

Cover Letter for US Green Building Council, Proposed language for inclusion in LEED2009 Potential Technologies and Strategies Sections for New Construction, Existing Buildings, Core and Shell, and LEED for Schools.

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Buildings have been documented to be a major collision threat to migratory birds. In the 1970's Dr. Daniel Klem, Jr., a leading scientist in the field of avian collisions, estimated that between 97.5 and 975 million birds were killed by collisions with windows every year in the United States, based on an estimate of 1-10 birds killed per building.¹ Recent studies indicate that even the upper range of this estimate may well be too conservative. Collisions with buildings are now considered to be secondary only to habitat loss and degradation as a major source of anthropogenic mortality for birds, amounting to approximately 5% of the fall bird population (Klem 1990)². According to the US Fish and Wildlife Service, of the 836 species of migratory birds they manage and protect as trust resources for the American people, more than 25% of them (223) are in trouble³. Many of the victims of building collisions are from species with populations in decline. Avian casualties from a very small survey of five recent collision articles⁴ included at least one, and as many as four, victims from the following species categorized by the USFWS as Birds of Conservation Concern on a national or regional basis: ⁵ Black-capped Chickadee, Yellow-billed Cuckoo, Acadian Flycatcher, Brown-headed Nuthatch, Baltimore Oriole, Northern Parula, Yellow-bellied Sapsucker, Song Sparrow, Wood Thrush, Bay-breasted Warbler, Black-throated Blue Warbler, Blue-winged Warbler, Canada Warbler, Cape May Warbler, Chestnut-sided Warbler, Connecticut Warbler, Golden-winged Warbler, Worm-eating Warbler, Yellow Warbler, Yellow-throated Warbler, Northern Waterthrush, Whip-poor-will, Marsh Wren and Sedge Wren.

The majority of migratory songbirds travel at night. Their flights are often interrupted by lights on buildings and towers that interfere with their navigational abilities, particularly during periods of low cloud cover and inclement weather when views of the moon and stars are obstructed. Birds circle within light fields, reluctant to fly back into the dark sky. As their numbers increase within lit areas, and they continue to circle the building, many are killed outright by collisions with the building or each other, or they crash to the ground from exhaustion. Sadly, those that survive night strikes are at risk for collisions with windows during the following days as they seek food and cover to increase their fat stores to continue migration. Birds are killed by daytime collisions with windows because they cannot perceive transparent and reflective glass as a barrier to be avoided (Klem 1989, Rossler 2007).⁶

With the knowledge we have today about collisions dynamics, the green building community may effectively move forward in specifying performance-based design features, and lighting regimens

¹ Klem, Daniel J. Ph.D. (2006) Glass: A Deadly Conservation Issue for Birds, *Bird Observer*, Vol.34, No. 2 , 73-81.

² Klem, Daniel J. Ph.D.(2007) Windows: An Unintended Fatal Hazard for Birds, *Connecticut Audubon Society Magazine*, p.8.

³ Manville, Albert II, Ph.D. (2007)Impacts of Tall, Man-Made Structures on Migratory Birds, *Connecticut Audubon Society Magazine*, p.13.

⁴ One campus building in Atlanta (fall2002); commercial buildings in Atlanta (fall 2005) ; Two campus buildings in Illinois (2202-2006, and 2005-2006); one commercial building in Manhattan (2006-2007), and one suburban office building in Great Neck, Long Island (fall 2006).

⁵ US Fish and Wildlife Service, Division of Migratory Bird Management, *Birds of Conservation Concern 2002*, Arlington, VA.

⁶ Klem, Daniel J. (1989) Bird-Window Collisions, *Wilson Bulletin*, 101(4), 1989, pp. 606-620; Rossler, Martin, Wolfgang Laube and Philipp Weihs (2007) Avoiding bird collisions with glass surfaces, *Biological Station Hohenau-Ringeldorf and University of Applied Sciences, Vienna Institute of Meteorology*.

to reduce or eliminate the collision hazards.⁷ Modifications to the glass itself, or use of other innovative strategies, have been demonstrated to be effective collision deterrents. Such measures include: bird-safe landscaping practices, the use of exterior shading devices, introducing etched or frit patterns in the glass, and/or creating appropriate 'visual noise' in key locations, "Visual noise" may be achieved by differentiations of plane, material, texture, color, opacity, or other features that help to fragment glass reflections and reduce apparent overall transparency and reflectivity. **Future measures may include the development of innovative glass technologies that make glass visible to birds without visually impairing glass for humans.**

Given the national and international support by the greater building community of the LEED rating systems, it is timely to address in this LEED 2009 roll-out the issue of the collision deaths of birds. It is our belief that with the additional language proposed in the LEED 2009 rating systems (NC, CS, EB, and LEED for Schools) bird safety can be properly subsumed within the definitions of "high performance green buildings" and "environmental sustainability."

For further explanation and reference, please see the NYC Audubon "Bird-Safe Building Guidelines" published in 2007 and the City of Toronto "Bird-Friendly Development Guidelines" published the same year.

<http://www.nycaudubon.org/home/BirdSafeBuildingGuidelines.pdf>

<http://www.toronto.ca/lightsout/guidelines.htm>

Language for inclusion in LEED 2009 NC, CS, EB and LEED for School is attached. Language was drafted by Hillary Brown, FAIA, LEED AP, Principal, New Civic Works along with Karen Cotton, Bird Collisions Campaign Manager, American Bird Conservancy; Marcia Fowle, President, Bird-Safe Glass Foundation; and Glenn Phillips, Executive Director, NYC Audubon.

⁷ Klem, Daniel J. Ph.D., (2006) Glass: A Deadly Conservation Issue for Birds, Bird Observer, Vol. 34, No. 2; Lights Out Chicago, www.lightsout.audubon.org/