if they survive the initial collision, the injuries often prove fatal, and reduce the likelihood of the bird making a successful migration.

I applaud the Committee's work, and urge adoption of Int 1482-A.

Sincerely,

Ethan Strell

Hudson River Park at Canal Street (Golden-Crowned Kinglet)

Van Cortlandt Park (Great Blue Heron)

Bryant Park (American Woodcock)

Central Park (Prairie Warbler)

September 10, 2019

Attn: NYC Council: Testimony in support of Int. 1482-2019.

First, thank you for considering this bill. I'm not a biologist or conservationist, but I sometimes have to head to teach at early hours, before the sidewalks around buildings have been swept; and in this area I see more dead, stunned, and injured birds than I'd ever thought I would see.

This issue was not on my radar at all until fall 2016, when I moved to New York. For a while, I did not put two and two together. The first bird I saw by chance: it was a tiny little kinglet who (I realize now) had hit a glass skybridge and fallen into the road. In that case, he was only stunned, and when I touched him he flew off, but this was a fluke. He was the size of a cotton ball and the color of moss. The next three birds I found under walkways were not so lucky; some had been stepped on repeatedly. It's easy not to notice.

New York is an extremely difficult city for migratory birds, and it is taking a real toll on species that are increasingly threatened. I began writing this testimony over the weekend, and put together a few photos of the birds I had recently seen; then, yesterday morning, Sept. 9, I found five more.[1] Within 24 hours, I found another four. And that's a tiny fraction of what's happening.

From my commute alone, I have more than fifty photos of dead birds, and that's not counting all the injured ones, or the ones I saw before I realized what was happening. There are buildings I have come to dread passing; but I can't change the route I take, because a stunned bird in need of help could be sitting there. The one thing that gives me some hope is this bill, and the chance that it will be a model to other cities.

I very much hope you will pass Int. 1482 as soon as possible, and if possible, that you include language ensuring that the current problem buildings change their glass when next renovated.

For a few examples of what I've been finding, please see the photos on pages 2-4.

[1] Three Common Yellowthroats, an Ovenbird, and a Black-and-white warbler, 9/9/2019.

1. Some recent species I found near my neighborhood. All photos of living birds (here because it's useful to see what the living birds look like) are from allaboutbirds.org.

A. Female or young Common Yellowthroat. Furman Street, Brooklyn, 9/3/2019 and 9/9/2019.


(a)

(b)


B. Possibly a female/young American Redstart, stepped on repeatedly. Smith Street, Brooklyn, 9/5/2019.


C. Likely a young/female Black-throated Blue Warbler, but impossible to be sure. Downtown Brooklyn.


2. A few other windowstrike victims from the NYC area. I have saved more than fifty photos of dead migratory birds, mainly from the past two years; I did not take photos of fifteen to twenty more birds, either because they were injured or because they were encountered before I began keeping track of bird-glass collisions.

White-breasted nuthatch.


White-throated Sparrow, one of at least ten found.


Black-and-white Warbler, one of at least five found.


American Woodcock, one of at least seven found: six dead, one injured (later euthanized).

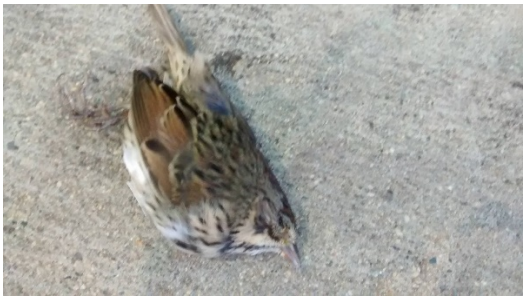

Pine Warbler (a relatively rare migratory bird)


Golden-crowned Kinglet (one of at least four kinglest; two were stunned and rescued)


Gray Catbird


Dark-eyed Junco (one of at least three)


Lincoln's Sparrow (relatively rare; I've only seen them about twice alive)

12 Sept. 2019

Testimony in Support of Passage of Int. 1482: Bird Friendly Glass

Dear members and staff of the New York City Council,

As a years-long resident of New York City, I would like to include this letter in full, vocal support of the passage of Int. 1482: Bird Friendly Glass – not only for the safety and future of the birding populations within the city, but for future generations of New Yorkers as well.

While I wasn't fortunate enough to be born and raised in New York, one of the reasons I elected to transplant – and remain – in New York as a tax-paying resident centers on the world-class opportunities presented to birders in and around the city. Few international metropoles offer the range, the volume, and the spectacle of birding in New York, especially during migratory season. It's one of the city's natural treasures, with which few other cities can compare. Birding in Central Park and Prospect Park, or trips to Jamaica Bay or Pelham Bay, provide not only a reprieve from weeks full of work and demands, but provide further opportunities to share the wonders of the natural world – and of New York City in particular – with friends and loved ones. I've managed to share my love of birding in the city with dozens of other friends already, along with my wife, who has likewise come to appreciate her life in this beautiful city that much more thanks to the opportunities birding has provided.

As such, any opportunity to continue and protect this reality – such as Int. 1482 – must be considered. While any number of threats remain to the wondrous wildlife sharing this city with us, the passage of Int. 1482 is an easy, straightforward, and necessary means to protect the birds trying to navigate northward, southward, or all points in between. The passage of Int. 1482 isn't a panacea; other threats to these birds will remain. But New York City can act as a national, and global, leader in addressing the spiraling reality of threats untreated windows pose to these birds. I can distinctly recall finding flocks of Cedar Waxwings – with their medley of black masks, yellow-tipped tails, and khaki backs – lying dead alongside untreated plate-glass windows, leaving me wondering what can be done to protect similar species in the future.

New York City already maintains a legacy as one of the civic leaders across the country in offering simple, straightforward protections to the natural wildlife sharing the city with us. The passage of Int. 1482 would not only continue this legacy, but assure that future generations – of New Yorkers and birds alike – enjoy all that this city can offer. I sincerely hope, as a tax-paying birder in New York City, that you pass Int. 1482, and continue to provide a model for cities across the country, and across the world, to emulate.

Sincerely,

Casey Michel
129 Park Place
Brooklyn, NY 11217
casey.michel@gmail.com

ENVISAGENICS

101 6th Avenue, 3rd Fl
New York, NY 10013
+1 516-847-5485

www.envisagenics.com
info@envisagenics.com
@envisagenics

Bradley Harris
24 Nassau Drive
Great Neck, NY 11021

September 12, 2019

Re: in favor of Int. 1482-A (Bird friendly glass)

Dear Councilmembers and Council staff,

It is difficult to articulate a personal story well enough to convey the horror of watching birds die en masse from flying into glass. It is even more difficult to express how shameful it would be if we failed to take action—sensible, low cost action that would not sacrifice architectural beauty.

Most people do not realize that New York City is a haven for biodiversity during migratory seasons, but it is. Most think that the City is home to two kinds of birds—those that hunt for breadcrumbs, pigeons and sparrows. However, we are fortunate that up to 20 percent of all avian species in the United States fly through Central Park alone at one point or another during the year.

That is almost 200 species of birds.

We, the public, have a charge to protect them and change the conversation about New York City wildlife. Instead of depending on resource-strapped yet incredible organizations like the Wild Bird Fund to rehabilitate the lucky few that make it to the organization's office, we should prevent the injuries from occurring in the first place.

Please support Int. 1482-A and vote in favor of bird-friendly glass requirements. It is the least we can do.

Sincerely,

Bradley Harris
General Counsel and VP of Operations, Envisagenics
bharris@envisagenics.com
(516) 659-5060

September 11, 2019

Dear Council Members,

Thank you for holding a public hearing to consider Int. 1482, the Bird Friendly Glass bill. Although I could not attend the hearing, I would like to express my support for this bill, and kindly urge you to pass this bill.

I have personally discovered several dead birds near my home, in my Upper Manhattan neighborhood in recent months. I found 2 Yellow-bellied Sapsuckers with damaged bills, on the same day, next to 780 Riverside Drive, at west 155th st. and Riverside Drive, next to Trinity Cemetery. The building's south-facing windows reflect the foliage of street trees and cemetery trees across the street.
I found a gray catbird, with broken neck, outside of 779 Riverside Drive. This building's south-east windows reflect tree foliage from the small park across the street.
These two buildings are almost 100 years old, and yet there is enough glass to cause occasional bird deaths.

As you know, our city has many newer buildings constructed with much more glass- thus causing regular bird deaths.

I visited South street Seaport's Pier 17 (all glass exterior) early this spring. I looked out windows facing south over the Seaport and scaffolding on the building. I saw a dead hawk or falcon and 2 smaller dead birds lying on the top of the scaffolding.

Most recently, I found a juvenile American Robin on the sidewalk, in the shopping area at Columbus Avenue and west 100th street; also newer buildings with mostly glass exterior.

I hope you understand by now that birds cannot see glass- they see the reflection of sky or foliage and think they can fly through it.

I hope you also understand that this city is along the migration path of many amazing bird species and the birds use our green spaces as a rest and refuel stop. The green spaces lure the birds in, and unfortunately, the glass of so many luxury development projects in this city has made the city a dangerous trap for the migratory birds.

It's heartbreaking to see a bird lying dead because of a collision with a window, and an awful way to see birds up close.

Please pass Int. 1482, the Bird Friendly Glass bill, and require newly constructed or altered buildings to use bird-friendly glass on 90% of the building's surface (up to 75 feet high) and above green roofs. Luxury developers must be more responsible and consider the birds in their plans.

Thank you for considering my testimony.

Please pass Int. 1482, the Bird Friendly Glass Bill.

Sincerely,

Angela Scardina
765 Riverside Drive, New York, NY 10032

Yellow-bellied sapsucker

Gray Catbird

September 10, 2019

The New York City Council
City Hall Park
New York, NY 10007

Re: Int 1482 (adoption of bird-friendly glass)

Dear Honorable New York City Council Members,

As a volunteer for NYC Audubon's Project Safe Flight, I have witnessed dozens of stunned or fatally injured birds, lured by the reflective glass commonly used in our City's buildings. I have witnessed these deaths on sidewalks, glass canopies, and terraces during my travel through many of the City's boroughs. Building maintenance crews are quick to remove the carcasses, and when questioned these workers have many tales to tell. At a World Trade Center building, the crew began to describe the remarkable range of types of unusual birds seen. They swept away birds of all sizes, with long beaks, short beaks, and bright colorful markings. The crew described a body count of 2-3 fatalities per day at this WTC building. A maintenance worker at another downtown building responded that he found dead birds "all the time" while he stared dejectedly at the ground. Some killing grounds are not routinely cleaned so the decaying carcasses may pile up, such as at the glass screened World Financial Center Ferry.

Collision Fatality @ Canopy 10-20-2014

Collision Fatality @ Sidewalk 10-04-2016

Collision Victim Taken To Wild Bird Fund

As an architect, I have studied the building triggered bird collision problem for more than a decade. In 2003, the director of The Staten Island Children's Museum was concerned that our recent building addition was causing bird fatalities. As one might imagine, children visiting the museum who witness such a violent end may leave with a deeply disturbing memory. This was a wake-up call at our office, however there was scant information on this issue available to architects at the time. A turning point came in 2007, when NYC Audubon published the first "Bird-Safe Building Guidelines". New York City should be proud of this pivotal moment for both science and architecture. The Guide has been updated by NYC Audubon and The American Bird Conservancy to include new research. Over the intervening 12 years, interest in this research has grown, and now the issue is trending around the world. Science has revealed fatal flaws in the conventional glazing products used in our buildings, and offers guidance to reducing avian collison losses. In 2003, local representatives of large national glass companies were puzzled by my request for bird-safe products, however at the 2018 AIA Convention, displays of bird-friendly glass were prominent at various glass company booths. Glass companies such as Guardian have products in development, and will be able to commit more fully when society also commits to preventing these unnecessary losses.

As a researcher/ educator, I monitor trends in the building industry. Per the World of Glass 2019 Annual Report, there are 38 float glass plants in North America operating 24 hours a day, 365 days a year. With kilns that run continuously, each plant produces as much as 550 tons of flat glass each and every day. Also, per Bill & Melinda Gates 2019 Annual Letter, the world is projected to build another New York City each month until 2060. Locally, per the NYC Department of Buildings, 165,988 permits were issued in 2018 adding 46 million square feet of new space to the City. Also to be considered, the number of permits for renovation work including window replacement. While statistics are not available on DOB's site, new window installations may number in the hundreds of thousands. Please consider the quantity of new windows added, as new windows can be significantly more reflective than old windows. I call these statistics to your attention to illustrate that the bird collision problem is dynamic, and grows larger each day. Some current studies find collision fatality totals as high as a billion birds each year. Without action the staggering number of losses will rise.

New York City has an opportunity to lead the country in addressing this acute avian conservation crisis. New York City is fortunate to draw some of the world's most creative people, and I am confident that with the passage of INT 1482 we can design buildings that provide our diverse array of songbirds, seabirds, and birds of prey safe flight through our City.

Our office strongly supports INT 1482. Thank you for the opportunity to comment.

Deborah Laurel
Prendergast Laurel Architects
143 Duane Street
New York, NY 10013

THE BUILDING OWNERS AND MANAGERS ASSOCIATION OF GREATER NEW YORK'S TESTIMONY ON INT. NO. 1482-A, A LOCAL LAW TO AMEND THE NEW YORK CITY BUILDING CODE, IN RELATION TO BIRD FRIENDLY GLASS

The Building Owners and Managers Association of Greater New York (BOMA New York) appreciates this opportunity to submit the below comments for the record. BOMA New York represents more than 750 property owners, managers, and building professionals who own or manage 400 million square feet of commercial space in New York City. We are an association within BOMA International, a federation of 90 US associations and 19 international affiliates that own and operate approximately 10.5 billion square feet of office space in the United States.

BOMA New York recognizes the significant problem of birds getting injured or killed from flying into building glass that they cannot see, and we support commonsense measures to prevent such injuries and deaths. However, the bill as proposed would present a range of logistical and aesthetic questions that require further study prior to imposing glass-related mandates, even for new construction (see below). Therefore, we oppose this legislation.

Under the Building Code the bill amends, all existing buildings that undergo renovations that would extend floor area space by over 110%, and buildings built to comply with the 2014 building code that replace any glass at all, would also be subject to meeting the bird friendly glass requirements of this legislation. Given the limited number of bird friendly glass products on the market, and the fact that most are only designed for new construction, all existing buildings should be excluded from these requirements.

The State Assembly and State Senate have passed the Bird-friendly Building Council Act, which awaits the Governor's signature to become law. That bill establishes a group of experts to study all the issues related to making buildings bird friendly. Assuming the bill gets signed into law, at a minimum, the City should wait for the recommendations that come from that council's studies before moving forward with this or any other legislation. If the State legislation is not signed into law, the City should undertake a similar effort to better understand all issues related to bird friendly glass and other potential bird protections prior to enacting mandates.

We thank the City Council for accepting our testimony on this legislation.

One Penn Plaza, Suite 2205 . New York, New York 10119 . Phone: (212) 239-3662 . EFax: (646) 706-0503 . Website: www.bomany.org

Support for Int. 1482

Rachel Frank
144 Spencer Street
Brooklyn, NY 11205

Dear Council Members,

I am an environmentalist and resident of Brooklyn. I've been a volunteer at the Wild Bird Fund in Manhattan for about a year and have encountered many birds that have been injured during their migration periods into the city by window strikes. In the Spring and Summer months we often have songbirds including tiny warblers, cardinals, rails, and even hummingbirds that come into the clinic. In the Fall, Woodcocks often also come in with injured wings, broken bones, or shock from hitting widows. New York City is on an important migration path and so many birds are injured and killed each year from window strikes. I strongly urge you to support this bill **(Int. 1482)** which will help prevent these injuries and deaths and create a safer migration path for the many wild birds that pass though our great city.

Thanks,

Rachel Frank

--

http://www.rachelfrank.com

Dear Councilmembers,

I am writing this letter of support for INT 1482 as a bird lover.

As the lights of 9/11 remembrance as just gone in the night on this day, September 12, 2019, I want to also remember the birds, the living beings which fly and are trapped and stunned in the lights every year.

Though I lived in NYC and survived that horrific day, I oppose the 9/11 lights of remembrance for the reason that they harms birds every year, bringing more death to the site of grief, increasing my own mourning for the day, and reminding me of all the unjust deaths caused by succeeding American wars after 9/11/2001.

But mainly I am writing to you about **INT 1482.** We have a unique opportunity in NYC to be leaders in making **bird friendly buildings and glass** a standard, and we should take it!

This is a no brainer. We all know how important birds are in our ecosystem. We know that because of climate catastrophe, the 6th Extinction is unfolding. Birds are our friends, they are not only beautiful and songful, they eat insects that often pose costly health threats to humans that involve urban responses such as spraying, and these human responses to climate-related insect threats cascade into more problems in our environment still. We are all related.

The birds that migrate and crash into buildings that do not have the right kind of structure and glass are usually migrating birds that give many a New Yorker joy in our big city ruckus.

They say that bird song has diminished in the past decade —I notice this in the mornings already. How much I would miss their diminshing but nevertheless still surprising, insistent and gentle birdsong in the morning, if we carelessly deplete these important birds!

Support INT 1482! It is the right thing to do for birds and humans alike.

Sincerely,

Lee Gough
5 East 2nd Street
Brooklyn, NY 11218

Leegough.net
leejgough@gmail.com

cc: Molly Adams, NYC Audubon

I am writing to urge you to support Int. 1482 also known as "Bird-Friendly" Glass Bill.

Dear City Council members:

I am a member of the **American Museum of Natural History** and I support and participate in Linnaean Society public initiatives.

Therefore, I am writing to urge you to support **Int. 1482** also known as "Bird-Friendly" Glass Bill.

Thank you for you kind attention and support,

WILLIAM PAPP

UWS Residents Association
MEMBER OF LINNAEAN NYC
MEMBER IF NYC AUDUBON
NEW YORK, NEW YORK

<willpapp@nyc.rr.com>

Please support Int. 1482

Please support **Int. 1482**. I have rescued several birds after seeing them crash into a window. I have found others that were not so lucky. This seems like an easy way to set a precedent and do the right thing.

Thank you.

Lori Benson
Sea Cliff, NY 11579

<loribenson9@gmail.com>

Int. 1482

Hello,

I’m writing in regards to Int. 1482 and to express my support of this initiative and concern for the thousands of birds that perish every year in glass window collisions. Our bird populations are so vital to our ecosystem and I would like to personally request your support of Int. 1482 and the installation of bird-safe glass in city buildings. Thank you for considering the importance of this initiative that will help so many important bird species.

Respectfully,

Lauren Sopata

3653 Avocado Village Court

La Mesa, CA 91941

<lsopata@msn.com>

I Support Intro 1482 - testimony attached.

Dear City Council staff members,

Thank you for hearing testimony on Intro 1482, the Bird-Friendly Glass bill. I strongly support this bill. Attached to this email in a Word document is my testimony, as I was unable to attend the hearing this morning.

Thank you again,

Galicia Outes
Park Slope Brooklyn

September 11, 2019

Galicia Outes
317 3rd Street apt
Brooklyn, NY 11215

To City Councilmembers and Council staff:

I support Intro 1482, the Bird Friendly Glass bill, which would require newly constructed or altered buildings to use bird-friendly glass on 90% of the building's surface (up to 75 feet high) and above green roofs.

Bird-friendly glass' technology makes the glass pane visible to birds. Normal glass reflects the sky and surroundings and therefore birds don't see it as a solid object and fly into it. According to the Audubon Society, an estimated 90,000 – 230,000 birds die every year in New York City alone due to collisions with windows. On a national scale, up to a billion birds die every year in the US due to window collisions. Considering all the other environmental pressures birds are facing, such as pollution, insecticide use, and habitat destruction, bird populations cannot withstand such a negative impact, especially when there are easy fixes to the window collision problem. And because New York is along the Atlantic Flyway, a pathway that approximately 500 species of birds follow when they migrate biannually, 40% of which are of conservation concern, inaction to protect birds from such a huge cause of mortality is unconscionable.

As a wildlife rehabilitator working in New York City, I see the impacts of window collisions all the time. From tiny finches to large raptors like Red-tailed Hawks, from common, residential birds like sparrows to migrating birds like the strange-looking American Woodcock, no bird is immune. They are brought in stunned, confused, unable to fly, some without the coordination to walk without falling over, which is heartbreaking to watch. Some have injuries to their scalp; often they have terrible looking eye injuries. We afford them a safe place to recuperate, and some analgesic anti-inflammatories, but because they're suffering from head injuries, the most we can do is just provide supportive care and hope they recover. Many do not.

Many cities in North America have been working on the issue of making their cities safer for birds by reducing light pollution and requiring bird-safe glass for years. Toronto City Council in 2005 adopted a motion to prevent unnecessary bird deaths that soon led to that city's Bird-Friendly Development Guidelines. For almost a decade all new construction in Toronto and all retrofits require bird-friendly glass. The best practices they have subsequently developed with stakeholders including the public, architects, planners, designers and the development industry could be helpful as New York City starts to tackle this problem. But we need not look as far as Canada for success stories with bird-friendly building design. The Javits Center, its massive all-glass structure perched right on the Hudson River, was a huge source of bird mortality, and was rated as one of the top three bird-killing buildings by the NY Audubon Society (which is saying a lot in a city with so many glass highrises). During its redesign, it was retrofitted with bird-friendly glass, and mortality due to window collisions there dropped by 90%! As an added benefit of the glass, along with other measures, the building is also more energy efficient.

There are many different kinds of bird-safe glass and many ways to make buildings bird-friendly. Most types of bird-friendly glass have no impact on the clarity of the glass or the aesthetics to human eyes. As someone who cares for and loves birds, and as someone who cares about the environment and knows how important birds are for ecosystems, I hope my home city joins other caring and progressive cities to protect birds – both our avian fellow-residents of NYC, and those passing through on long, hard migration journeys. Requiring the huge number of buildings constructed in NYC to have bird friendly glass would have a huge, positive impact.

Thank you for considering my statement.

Galicia Outes

Please pass these bills

Good evening, My name is Ethan Tran and I am a proud resident of NYC.
I am writing today to support Int., 1482, which requires buildings to use bird-friendly glass. 90,000 to 230,000 birds die every year in NYC as a result of colliding with glass buildings. It is unethical and inconsiderate that lavish buildings do not add a simple enhancement of bird-friendly glass.
Consequently, I implore you to please support Int. 1482. Only recently in history did people laugh at and mock women's rights, civil rights, and gay rights. It is 2019, and look how far we have come. Animal rights will one day become just as important.
You, as a council member, have the opportunity to be on the right side of history. Thank you for your time. I can be reached at etran12@terpmail.umd.edu or 347-933-1637.

Best, Ethan Tran

--
Ethan Tran
University of Maryland, College Park
Computer Science (Class of 2021)
Brooklyn, NY
Mobile: 347-933-1637
Email: etran12@terpmail.umd.edu

In support of Int. 1482

September 12, 2019

Dear Honorable Council Members,

I strongly urge you and the entire City Council to pass Int. 1482 into law. Only 3 or so hours ago, on my rooftop in the East Village (I'm lucky enough to have access and grow flowering plants up there), a hummingbird graced my garden with its impossible hovering flight. A hummingbird!—right in the middle of Manhattan! Like millions of other birds, this tiny wonder is passing through on migration, stopping to rest and refuel. It breaks my heart to think this very same bird might soon lie still and cold on Manhattan asphalt, its neck broken from a window collision, as happens to thousands of birds each season. I've found far too many dead and injured birds myself, on the sidewalks of midtown near my office.

As a volunteer educator in our city's public schools, I know the power of birds to change our students' perspectives, to be a gateway into learning about our natural world and science in general, and to bring joy into their lives. It's incumbent upon us to do what we can to preserve this asset for future generations. And as an African American, I feel particularly strongly about making sure our underserved communities have access to this remarkable and free resource that can change lives. (Check out the first few moments of Bronx native Jason Ward's *Birds of North America* YouTube series, and you'll see what I mean.) *But we have to help the birds survive, or they won't be around to lift us up.*

Pressures from climate change and habitat destruction are taking an ever increasing a toll on our birds. But by mandating the use of bird-safe glass in new and renovated construction, we have it in our power to relieve at least one pressure that's contributing to their demise. The birds will give us back much more in return…but don't take my word for it; I invite you at your convenience to visit my humble little garden and experience it for yourself. I can't promise that the hummingbird will show…though she's been visiting off and on all week, so chances are good!

Please give your strongest support to Int. 1482.

Sincerely yours,

Christian Cooper

619 East 11th Street

New York, NY 10009

Bird Friendly Glass Bill (Int. 1482-A)

I am a long time birder and NYC resident who is writing in support of Int. No. 1482-A.

NYC Audubon estimates that 90,000 - 230,000 birds, representing 100 different species, die annually from bird strikes in NYC. Many of these collisions occur during Spring and Fall migration, as New York City lies on a major migratory pathway (the "Atlantic Flyway"), and birds are traveling between their wintering and breeding grounds. The reflective and transparent glass on buildings is the primary cause of these deaths, and it is heartbreaking to witness. Despite numerous complaints, supported by ample photo documentation supporting this problem, building contractors do almost nothing to remedy the situation, mainly because the current building code does not require them to.

A law requiring the installing bird-friendly glass on newly constructed or altered buildings would go a long way towards alleviating this problem.

Please support Int. 1482-A.

Many thanks in advance from your kind attention to this matter.

Sincerely,

Karen Fung
370 Riverside Drive
New York NY 10025
easternbluebird@gmail.com

Bird Friendly Glass bill (Int. 1482)

Dear council members,

I am writing to request your support of **Bird Friendly Glass bill (**Int. 1482**)**
As stewards for the earth, it should be our duty to avoid unnecessary injury and death to the bird population, including migratory birds, particularly since we are the ones occupying their air space with our buildings. I am highly concerned the increasing number of high rise glass buildings will make matters worse. Please support passing this bill.

Thank you.

Louis Schefano
816 43rd Street
Brooklyn, NY 11232

<lschefano@gmail.com>

Int 1492 Testimony

I am writing a letter to you in support of initiative 1492 to require bird-safe glass for our city's tall buildings.

As a nature lover and New York City resident, I have personally rescued one of these small feathered migrants, a Woodcock who collided with a building . The poor bird was dazed, huddled on the sidewalk, between cigarette butts and blobs of spit, in front of an Irish Pub, unable to move after colliding with one of the tall buildings in my neighborhood (Midtown East). People stared and tried to poke him...he was trembling.

He looked so helpless, a piece of nature out of place. It was hard to think our beautiful city had rendered him injured, flightless...scared and far from home. I brought him in for care...I don't know if he died or lived. I hope he lived.

As you probably know, Mother Nature is in a battle for her very life right now. Our federal administration and president seem to feel She has no value, other than as fodder to be dug, scraped, polluted and drilled for mankind's existence. This is no visionary way to build a workable future...for either nature, or for ourselves. To me, New York City has always been about the future, about vision— and about setting the pace for our nation: about making bold, positive, moves. About changing with the times...through desire, and through innovation.

Let's make a bold move to protect these beautiful, important birds...these precious species passing through our city...let's start helping them to them pass through unharmed.

If they could speak, they would ask you the same.

Sincerely— and in urgency,

Susan Connor
349 E 49 St.
New York, NY 10017
<susanconnorny@gmail.com>

Please Support Bird Friendly Glass Bill (Int. 1482)

I am a casual birdwatcher in what must be one of the unlikeliest of bird havens in the world, New York City!

As you must have already heard from countless letter writers and constituents, twice a year, our city's location on the Atlantic Flyway draws more than 100 bird varieties, creating a spectacle of colors, calls, and songs worthy of a Broadway show albeit in the convenience of our neighborhoods and at no monetary cost to us.

When I first became aware that NYC had birds more exotic than just common pigeons, I was at a playground on a spring day, watching my toddler daughter play in the sandbox. I heard a hauntingly beautiful whistle of a song that pierced the air like crystal glass and rose above the children's din. The bird, completely invisible to me at the time, kept repeating and repeating its melody and seemed to pour its heart out. I spent the next few months trying to identify what kind of bird this star singer was. I caught the birding bug, started spending weekends in autumn and spring walking around the parks with binoculars. I found out that the mystery bird was a hermit thrush, famous for its exquisitely haunting song.

I then began to notice birds of all colors and sizes lying motionless on sidewalks, particularly early in the morning and during migration seasons. The last bird I found semi-conscious was outside the Time-Warner Center at lunch time, with hundreds of oblivious pedestrians rushing about their business. By the time I took the bird to the Wild Bird Fund, it was dead. It was a hermit thrush.

We're living in a period where animal and plant species are disappearing forever at a rate of thousands per month. From our homes in the five boroughs, we may not wave a magic wand and stop the Amazon fires or other catastrophes in the world. What we *can* do - and at very little cost and inconvenience - is use easily available glazing or filters on windows so that birds realize they are obstacles and do not crash into them.

I kindly appeal to you to support Intro 1482, the Bird Friendly Glass bill. Time is, unfortunately, of the utmost essence. We must act fast and prevent the unnecessary loss of further lives. Each of these birds is not only an important link in the natural balance, but is our connection to something bigger than ourselves.

Please vote in favor of Intro 1482.

With my sincere appreciation,
Zeynep Semin

225 West 83rd St.
New York, NY 10024
zeyni99@yahoo.com

In support of passing the Bird Friendly Glass bill (Int. 1482)

Dear Members of City Council,

I wholeheartedly support the Bird Friendly Glass bill (Int. 1482) and am delighted that the City Council is seriously considering its acceptance to ensure that all new building construction in New York City is made with bird safe glass. I own 19 Perry Street in the West Village of Manhattan. It's a townhouse that is only 4 stories high and I have had to put bird safe film on the north-facing windows. Without the visually disruptive film, birds would fly into my reflective windows and many were killed. I know first hand how tragic this can be and how often it can happen - in one week during a particularly busy fall migration, one reflective window killed 6 birds.

I am a birdwatcher and also involved in conservation, serving on the board of Audubon New York and BirdLife International's Advisory Group. I can assure you that making buildings safer for birds is a crucial conservation issue world wide. It's especially critical in New York City which lies directly under one of the busiest bird migratory flyways. Not surprisingly, despite its urban location, Central Park looks like an oasis to a migrating bird and as a result, it is considered by Smithsonian Magazine, to be one of the top 5 places to see spring migration in North America. There are a lot of species of birds which pass through our city, and as Central Park is a known bird "hotspot", it should be noted that birds also attract tourists who are birdwatchers visiting from around the globe, and who spend money in NYC to see them.

It is estimated that 90,000-230,00 birds each year are killed in NYC by collisions with buildings, and the number of birds killed globally is over one billion. The numbers point to a massive biomass which is taken out of the natural ecosystem by birds striking glass. It seems incumbent upon every urban area to do what it can to mitigate this issue, and this bill goes a long way towards doing that for New York City.

Bird safe glass is readily available, very attractive and can be found meeting LEED requirements. Unsafe glass is easily retrofitted with bird safe film, screens or a variety of other readily available and easily installed products. New York City has an opportunity to be a leader and innovator in conservation by passing this bill and helping to make our city a safer place for birds. As a building owner who has retrofitted unsafe glass on her own building to make it bird friendly, I absolutely support the passage of this bill, and hope you will vote to make it law.

Many thanks for your consideration -

--
Deborah Rivel Goodale
Wildtones/Wildsight Productions, Inc.
19 Perry Street
New York, NY 10014
Twitter: @wildtonesmobile
WildTones.com
birdwatchingnycli.com
Birdwatching in New York City and on Long Island -- UPNE, May 3, 2016 publication

Written testimony in support of Int. 1482

To whom it may concern,

My name is Andrew Reiter. I am a resident of 540 W 165 Street 10032 in Washington Heights. Firstly, I would like to thank the City Council for the opportunity to submit written testimony in support of Int. 1482. As a New Yorker and a lifelong lover of birds, I feel it is my duty to write to you, pleading for your support of the Bird-Friendly Glass initiative.

NYC Audubon estimates up to 230,000 birds are killed each year by flying into glass buildings and windows in New York City alone. Now you may be inclined to think, "well that's their own fault for being dumb enough to fly into glass," but who among us has not walked into a sliding glass door? And if you yourself are too proud to admit to having done such a thing, surely you must know some other fool who has.

Like we fools, birds can only see through the glass, not the glass itself. Sometimes, they see only the reflection of the sky and soar full-speed ahead into heaven rather than *the* heavens. Bird-safe glass prevents this with a coating that is visible only to birds (most birds see in a UV spectrum!) while we humans can enjoy the full benefits of natural light and beautiful views.

You might still be thinking "why should I care?" New York City, after all, is full of birds that are often considered a nuisance. But the pigeons, starlings, and house sparrows that have so well adapted to city life are not the birds that break their necks flying into glass. It is the colorful and often uncommon migratory birds that funnel through the city each spring and fall for whom glass buildings are a major obstacle. Additionally, such bird-unfriendly architecture imperils New York's beloved raptors, including red-tailed hawks and peregrine falcons.

Birds enrich New York City and help shatter the illusion of Nature existing only somewhere "out there" rather than being right here, under our noses, in the so-called concrete jungle. Hundreds of species of birds call New York City home, and inspire New Yorkers with their song, plumage, and Jurassic charms, just as they inspire people everywhere.

And if you're still not convinced, consider the number of mosquitoes, spiders, ants, millipedes, flies, and roaches that would infiltrate our homes were it not for the robins, swallows, warblers, and jays that eat them. Or better yet, think of the great-grandchildren of Central Park's infamous Pale Male doing their part to rid their city of its rat problem.

Life is hard enough for a bird. Hundreds of acres of forests are cut down daily, invasive predators ravage native species, and the federal government is doing everything in its power to loosen the protections already in place for wildlife and the places they call home. New York City is a haven for so many of us. Why not let it be a haven for birds too?

With conviction,

Andrew Reiter
<andrew.reiter33@gmail.com>

Bird Friendly Glass bill (Int. 1482)

Dear council members,

I am writing to request your support of **Bird Friendly Glass bill (**Int. 1482**)**
As stewards for the earth, it should be our duty to avoid unnecessary injury and death to the bird population, including migratory birds, particularly since we are the ones occupying their air space with our buildings. I am highly concerned the increasing number of high rise glass buildings will make matters worse. Please support passing this bill.

Thank you.

Valerie Landriscina, RA
816 43rd Street
Brooklyn, NY 11232
<vlandriscina@gmail.com>

Support for the Bird-Friendly Glass bill, Int. 1482

My name is Rebekah Creshkoff, and I am the person who first began documenting bird collisions in New York City 22 years ago. In April 1997, I started going downtown early in the mornings to check 10 buildings in the World Trade and World Financial Centers for birds that had hit windows.

That first year, working alone, I found 413 casualties, 296 of which were dead. The remaining 117 were injured, many severely so and unlikely to recover; the city lacked good options for bird rehabilitation in those days. I found an additional 49 collision victims at other locations around the city.

These were not pigeons, starlings and house sparrows. These birds represented more than 53 different species, all protected under the federal Migratory Bird Treaty Act of 1918. It is actually unlawful to kill migratory birds.

To find a dead bird and hold its still warm but lifeless body in your hands is heartbreaking. To find a live one and try to rescue it without injuring it further is stressful beyond belief. I have done both more times than I care to remember.

I have seen birds fly into reflective glass facades that trick the eye by mirroring nearby shrubs and trees. I have seen birds fly into clear glass curtain walls that offer a view of potted plants inside a building, or that appear to show a safe flight path *through* a building.

Tens, perhaps hundreds of thousands of birds die each year in New York City as a result of colliding with glass buildings. And of course we are not unique: Birds migrate across the entire continent, and every city they pass over poses a potential hazard. Altogether, as many as a billion birds may die each year after colliding with windows.

Now the New York City Council has the opportunity to help stanch this utterly useless flow of avian life. I fully support the Bird-Friendly Glass bill, Int. 1482, and urge you to do the same.

Sincerely,

Rebekah Creshkoff
Formerly of the Upper West Side for more than 40 years, through Feb. 2018; now of
644 River Road
Callicoon, NY 12723
<rcreshkoff@hvc.rr.com>

Support for Bird Friendly Glass bill (Int. 1482)

Dear Members of the NY City Council,

I write to you in my capacity as a constituent (currently of CD 39) and lifelong resident of the City of New York to express my support for theBird Friendly Glass bill (Int. 1482).

Our aviary friends are a key part of city life -- from the iconic pigeon to the under-sung sparrow to the press darling Red Tailed Hawk.

The recent high-rise development in the City has made it an evermore hostile environment for these birds, and the 100,000s of others who migrate through the city each year. Many die or are gravely injured when they collide with glass that seems designed to harm them.

Please support the Bird Friendly Glass bill (Int. 1482) and help make the city safe for feathered New Yorkers. Thank you.

--

Andrea Marpillero-Colomina

<andrea.vm.colomina@gmail.com>

Pass Int 1482!

Dear Council members,

I write to express my STRONG SUPPORT for Int 1482-2019 that would mandate the use of bird-friendly glass in New York City buildings. I urge the Committee to bring the bill before the full council so that it can be enacted into law as quickly as possible.

Too often, I've come across dead birds on the sidewalk in Harlem that have been killed from glass-strikes, and the experience has always been heartbreaking. It is estimated that **90,000** to **230,000** birds die per year in New York City from glass collisions.

Other cities have enacted bird deterrent measures in their building codes. It's time for New York City to step up and protect our feathered friends from destructive effects of the man-made environment as well.

Sincerely,

Thomas H. Collins
418 West 130th Street
New York, NY 10027
<thcollins@nyu.edu>

Hello,
I am writing in support of the bill that is currently being considered requiring bird safe glass for new buildings being built in New York City, and maybe consideration could be given to existing buildings as well.
I live at W107th St and Central Park West and enjoy watching birds in the park. But there is a building at 110th St and Frederick Douglass called the Circa, where birds are found almost daily during migration which have been injured or killed by flying into the glass.
Terence Zahner, a fellow birdwatcher, has been very dedicated to documenting the birds he finds at this one building alone! Here is the link to his information: https://www.inaturalist.org/observations?place_id=any&project_id=circa-central-park-window-collision-victims&subview=grid&verifiable=any
Audubon of MYC also maintains a database called d-bird, documenting the birds that have been found dead on NYC Streets.
Now those are just the ones that were documented. I ache to think how many more are not documented.
The options for preventing the bird strikes are not that much more costly and actually help with energy savings for the buildings. The Javits Center has been very successful in reducing bird strikes to its glass facades by installing bird safe glass.
We need to do everything in our power to preserve the natural world that surrounds us and that we are an integral part of.
Please support this bill to help the migrating and local birds!
Thank you for considering!
Best Regards,

Ursula Mitra
467 Central Park West
New York, NY 10025

ursula.mitra@verizon.net

Dear Mr Brandford,

I’m writing to confirm my support for the Bird Friendly Glass Bill.

Best,

Beth Haymaker
Brooklyn, NY

Elizabeth Haymaker

elizabeth.haymaker@gmail.com

Please support the Bird Friendly Glass bill (Int. 1482)

Council Member Austen Brandford,
Please support this important bill. As a resident of Washington Heights, where we now routinely see Bald Eagles gliding down the Hudson, this bill is vital for the overall well-being of the residents of the city of New York. Supporting it is simply the right and honorable thing to do.
Ric Brown
350 Cabrin Blvd. NYC 10040.

B. Ricardo Brown, PhD
Professor of Social Science and Cultural Studies
Faculty page: http://tiny.pratt.edu/?i0Db143hc

_____

https://twitter.com/UntilDarwin :|: https://twitter.com/RUINSNODE801

Ric Brown

brbrowniii801@gmail.com

Bird friendly glass please!

Good morning,I’m in total support of these programs. Hopefully my subtle voice can make a difference. Have a very bird friendly day,enjoy their lovely songs every morning!

Karen Hue

kopilady@gmail.com

Int. 1482-A Bird-Friendly Buildings Bill

Hello,

I am writing to urge you to support the Bird-Friendly Buildings bill - Int. 1482-A.

I am a Forest Hills, NY native--much of my family has lived in Queens since the early 1900s. I've been a resident of NYC for many years, attending college at New York University and living in Queens, Brooklyn and now Manhattan. I now work at the National Audubon Society, which is dedicated to protecting birds and the places they need, today and tomorrow.

Protections for birds and other wildlife has been extremely important to me my entire life, and should be important to us all. **We have the opportunity to be a voice for the voiceless.** Migratory birds are tiny, brilliantly colorful creatures who, despite their delicacy, manage to complete a journey thousands of miles long twice a year, in spring and fall. Their migratory feats are truly amazing, and yet we contribute to their deaths along the way with our glass-covered skyscrapers and buildings. These glass surfaces consistently slaughter these birds, as well as our local resident birds who do not migrate. Mating pairs are separated and killed, and young fledglings making the journey for the first time are stopped dead in their tracks.

A **billion birds** are killed every year due to building collisions. We have the opportunity to change that terrible number. Birds are already facing immense threats with climate change, habitat loss, unnatural predators--we do not need to add to those stacked odds with our own buildings.

Please support this bill and ensure that birds have a future. They are a crucial part of our ecosystem and **half of US species are already on the brink due to climate change.**

Thank you for your time and please take a stand and urge your fellow council members to support this bill.

Holly Mascaro
40 W 72nd St, New York, NY 10023
<hollylainem@gmail.com>

In support of Int. 1482 - Bird Friendly Glass Bill

Dear Council Members,
Thank you for listening to the testimony of bird lovers around the city on Tuesday morning. I was unable to make the meeting but am writing now in support of Int. 1482. I urge you all to pass the Bird Friendly Glass Bill to make our city safer for migratory birds (and our own little birdies that call NYC home). With the attacks coming from the federal government regarding loosening restrictions for wildlife conservation, it is an especially critical time to protect wildlife.

NYC is a crucial stopover for birds during migration season. These birds travel, literally, thousands of miles and they need to refuel during the migration flight. NYC (especially Central Park) is a beacon to them and they come down to feed for their next leg of migration. Along with those migratory birds, tourists also come from thousands of miles to see this wonder of birds and tourists bring needed funds to our great city. Imagine the tourists walking around seeing dead/stunned/maimed/concussed birds - it's not a great look for the city. We need to protect these birds!

Please pass the Bird Friendly Glass Bill and know that you have taken a huge step to protect our wildlife.

With respect and thanks,
Alicia Williams
<acw2007@gmail.com>

I support Int. 1482 for the birds!

Dear City Council Members,

I support the Bird Friendly Glass bill (Int. 1482), and I implore you to do everything you can to support wildlife here in the city.

As a college student, I was an environmental steward on Long Island for the Piping Plover, an endangered species. I spent four summers heartbroken over the predation of these birds, and by the recklessness and ignorance of citizens who acted like the beach belonged to only them. I was also encouraged and shared the joy of the field biologists I worked with, who carried on the childlike enthusiasm for nature into their careers. They asked questions, like if you were a bird, which one would you be? I caught this enthusiasm, and I carry it with me now in my hobbies and interests.

I want my city, my home, to be bird friendly. When birds collide with the window to my apartment it breaks my heart and makes me feel powerless. Your action in supporting the Bird Friendly Glass bill would mean we as New Yorkers care about birds, and understand the importance in the environment and in our daily lives.

Please support Int. 1482 for bird lovers and soon to be bird nerds.

Best Regards,

Anna Stypulkowski

2583 41st Street
Astoria, NY 11103

amstyp@gmail.com

Re bill 1482 bird flight safety bill

Hi C.Kim,
I understand that Bill 1482 Bird safe Buildings Bill is n front if the NYC Council. Please vote to support this bill. There are some 90,000 -130000 birds that die each year because of the glass towers that are in the city. This bill will be a start to making sure new buildings are built with glass that won't cause these fatalities. We should be looking to the State as they have passes an even more protective bill. We in New York City should lead the way - what with 67 million tourists, global business and The UN here-in demonstrating how humans can stop being the force of destruction to other species and the planet. This is the only way humans will survive, if we recognize that we are all living on a fragile ecosystem and what harms one group negatively effects the others and we protect all.
Thanks,
Regina Burke

<CKim@council.nyc.gov>

Please Support Int. 1482

Members of City Council-

I am writing today to express my support for Int. 1482, a measure designed to save birds from the dangers of our great city.

A conservative estimate posits that 90,000 birds die each year due to building collisions. This sort of persistent, preventable tragedy is heartbreaking. Were these cats, dogs, or any other animal, the humanitarian outcry would be ceaseless, and inaction derided as monstrous. I have lived and worked in and around New York City for a decade, and seeing dead birds on the ground in our streets and avenues is unsightly, unsanitary and preventable with a measure such as this.

This is a simple fix for developers and architects, and will beautify and enhance our city without a single cent coming from the public at large. We must keep birds in our city for the birdwatchers, for the old folks who tear up bread near the east river, for the kids who chase pidgeons, and for my two cats who treat a bird near the window as an object of wonder and delight. We are here, but so are they.

Thank you for the opportunity to contribute to the discussion.

Sam Fox-Hartin
2583 41st Street
Long Island City, NY 11103
<samfoxhartin@gmail.com>

Andrew Garn
230 East 15 Street
New York City 10003

Re: In support of bird safe glass
Int :1482

To New York City Council members,

Dear Sir/Madam,

I am long time volunteer at the Wild Bird Fund, author of *The New York Pigeon* and injured bird transporter for NYC Audubon. I have rescued and seen care given first hand to many hundreds of birds that needlessly collide with buildings in NYC every year.

This bill addresses this problem and helps our migrating and native birds have an easier time, as they navigate throughout our city, I urge you to support this bill!

Thank you,

Andrew Garn

We SUPPORT Int. 1482.

Greetings:

We are writing in support of Int. 1482. We have in the past, found numerous birds who have been stunned, injured or killed after striking windows. Outside of the Ford Foundation, which has an indoor forest (please see photo below), I found a gorgeous yellow little bird on the ground. Sadly, he/she was dead. The bird must have seen the trees inside and struck the glass trying to reach them. Countless birds are suffering and dying. This is why we support Int. 1482. Thank you for your time. Sincerely, Peter Wood and Elaine Sloan. 10 Mitchell Place, NY, NY 10017.

Peter Wood

nativeofny1@yahoo.com

Bird safe glass

I am writing to urge you to support **Int. 1482** also known as "Bird-Friendly" Glass Bill.

Susan Gill
136 West 80 Street
New York, NY 10024
<susangrossel@gmail.com>

9/12/2019

Heidi Cleven, PhD
648 Union Street
Brooklyn, NY 11215

Re: Int. 1482

Dear City Council Members,

My name is Heidi Cleven, and I am a mother raising two wonderful girls. I have a degree in conservation biology - and I am also a birder here in NYC!

I wholeheartedly support the Bird Friendly Glass bill, Int. 1482.

Each year, millions of birds end up as window strike victims in the US alone. This is a tragedy, and a significant contributing factor to declining bird populations. Birds are already struggling to survive the hardships humans have created for them, including habitat destruction and climate change. It is vital that we do everything we can to help ensure their survival.

New York City, which is within the Atlantic Flyway, sees millions of birds pass through during migration. The reflective glass used by almost all buildings presents an extreme danger to the birds as they navigate their way through the city leading to numerous and deadly collisions. I myself have found dead and dying birds on sidewalks, clearly window strike victims. I have had a beautiful Blue-headed Vireo die before my eyes on the subway while transporting it to the Wild Bird Fund (please see attached photos). For me, this was a deeply disturbing experience. New York City has a chance to do something about this, and set an example to the rest of the world, by passing bill Int. 1482. These deaths can be avoided if buildings use bird friendly glass.

I ask you all in earnest that you find it in your hearts to support this extremely important bill for the sake of the birds, and for our children who will hopefully be able to enjoy them now, and in the future.

Sincerely,
Heidi Cleven, PhD

Writing in support of Int 1492 Bird Friendly Glass bill

Hello,

I wanted to voice my support of Int 1482, the Bird Friendly Glass bill. Enclosed are photos I've taken in my travels as an average NYer of bird collision victims. These are unnecessary deaths of important species. In 2019 NYC, this should not occur & with this bill would no longer occur. Me aside, a child walking down the street should never see this, be upset by this, & very importantly, not wonder why this wasn't prevented when it could have been. Please make Int 1482 a reality and NYC bird glass collision fatalities ancient history.

Respectfully,

Victoria Booth
Brooklyn NY

<vtbooth@yahoo.com>

Council Int. 1482

From : Alan Messer
artist/illustrator
215 W 91st #104 NY NY 10024 (in Helen Rosenthal's district)

Dear Council members,

This note is in support of the pending Building Code for Bird Friendly Glass, Council Int. 1482. I'm sure you've received a great many cell phone images of migrant birds, dead in our streets from window strikes. Yes the problem is significant. Iv'e been following conservation news for decades. I will be leading another one of my bird walks for the New York Historical Society, this September 22nd. Yesterday a birder noticed me in Central Park from the program photo and said she missed out again this year: "they sell out the same day it's posted". Believe me, it's not me, people come to see. Folks love the birds. Birding is, and is becoming a bigger, economic deal. As a climate educator I relate this message; "The plants and animals that will make it through the climate crisis, will be those that we make allowances for."

How cool would it be, and a tourist hook, for NYC to be known as a bird safe-glass town? Very cool I say. And we save more of the international wildlife heritage that uses our city in migration. How's this one: "NYC International Wildlife Refuge". I like it. Whales, seals, and menhaden fish like what we've done for the Hudson. Spread some love upstairs no?

Thank you all for your consideration.
Sincerely, Alan Messer www.alanmesser.net

In support of Intro 1482

Dear Councilperson,

I am writing to add my voice to those who are supporting Intro 1482 in the sincere hope that you will pass this bill.

In every aspect our lives-literature, music, art, dance, religion, high and low culture- there are birds. In our ecology and environment they are irreplaceable. They bring us joy and enrich our lives daily. It is incumbent upon us to preserve and protect them wherever, whenever, and however we can.

I have watched the City Council meeting of Sept.10--the video on Ch. 25-2 of recent past City Council meetings is a wonderful way to see these meetings when you can't physically attend. I am heartily in agreement with all those who personally testified about the necessity and the feasibility of this bill. The Audibon Society and the various architects were were especially informative and persuasive. The three young schoolboys who spoke were particularly moving. They testify to the values and concerns of those who come after us, and remind us of our obligations to them as custodians of the world they will inherit.

I was gratified to see that Rita McMahon of the Wild Bird Fund was also there, adding her valuable voice to this endeavor. If anybody knows the extreme need for this bill, it would be Rita. I know this because I am a volunteer at the WBF myself. I have logged over 300 hours there, and anyone who has worked there in any capacity knows that it is at the front lines of what almost seems like a war between our city and our wildlife. I have personally aided in triaging and treating these poor wounded creatures. I have witnessed the valiant efforts of the rehabbers to save these birds, and the way these little souls fight to live. It is painful and tragic.

There are so many who dedicate their time to trying to save these tiny, irreplaceable feathered jewels-the Audubon volunteers who monitor the most bird dangerous buildings, the citizens who try to save these wee fliers, who transport them to the WBF, the devoted WBF staff who are constantly working long hours to treat them. It. Is mentally and physically exhausting, as well as expensive, consuming a great deal of limited financial resources. And just darn sad. The little corpses of those who don't make it fill the morgue freezer.

Imagine if we could make all this disappear—or at least up to 90% of it—as evidenced by the Javits Center-just by replacing the transparent building windows with bird safe ones. We are the Empire State. As all New Yorkers know, New York City is the center of the universe, and the leader of the known world (wink). WE should not be lagging behind Chicago, San Francisco, Oakland, etc. We are smack dab in the middle of a major migratory flyway. We put up roadsigns on our highways. Let's do the same for our avian travelers. Every bird we can save is one small step in saving our lovely, biodiverse planet. We have the knowledge and the means and the will. All those who previously testified gave you the statistics. Now we are giving you our voices as well. Do this.

Thank you for your time and your commitment to seeing Intro 1482 pass forward and hopefully into law!
Sincerely,
Helaine Sorgen
323 East Ninth Street
NYC, NY 10003

I am an architect in support of The Bird Friendly Glass Bill (Int. 1482)

Dear City Council Members,

My name is Thomas Faust and I am a registered architect working in New York City with 12+ years in the field. I am also a passionate birder and care deeply about how our built environment and design choices impact not just birds, but all living creatures who call our cities home. As both an architect and wildlife enthusiast, I'm very aware of the sad and preventable bird collisions and deaths that occur throughout our country's cities and suburbs, and it concerns me greatly as often these collisions are the result of purely aesthetic choices made by my fellow architects and designers. Sensible building codes have long been enforced preventing architects from placing building occupants in harm's way (in terms of fire prevention, emergency egress, necessary light and air, maximum occupancies, etc) and I see no reason not to extend that logic to the rest of the animal kingdom, especially given that these most vulnerable members of our community have no choice but to live in a world predominantly and increasingly governed by human-made infrastructure.

I know developers and real-estate concerns will (and are) balking at the Int. 1482 proposition, saying it would stifle business and add unnecessary costs to a city that is already costly to build in. But when something as simple as a choice of glazing material is creating senseless harm to a multitude of wildlife, there is a moral imperative to do something, regardless of any potential (and might I add, very minimal) increase in construction costs. And as with any new regulation, designers will find endless creative ways to work with the new requirements while still providing healthy, beautiful, productive and yes, cost-efficient, buildings for our city.

Thanks to the green building and sustainability movement, the days of the building industry externalizing its environmental and climate costs have been long over for at least two decades now. It's time to add bird collisions to that list of unacceptable externalized costs. Please support the Bird Friendly Glass Bill, and help to make our city a little easier to navigate for our avian residents and visitors.

Thank you for your time,

Thomas Faust RA, LEED AP BD+C

PBDW ARCHITECTS

Platt Byard Dovell White Architects LLP
49 West 37th Street, New York, NY 10018
646-343-0647 | pbdw.com

nt. 1482

Dear Councilperson,

As a lifelong New Yorker, I truly despise all of the glass towers that have gone up in the past 15+ years or so. Not only are they ugly, but they are decimating the bird population. Almost a quarter million birds a year die from flying head first into these buildings.

So PLEASE vote for Int. 1482, you would be truly doing a wonderful thing for nature, which let's face it, is under such incredible stress these days, every bit of help is needed.

Thank you for your time, and I hope you will please vote for these glass (eyesore) buildings to do the right thing. I have seen too many birds lying on the sidewalk and it breaks my heart. It is unnecessary and can be fixed. Apparently when The Javitz Center changed the glass of their buidlnig, it cut bird casualties down 90%.

Thank you,

Dina B. Cohen
dinabee@aol.com
831 Broadway
New York, NY 10003

Bird Friendly Glass bill Int. 1482

To: ABrandford, J Conde, ASon, CKim, GZilkha

Please support this very important bill (Int.1482)

As a NYC birder, I know first hand of the extreme mortality of our birds with reflective and transparent glass buildings in our City.

NYC is on the Atlantic Flyway and thus millions of birds fly in both directions in the spring and fall on migration, or local birds. Many travel from Europe and throughout the world to see these birds in our City Parks.

It is awful to see this mortality of bird strikes, when there is bird friendly glass for newly constructed or altered buildings available. It is unbelievable to see first hand a bird that has been killed this way in NYC, when it could have been prevented.

The Javits Center renovated with bird friendly glass and has received numerous awards. Significantly lower bird mortality. And now folks can go on tours to see all this! Which I did! So a win, win for all.

Please support Int. 1482.

Most sincerely,

Elise I. Boeger
1060 Park Avenue
NY, NY 10128
<eliseboeger@me.com>

NEW YORK CITY COUNCIL COMMITTEE ON HOUSING AND BUILDINGS
Regarding Introduction 1482-A-2019
12 September 2019

To the esteemed members of the New York City Council Committee on Housing and Buildings,
I write to you in full and enthusiastic support of Int. 1482, A Local Law to amend the New York City building code, in relation to bird friendly glass. I believe it is critically importance to amend the building code and to require that glass installed on newly constructed or altered buildings be treated to reduce bird strike fatalities. With **90,000** to **230,000** fatal bird collisions annually in New York City as a result of colliding with reflective or transparent glass buildings, amending the building code is a critically important step for greening our city, saving birds, showcasing the forward thinking of New Yorkers, and maintaining the crucial ecosystem connections and services that birds provide daily in our environment.

For more than four decades I have been a birder in New York City and its suburbs, beginning birding at age 5. Over those years I have seen populations of birds, particularly migratory birds, decline precipitously. Without question collisions with structures like reflective buildings are key factors, among several others, responsible for these declines. As a child, I remember the first dead bird I found in the city, a Yellow-bellied Sapsucker beneath the Empire State Building. In an instant my rosy vision of the lives bird lead in urban areas changed, and that pivotal moment inspired a vision in me that is now reality as leader of the BirdCast project and aeroecology research team at Cornell Lab of Ornithology, to create bird migration forecasts that can help provide detailed information about where birds are on the move so as to protect them (for example by telling cities when to turn off lights) and to create observation maps that characterize where birds are distributed so as to advise where and when hazards to birds may be greatest (for example informing the public which cities in the US pose the greatest threats to nocturnally migrating birds based on exposure to light and on migration intensity from 2.5 decades of data).

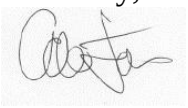
In more than two decades of research at Clemson University, National Audubon Society, and now the Cornell Lab of Ornithology, I have used radar and acoustic methods to study birds, in addition to relying on thousands of citizen scientists globally to contribute their observations. I know from my peer-reviewed research, published in Science, Nature, and other high profile and high impact outlets, that migrating birds use cities disproportionately, the artificial light is a major disruptor for these birds, and that collisions are a major part of a suite of serious factors that have caused and continue to cause precipitous declines in populations during the last half century. I have been featured in films like The Messenger and also spoken aloud in Op-Eds in the New York Times to send the message that bird friendly cities, lights out, and studying migration are important – we learn about our world's interconnections, we learn how to safeguard our environment as stewards, we maintain the delicate balances that ecosystems require to persist that include services from birds, and we learn how subtle but fundamental changes in human behaviors can impact the world around us in profound ways.

Using bird-safe glass stops bird collisions, this is proven, peer-reviewed science that has been published, referenced, and repeated. My colleagues at New York City Audubon, on whose board I served for a number of years, proved this locally in Manhattan at the Jacob K Javits Convention Center. On a single morning during migration in 2006, a volunteer found 20 dead birds

outside of the Javits Center. It was then one of the top bird-killing buildings in the city. It is easy to do the math to extrapolate: hundreds if not thousands of birds died at this single building each year. Since retrofitting and the installation of fritted and low-reflectance glass to be more energy efficient in 2013, bird collisions have decreased **over 90%. This is a win for birds, a win for energy consumption, and a win for New York.**

I am a research scientist, I am a birder, I am a father, and I am a proud New Yorker. I would like nothing more, wearing all of these hats, to see the building code amended to protect those things that inspired my passion, fill my academic and professional livelihood, and inspire my daughters. **Please do the right thing and amend the code**, send a strong message and set an example that Gotham is green, bird friendly, smart and forward thinking. I am tired of walking my block, and walking countless streets and avenues around the city, and finding dead birds that have died needlessly for lack of smart building codes that require bird-friendly design.

Sincerely,



Andrew Farnsworth, Ph.D.
Research Associate, Information Science Program
Cornell Lab of Ornithology, Cornell University
414 E 52nd St, PHC, NY NY 10022
E: af27@cornell.edu
M: 914 672 5971

September 12, 2019

Esteemed City Council Members,

I have been leading bird walks in the City of New York, for over 30 years. In my time, I have watched buildings change from brick to reflective glass. In this time period the number of birds who strike the glass – because it is reflective- has skyrocketed. Reflective glass buildings such as Hudson Yards, and The Circa on 110th on the West Side, The Empire State Building, and many of the skyscrapers in Manhattan are death traps for migrating and residential birds.

I urge you to please Support INT. 1482.

Rachel Carson wrote a book, "Silent Spring" more than 40 years ago. Council Members, we are approaching the beginning of a Silent Spring. More and more birds are succumbing to climate change and as an added stressor there are buildings that are so reflective that a bird could not tell the difference whether they are flying into the sky or the front of a building. Think of your children or grandchildren. Should they not hear the birds sing, or fly or appreciate their beauty? Bird strikes resulting in death are on the rise and there is something that can be done about it. The glass can be treated so birds could tell the difference between a building and a piece of the sky.

I urge you to please Support INT. 1482.

I have spent many mornings walking around NYC picking up dead birds and trying to revive stunned birds who have hit buildings. We need birds in our lives. They help pollinate the food we eat. They are the coalminer's canary to our ecosystem and our wellbeing.

I urge you to please Support INT. 1482.

Thank you for your time and please SUPPORT INT. 1482.

Sincerely yours,

Professor Deborah Becker
343 E. 51 St. Street
NY NY 10022
Faculty Member Touro College
Bird Guide Leader for the New York Botanical Garden
BirdingAroundNYC.com

Please support Int. 1482 - requiring new buildings to use bird-friendly glass

Dear Members of the New York City Council,

I write to offer some personal testimony about birds in NYC, and to ask you to support Int. 1482, a law to require architects and developers to use bird-friendly glass in new construction (or major alterations).

I live near the Hudson River, a major migratory path for songbirds and many other kinds of birds moving from Canada to South America and back, or living permanently in NYC's magnificent parks. We are lucky to have such rich and varied wildlife here.

But bird species are at risk, along with bats and other wildlife, from the increase in the number and density of tall buildings, with ubiquitous reflective and transparent plate glass, not to mention larger issues such as climate change. I wish we could rely on architects to do the right thing and choose bird-friendly glass on their own, but they will only comply if the law tells them they must. We can only reverse the damage we are doing to our own city by being proactive.

We know that between 100 and 200 thousand birds die every year in our city from glass collisions. That's a staggering loss. We know that the broad plate glass of modern architecture is a hazard that past generations never had to think about.

What is harder to convey is what this means for each of us as citizens. Near some of these highrises in my neighborhood on the West Side just in the past couple of years I have picked up injured or dead black-and-white warblers, a green finch, a starling, a robin, and other birds. The little warbler recovered after a rest and some water, and I was able to carry it in my cupped hands out to the park and let it go. It's hard to describe the feeling of joy when you release a wild bird from your hands. Or the awful feeling when you find a dead - and perhaps rare - bird killed merely because we are not constructing our buildings thoughtfully.

NYC is a true leader in both greening initiatives and animal welfare. I take my hat off to this City Council (and NY State) for encouraging green roofs, tree planting, bike lanes, and the new requirement that buildings assess their carbon footprint and meet green standards. Bird-friendly glass is not just a sentimental idea - it is part of this process to make our city a healthy and forward-looking one.

On the animal-welfare side, we have been making huge progress in reducing the feral cat population (which also kills birds), reducing the number of dogs and cats euthanized in city shelters, and most recently we led the nation in passing a state law banning the cruel practice of declawing cats. I mention this because imposing a bird-friendly glass law would be an act of national leadership - a model for other cities and the nation to follow. If Washington is abandoning good sense and good management, New York is stepping forward.

Thank you for your time and attention. **Please pass Int. 1482.**

Yours,
Eve Sinaiko
300 Riverside Drive
NYC 10025
<evesinaiko@earthlink.net>

Bird Friendly Glass Bill Int. 1482

Dear City Council Members,

I am writing for your urgent attention regarding the Bird Friendly Glass Bill Int. 1482 to prevent more window strikes that are so common and so tragic. Birds migrating through our area have traveled hundreds to thousands of miles only to die from seeing a glass reflection of the sky and keep flying straight toward it. The Javits Center addressed this need and has done a remarkable job in reducing the deaths. It is my sincere wish that you will agree and realize the urgency of this bill and support it.
As we live in an urban environment, it is too easy to forget that the nature and wildlife around us are just as important and desperately need our help to survive.

Sincerely,
Cathy Weiner
105 West 55th Street
New York, NY 10019
<cathyeweiner@gmail.com>

Int. 1482

Dear Me. Brandford:

I am writing to urge you to support Initiative 1482. Because we now have glass that is bird-friendly, there is no reason why construction cannot adapt in protecting the lives of birds. Reflective and transparent glass are hazardous to birds, who collide with the glass, often resulting in their deaths. 90,000-230,000 birds die per year as a result of these collisions. Initiative 1482 would not only protect birds, but the entire ecosystem of which they have a vital role.

I appreciate your giving this matter serious consideration.

Sincerely,

Gail D. Hashimoto, Psy.D.
30 East 76th Street, 6th Floor
NY, NY 10021
<gdhpsyd@icloud.com>

Support Bird-Friendly Glass Bill Int. 1482

To my representatives:

I am asking you all to support Int. 1482 and help protect birds from window deaths in New York City. This city lies along the Atlantic flyway, meaning that we have the opportunity to help numerous unique species of birds by requiring new and altered construction to use bird-safe glass.
On a personal note, I have seen birds hit windows and meet injury or death. Even if they do not die right away, they are often stunned, which puts them at risk by urban predators, cars, and people. One time I saw a small yellow bird hit a window and fall to the ground. Luckily it did not hit with too much force, but it was stunned. I picked it up and held the tiny creature in one hand, and waited to see what would happen. At the time, I did not know of any wildlife rehabilitation centers in NYC, so the only thing I could think of to do was observe the animal and try to keep it company. After about 15 minutes the bird woke up and was able to fly away, but it's possible that it had some other injury that I did not know about, which could affect its chance at survival later.
Unfortunately these types of accidents are very common. I hope you will take steps to make them a rare occurrence.

Thank you all for your time.

Sincerely,
Alicia (Caruso) Lupinski
99 Battery Place
New York, NY 10280

Int.1482

My name is Jacqueline Edwards and I am not a resident on NYC but I work here every day. Now more than ever we need protection for all wildlife in the world and small steps are something we can do to help get there. Bird friendly buildings are one of those steps.

Jacqueline Edwards
8 Tunis ave
Bronxville NY 10708

<cjeet65@yahoo.com>

Bird Friendly Glass Bill (Int. 1482)

Dear City Council Members:

Hello! I'm writing to support this initiative. I live and work in Midtown, and I can testify to how vital our feathered friends are to the quality of life in what can often seem an inhospitable part of town. Birds bring us signs of natural life beyond the often unpleasant and chaotic activities of humans.

It's my understanding that multiple thousands of birds die due to collisions with high-rise windows, so putting in bird-friendly glass is a small thing we can ask of developers as they build higher and higher. They're aiming to make money off the wealthy, and the city should feel proud to ask that some of that money go toward ensuring livability for animals human and nonhuman.

Thanks for your help with this matter.

Yours sincerely,

Kurt Wildermuth
349 East 49th St.
New York, NY 10017
<kurtwildermuth@yahoo.com>

Bird Friendly Glass Bill Int. 1482

I support the bird friendly glass bill Int. 1482. Birds cannot "see" walls of ordinary plate glass. They perceive it as clear sky and will fly headlong into it, resulting in serious injury or death. Additionally, as our glass sided buildings reach higher and higher into the sky, they are appearing at heights that were previously only inhabited by birds, increasing the danger for migrating and local birds.

We can do better than this. The technology exists for glass that is both bird friendly (enabling birds to see that this is a wall) and transparent to humans. New York should lead the way in making the use of such glass a rule in new construction and in retrofitting older buildings. New York has been a leader in architecture and in building regulations for many years and this should be the next step for the tewnty-first century.

Sincerely,

Margaret Mary Duffy
49 East 73rd Street
New York, NY. 10021

Intro 1482: Wild Bird Fund Window-Strike Map

Dear Chairperson Cornegy and members of the City Council Committee on Housing and Buildings,

Thank you for your essential work on the Bird-Safe Glass Bill, Intro. 1482 — which we wholeheartedly support — and for taking the time to hear from New York's large, passionate bird community.

The Wild Bird Fund's director, Rita McMahon, testified at Tuesday's hearing about the many hundreds of window-strike victims our wildlife rehabilitation clinic treats every season. They suffer from concussions, broken beaks, broken wings, internal injuries, eye damage and many other traumas. Only a third survive to be released.

During the hearing, we heard your repeated requests for data, and we'd like to oblige.

We've created an interactive Google Map for you. It shows the Wild Bird Fund's window-strike patients going back to 2014, when we first began collecting data. Nearly every blue point on the map represents a bird that traveled hundreds or thousands of miles — only to be stopped by a glass window here.

MAPS:
Wild Bird Fund Window-Strike Patient MAP
All patients with injuries consistent with a window collision 2014-present.

Wild Bird Fund Woodcock MAP
We've also singled out American Woodcocks, as these charismatic "timberdoodles" are especially prone to window strikes.

While our window-strike patients are a small, lucky minority of the 90,000 to 230,000 birds killed each year by NYC windows, our numbers are still staggering. Last year, we treated about 800 window-strike victims. And more are coming every hour. This week, along with the many tiny warblers we received, came two peregrine falcons, born right here in New York City, one on top of the Verrazzano Bridge. Both window-strike survivors.

These magnificent falcons were once nearly extinct because of now-banned pesticides, and they are still listed as endangered in New York State. But NYC is home to the highest number of nesting pairs in the country — a badge of honor that

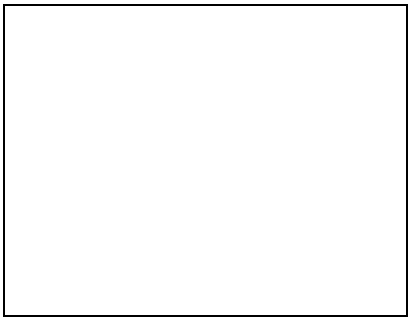
is weighted with responsibility.

We plan to continue refining these maps in the coming weeks, while adding a second map that will illustrate patients by species. And we'll happily provide any additional information you require.

Again, we thank you for your heroic efforts in shepherding this bill. At the Wild Bird Fund, we consider it a privilege to care for New York City's wild community; today we are especially proud New Yorkers as our City Council is poised to enact this landmark conservation measure.

Sincerely,

Catherine Quayle
Social Media Manager
NYS Licensed Wildlife Rehabiltator



facebook | twitter | instagram
565 Columbus Avenue
New York, NY 10024

Bird Safe Building Bill Support

Hello Council Members,

I am writing this afternoon to register my support for Bill Int-1482-2019, the proposed Bird-Safe Building Guidelines.

I have been studying and educating about birds in NYC for 15+ years; observing birds in the city is a passion of mine, and one I'm lucky to be able to share with others. NYC is often mistakenly thought of as an ecological wasteland, but that couldn't be farther from the truth! Our parks, gardens, wetlands, and rivers are home to scores of fish, invertebrates, mammals, and birds. Birds especially are diverse & abundant. A spring or fall migration day in Central, Prospect, Pelham Bay, Clove Lakes, or Forest Park can be as exciting as anywhere else on earth in terms of bird activity: Warblers, Vireos, Tanagers, Orioles, Buntings, Flycatchers, Cuckoos, Thrushes, and more winging their way to or from the tropics or Canada, with our amazing city an essential stop-over spot to rest and feed. This is as it has been for 15,000 years or more, since before humans first set foot on these lands.

But needless to say, the region has changed enormously in those millennia. NYC is now one of the densest metropolises on the planet. But still, the birds heed the pull of their migratory instincts, and follow their ancient routes through our city.

The biggest obstacle they face are the myriad glass and metal structures that rear up in their flight path, creating disorienting & dizzying reflections, like some hall of funhouse mirrors. Hundreds of thousands of birds, often young & inexperienced individuals undertaking their first migration southward (which is happening as we speak) collide with windows, glass bus stops, and other structures and suffer a broken wing or a broken neck. This compounds the challenges they face from habitat loss, climate change, and ever-more severe weather events.

It is incumbent on us to make their journey safer and less lethal however we can. This is entirely possible, and a continued lack of effort to do so is a serious ethical lapse.

This can't be done piecemeal, one building at a time, but needs to be required and coordinated by the city as a regulatory framework. These measures are supported by everyday individuals, scientists, conservationists, and architects. Developers just need a nudge to do the right thing.

The beauty of it is, developers will continue to build in NYC no matter what! They won't stop building apartments or office towers here and decide to build in NJ instead because of a slight increase in cost or regulatory burden. NYC will always be a desirable place to build; now it can be that, as well as a less hostile environment for avian passers-by making their annual pilgrimages.

I urge you to pass this bill, and even strengthen it further by requiring retroactive retrofitting of particularly problematic buildings, and including bus stops and other non-building structures.

Thank you for your hard work and good-faith efforts in bringing this important bill to bear. NYC is a city that sets the standard so many others follow - thus, this bill stands to save the lives of not just hundreds of thousands of birds' lives annually but millions. The birds, and the people, will salute you.

Thank you for your time & consideration,

Gabriel Willow

NYC Audubon
Wave Hill
NYBG
The Linnaean Society of NY
--
Gabriel Willow
Naturalist, Guide, & Educator
gwillow@nycaudubon.org

Follow me virtually here:

Support for Bird Friendly Glass Bill - Int. 1482

Council Staff Members,

My spouse and I write in support of the Bird Friendly Glass bill (Int. 1482).

We strongly endorse the passage of the Bird Friendly Glass bill (Int.
1482) after having grown very concerned at the plight of the many birds that suffer fatal encounters with glass buildings in New York City.

It is reported that 90,000 to 230,000 birds die each year in New York City due to collisions. This needless harm is preventable.

We strongly endorse the Bird Friendly Glass bill (Int. 1482).and ask that you take action by supporting this bill to mitigate the unnecessary harm we as a community have inflicted on these unfortunate birds by this grave omission in our building requirements.

Sincerely,
Jay Minga
4132 44th St.
Sunnyside, NY 1110
<minga@post.harvard.edu>

Birds colliding in windows

Hi, I would like to make this bill a priority. It's a huge problem in the city - I have personally seen 3 birds crash into windows and die in the past year. Please let's do something about it.

Thank you so much!

Alex
308 W 89th St
10024
<alex.khurgin@gmail.com>

Support for Int. 1482 Bird Friendly Glass Bill

1360 Ocean Avenue
Brooklyn, NY 10065

Dear Council members,

I am writing in support of the passing of Int. 1482 - the Bird Friendly Glass Bill. Within the last 5 years, both the National Audubon Society and the North American Bird Conservation Initiative have shown that 30% of native bird species across the United States and other parts of North America are declining (https://www.allaboutbirds.org/state-of-the-birds-2014-common-birds-in-steep-decline-list/). Simultaneously, in the United States, especially in the Northeast, central East and West Coasts, cities have been gradually expanding. The urban land area within the U.S. is predicted to expand as much as three-fold by 2050 from 2000 levels. This means that birds currently find themselves and will continue to find themselves living more frequently in proximity to humans in urban habitats. Therefore, in order to ensure healthy populations of birds in North America, it is important to not only ensure healthy habitat for birds in undeveloped habitats, but also in urban areas. We must do everything we can to provide birds migrating through NYC a safe haven and stop over during their migration. This bill will potentially save 90,000 to 230,000 birds from dying each year.

I became interested in this topic several years ago when I began volunteering for NYC Audubon for the Project Safe Flight project. As a volunteer, I walk around various buildings in lower Manhattan once per week during migration season looking for stunned and dead birds. I have found dozens of birds stunned and dead over the last few years. To see an animal that was built to travel hundreds to thousands of miles, a beautiful, tiny creature now motionless in front of you is devastating. I hope that the council and the people of NYC could work together to pass this bill and make this city safer for birds.

Thank you for your time reading!

Sincerely,

Yekaterina Gluzberg

<zeleninkaya@gmail.com>

Writing to express support for Int. 1482

Dear City Council Staff Members,

I am writing to express my support for Int. 1482, the Bird Friendly Glass Bill.

I have found injured migrating birds, most recently a warbler, lying on the sidewalk near newer buildings with large glass windows. Where I live, on the Lower East Side, these incidents seem to be increasing as more glass towers are being built in the area. It's devastating to see this needless harm to these beautiful creatures, which are a vital part of our ecosystem. I have been shocked to learn that 90.000 to 230,000 birds die in the city every year from window strikes. I hope to see the city building code amended to require the use of bird-friendly glass in newly constructed or altered buildings.

Sincerely,

Kristin Jones
159 Stanton Street
New York, NY 10002
<kristinmarriottjones@gmail.com>

WILD BIRD FUND
A PROTECTIVE WING OVER NYC WILDLIFE

565 Columbus Avenue
NY NY 10024
T: 646-306-2862
rehabbers@wildbirdfund.org
www.wildbirdfund.org

Re: Bird Friendly Glass bill (Int. 1482)

Dear City Council Members, September 10, 2019

New York City is incredibly rich in wildlife. Over 350 different bird species live in the Big Apple, come here to breed, or stop over to rest and feed during spring and fall migration. The Atlantic Flyway extends from the bottom of South America to the top of Canada at the arctic circle. And the Atlantic Flyway runs right through New York City. With our 50,000 acres of parkland, marshland and abandoned land, we are an oasis in the dense urban landscape of the Northeast coast. When birds arrive in NYC they find diverse habitat, food, and shelter in all five boroughs.

They also find…a gauntlet of tall glass buildings. Each reflecting the open sky, inviting them to fly through. After successfully flying thousands of miles, a bird strikes the glass and then falls to the pavement below, sometimes 10, 20, 30 stories down, to the sidewalk. At best, 1/3 survive. New York's tall buildings with their reflective glass are a lethal threat to over 100 species of threatened and endangered migratory birds.

New York City Audubon studies bird/window collisions. Volunteers for Project Safe Flight patrol the pavement around known bird-strike buildings, picking up the dead and injured, identifying the species, and getting help for those who are still alive.

But most of the Wild Bird Fund's collision patients are brought in by compassionate New Yorkers who have found a songbird, woodcock, or falcon at the base of a glass building. We treat about 1,000 a year. Our window-strike patients suffer from concussions, eye and beak damage, broken wings and legs, and internal injuries. Again, just over 1/3 survive.

But there is something we can do to stop the carnage.

A case in point is the Javits Center, which counted 391 collisions in 2008. A major renovation was due, and the Javits Center decided to go green, installing bird-safe glass. Bird deaths were cut 90–95%. Not only that, but the bird-safe glass is attractive to the human eye and saves heating and cooling costs. On the federal, state and local level, first steps are being taken to stop the slaughter.

The Wild Bird Fund supports the New York City Council's proposed Int. 1482 to safeguard birds passing through New York. Reducing window strikes by 90%, as the Javits Center did, could equal 90,000 lives saved each year.

There are so many threats to wildlife—federal reversals of environmental policies, habitat loss, light pollution, climate change—we have to do what we can locally to make New York a safe harbor.

Sincerely,

Rita McMahon, Director

Dear Councilmembers,

There is a song that I think of as the theme for this bill:

Blackbird singing in the dead of night
Take these broken wings and learn to fly
All your life
You were only waiting for this moment to arise
Blackbird singing in the dead of night
Take these sunken eyes and learn to see
All your life
You were only waiting for this moment to be free
Blackbird fly, blackbird fly
Into the light of a dark black night
Blackbird fly, blackbird fly
Into the light of a dark black night
Sony Music gave Wild Bird Fund permission for a live performance at Lincoln Center. Nellie McKay sang, as accompaniment to the attached. My hopes are with you.

Rita McMahon
Director Wild Bird Fund

NORTHERN PARULA: This is what a concussed bird looks like as its brain is hemorrhaging from impact.

33 cases of Northern Parulas suffering from window strikes in 2018. One third survived to be released.

NORTHERN LONG-EARED OWL: Crashed into a construction site at Sixth Avenue and 40th Street.

Concussion, neurological, left eye dilated pupil, not reactive to light, not tracking.

Released in Central Park January 2018.

AMERICAN WOODCOCK: Most frequent victim of window collisions.

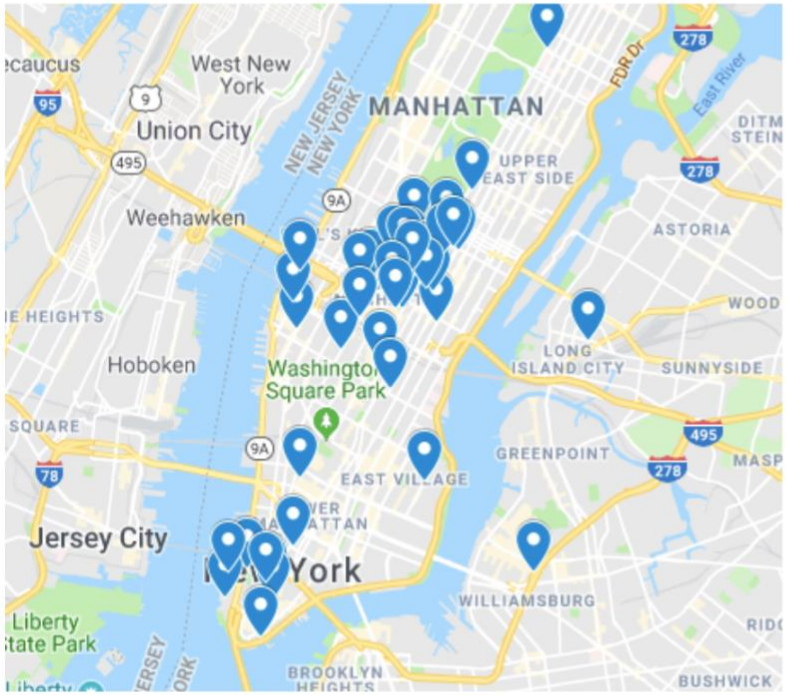
Ruptured eyes, broken beaks. They cannot survive with only one eye.

157 cases in 2018. Only 10% were able to be released.

The great majority are euthanized due to their injuries from striking the building's glass.

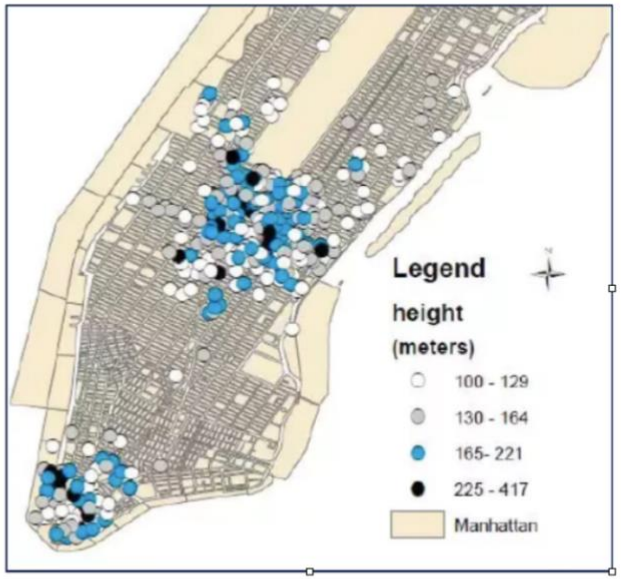
Wild Bird Fund Woodcock Patients 2018

Where they were found:



Total American woodcocks: 157
Interactive map: bit.ly/woodcockmap

Building height (multiple years)



Mortality before and after March 15:
before March 15: 75 percent (n=24); after March 15: 92 percent (n=26)

SCARLET TANAGER: Seven cases of concussion from window strikes in 2018.

The great majority are released.

RUBY-CROWNED & GOLDEN-CROWNED KINGLETS: 40 IN 2018.

Only eleven could be released. Three-quarters died of their injuries.

VARIED THRUSH: A rare visitor to NYC. Time Warner Building 59th and Central Park West.

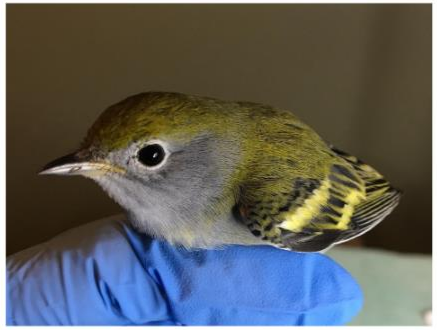
Concussion. Able to be released after 5 days of care.

PEREGRINE FALCON: Multiple fractures of the beak from window collision.

Died from internal injuries.

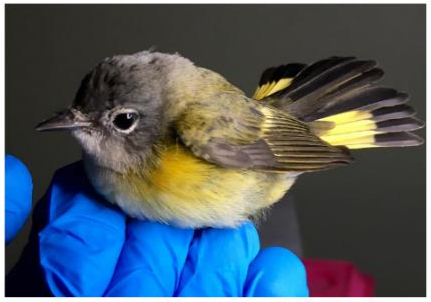
NORTHERN SAW-WHET OWLS: Eight window strike patients last winter. Five survived to be released.

One day of window strikes at the Wild Bird Fund Sept. 9, 2019



Chestnut-sided Warbler

Veery

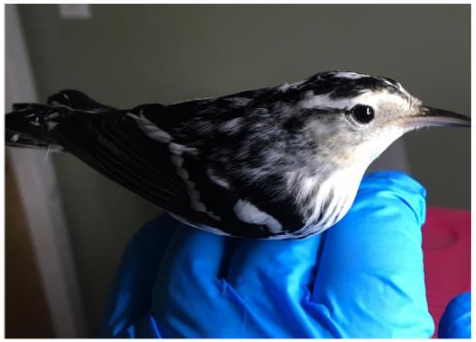


American Redstart

Red-tailed Hawk

Northern Waterthrush

American Redstart



Black-and-white Warbler

My name is Margaret Lee, a long-time resident of District 1 of NYC. I'm here on behalf of my feathered friends, speaking in favor of Intro 1482-A, the bill to require building in NYC be built with BIRD-SAFE GLASS. As someone who cares deeply for my non-human neighbors, I have come to know up-close firsthand the many many ways they suffer here and have concluded that NYC is a terribly heartbreaking Hellhole for them. We appear to be a city hellbent on waging a war against God's creatures.

I thank City Council Speaker Corey Johnson for co-sponsoring this bill and being a voice for our bird residents and migrating visitors.

My hope is that this bill and its urgent need for passage will be just

the start of NYC becoming a truly compassionate city for its non-human inhabitants and those just passing through.

In addition to birds being saved from crashing into windows I want to see them provided with clean fresh water and food. I want to see them given the respect they deserve. I want to see restaurants and stores, all building owners, prohibited from washing the sidewalks with the soapy toxic chemicals that poison our birds as they seek a drop of water. I want to see them protected from setters who capture them to be shot at gun clubs. I want these villainous setters treated as the cowardly felons they are.

Corey, are you listening? We need more bills to protect our feathered friends!

Thank you,
Margaret Lee
28 Bond Street
NYC

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Rita McMahon

Address: 59 West 88th Street

I represent: Wild Bird Fund, Inc

Address: 565 Columbus Avenue

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Chelsea Lawrence

Address: 1629 8th Ave

I represent: NYC Audubon

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482A Res. No. _____

☑ in favor ☐ in opposition

Date: Sept 10, 2019

(PLEASE PRINT)

Name: MICHELLE ASHKIN

Address: 300 Proctor Place LI

I represent: Self & wildlife rehabilitators of NYC

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Zeynep Semin

Address: 225 W. 83rd St. Apt. 15-I NYC 10024

I represent: unaffiliated

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: G Joshua Stoneman

Address: 35 E. 10th St, Apt 2H, NY NY 10003

I represent: myself - concerned citizen

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Arrived 11 AM

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/6/19

(PLEASE PRINT)

Name: George Bassolino / Arthur Goldstein

Address: _____

I represent: Master Plumbers Council

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: RITA McMAHON

Address: 565 Columbus Ave. NY, NY 10024

I represent: WILD BIRD FUND - (DIRECTOR)

Address: (SAME AS ABOVE)

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Bradley Harris

Address: 101 6th Avenue, NY NY

I represent: N/A

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Gabriel Willow

Address: 266 East 19th St Brooklyn NY

I represent: The Linnaean Society of NY

Address: AMNH

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Melanie La Rocca

Address: 280 Broadway

I represent: NYC Department of Buildings

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Gus Sirakis

Address: _____

I represent: NYC DOB

Address: 280 Broadway

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Kathy Altman

Address: 90 Gold St

I represent: Individual

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Liz York

Address: 90 Gold St

I represent: Sierra Club / individual !

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/2019

(PLEASE PRINT)

Name: Ed Bosco, PE

Address: _____

I represent: American Council of Engineering Companies of New York

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/2019

(PLEASE PRINT)

Name: DANIEL PISELLI

Address: 4401 4th Ave Brooklyn NY 11220

I represent: FX Collaborative & AIANY

Address: 22 W 19th St. NY NY 10011

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Patricia Lakve

Address: 6 Varick St 8B NYC 10013

I represent: NYC Audubon

Address: W. 23 St

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Dorothy Mazzarella

Address: 48 Dublin Drive, Nskayuna, NY 12309

I represent: International Code Council

Address: Same

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Ann Selicman

Address: 235 E 46th St, #C 10017

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: 9.10.19

(PLEASE PRINT)

Name: Robert Bate

Address: 20 Willoughby St. Brooklyn

I represent: Brooklyn Bird Club

Address: Same

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Adam Vinson

Address: 170 East 76th St Apt 7A New York NY 10075

I represent: Eleanor Roosevelt High School naturalist Club.

Address: 411 E 76 St New York, NY, 10021

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 A Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Kaitlyn Zafonte

Address: 369 W. 126th St. Apt 10 NY, NY 10027

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 A Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Mary Mooney

Address: 186 Pinehurst Avenue (5E)

I represent: Humane Society of NY

Address: 1255 23rd St NW, Washington DC 20037

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482-A Res. No. _____

☒ in favor ☐ in opposition

Date: Sept. 10, 2019

(PLEASE PRINT)

Name: Stefan Knust

Address: 237 W 109th ST. 5B

I represent: The Bird-safe Buildings Alliance

Address: 71 W. 23rd St. Suite 1523

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: PHILIP PARISI JR (MG ENGINEERING)

Address: 116 WEST 32ND ST

I represent: NYC DOB PLUMBING TECHNICAL COMMITTEE

Address: 280 BROADWAY, NYC

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482A Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Christine Shepard

Address: 215 Young Ave, Pelham

I represent: American Bird Conservancy

Address: Connecticut Ave Washington DC

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 (A) Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: DAVID KAROPKIN

Address: 860 East 18th Street 3E Brooklyn NY 11230

I represent: Voters For Animal Rights (VFAR)

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Georgia Silvera Seamans

Address: 110 Bleecker St 10012

I represent: WSP Eco Projects

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

Date: Sept 10, 2019

(PLEASE PRINT)

Name: Kathryn Heintz

Address: 71 West 23rd St., Suite 1523

I represent: NYC Audubon & NY, NY

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Randi L. Klein

Address: 276 West 115th ST

I represent: HARLEM NEIGHBORHOOD & The DEAD BIRDS

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Joshua Malbin

Address: 140 E 2nd St Apt 4D, Brooklyn 11218

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482-A Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Edita Birnkrant

Address: 64-56 Bird Queens, NY

I represent: NYCLASS

Address: Manhattan

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1481 Res. No. _____

☑ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: David Balkan

Address: 130-01 Jamaica Avenue

I represent: Subsurface Plumbers Association

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☐ in favor ☐ in opposition

Date: 09/10/2019

(PLEASE PRINT)

Name: Nisarga Markandaiah

Address: 392 11th St Apt 3A Brooklyn NY 11215

I represent: myself

Address: —

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☒ in favor ☐ in opposition

Date: 9/10/19

(PLEASE PRINT)

Name: Chrissoula Minelaki

Address: 208 W 82nd St Apt 5C 10024

I represent: Myself

Address: see above

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. _____

☑ in favor ☐ in opposition

of windows to protect birds *Date:* Sept 10, 2019

(PLEASE PRINT)

Name: Margaret Lee

Address: 28 Bond St 10012

I represent: my feathered neighbors

Address: NYC

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482A Res. No. _____

☑ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: JOHN DEAN

Address: 230 ASHLAND PL 19A BKLYN NY 11217

I represent: _____

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. ______

☒ in favor ☐ in opposition

Date: 9/10/2019

(PLEASE PRINT)

Name: ELLA MARKEE-RATNER

Address: 170 2nd AVE #6E, NY, NY 10003

I represent: ______

Address: ______

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482 Res. No. ______

☒ in favor ☐ in opposition

Date: ______

(PLEASE PRINT)

Name: CALISTA McRAE

Address: 279 HENRY ST #6 / BROOKLYN 11201

I represent: ______

Address: ______

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. 1482-A Res. No. ______

☐ in favor ☒ in opposition

Date: 9/10/2019

(PLEASE PRINT)

Name: Joseph Rosenberg

Address: 80 Maiden Lane

I represent: Director - Catholic Community Relations Council

Address: ______

Please complete this card and return to the Sergeant-at-Arms