DRAFT

Comments On The California Proposed Voluntary Bird-Safe Building Standards

**Introduction** We thank the Commission for the opportunity to comment on the proposed voluntary bird safety standards in new commercial buildings.

We compliment the Commission's commitment to develop regulations to prevent bird window collisions in new commercial buildings. A bird-safe building code is by far the most effective action a state can take to prevent avian deaths. It is especially significant that this regulation is being developed in California. About 8% of all new buildings in the United States are built in California each year. California is looked to as a leader nationally in conservation policy. We also commend the staff member of the commission for her responsiveness to comments and questions which we have raised thus far.

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**Executive Summary**

1. **A Win for Both Builders and Birds.** Thisvoluntary standard is a great opportunity for builders to build a better image. Corporations spend millions to improve their image. This is an opportunity to improve their image at an insignificant cost.
2. **Windows: Very Small Portion of a Building’s Cost.** A bird-safe glass requirement only affects the cost of the glass. The cost of fabrication, delivery and installation are about the same. Thus, the cost of bird-safe glass to a builder is very low and places little financial burden on the industry.
3. **The Bird-safe Height Requirement in the Proposed Standard Is (one of ) the Lowest of any Bird-safe Building Standard Yet Adopted.** No standard is below 40 feet.
4. **A Cost/Benefit Comparison Shows the 36-Foot Bird-Safe Height Should Be Raised to 100 Feet**. A 40-foot bird safe height is low. It is further lowered by the provision stating that only “10% of the first 40 feet must be bird safe.” As such it creates a four-foot exemption. Raising the bird safety level to 100 feet will save 1.7 million birds, assuming a 10-year life of the code, at a cost of 0.1% to the construction industry. By comparison, the average cost of change orders (12.5%) during construction are 38 times the added cost of bird safe glass.
5. **A Phase-in is Clearly Preferable to Lowering the Safety Standard below 100-feet.** A phase-in period provides time for the bird-safe glass manufacturing capacity to expand and allays the industry’s cost concerns. The higher safety standard will reduce avian deaths for decades. The long-term savings clearly outweigh any loss in avian deaths due to a phase-in.
6. **The Four-foot Exemption Is Not Justified.** If the four-foot exemption is for display windows it is unnecessary and overbroad.
7. **Lower Than 100-Foot Standard in Other Codes.** The bird-safety standards lower than 100 feet in other municipalities are based on the misconception that bird-safe glass is so expensive that it is unreasonable to require it above that level. This is wrong. For example, both Washington D.C and Berkeley, California both follow the American Bird Conservancy’s recommendation of the 100-foot standard. California leads the nation in conservation policy and should do so in this instance as well.

**Recommendation: Adoption With Reservations**

This proposed voluntary standard should be adopted with a clear statement from the commission that it will upgrade the standard to address points 4-6 before it becomes mandatory.

Or

table and conduct a full review.

**Essential Improvements in the Standards.**

If the Commission does not choose to consider changes at this time, these comments are made with a view toward improving the draft regulation before it becomes mandatory. The following comments assume that it is mandatory.

**Submitters.** These comments are being submitted (I have deleted name until he finishes his review.)

Jim Cubie is a consultant to the Center. He has worked on policy issues related to bird window collisions since 2019. In his previous career, he was Chief Counsel of the Senate Agriculture Committee in Washington D.C. In that position he was responsible for the development of the basic policies in the farm bill and other related legislation. He acquired the skills to evaluate the relationship between the economic and the scientific aspects of a regulation. Most of the ornithological experts in the field, to which the staff has consulted, do not have experience in regulatory and legislative development

**Background on Bird-Safe Cost.** Cost to the regulated community is a fundamental consideration in any regulation. To assist this commission and others, a study of the economic cost of regulations which require bird safety standards in new construction. has been prepared. The results of the study have been confirmed by independent architects. It is available at the Ornithology Center’s Safe Building Resource Center.<https://ornithologycenter.com/commercial-building-resources/> In the following comments, references to “the added cost of bird-safe glass,” refer to findings in this report. In many cases the redesign of the building is the least costly method of making a building bird-safe.

Section 1. A bird-safety building code standard will not have a significant negative effect on the level of construction activity in California**.**

**Bird-Safe Glass and Investment Decisions**

When a builder/investor decides whether to construct a building he assumes that there will be changes in cost during construction. He takes these into account when he estimates his net return. These are: (1) changes in the cost of major materials, (2) cost overruns and (3) change orders. Comparing the cost to these elements puts the cost of bird-safe glass in perspective.

1. Expected change in the cost of materials is (9%) is 14 times the added cost of bird- safe glass, based on historic, not current data
2. Average cost-overruns (16%), are 49 times the added cost of bird-safe glass.
3. Average change orders (12.5%) are 38 times the cost of bird-safe glass.

In sum, a builder accepts the uncertainty that $5.9 million may be added to the initial construction estimate. He can clearly plan for the added cost of bird-safe glass which is predictable. It is so small - only $30,000- for the full 100 feet that it will not affect his decision one way of another. It is only 0.17% of the estimated cost.

**Current Cost of Bird-Safe Glass** The economic analysis of the added cost of bird-safe glass shows that the added cost of bird-safe glass is very low - even when its cost is 28% more than standard glass. The cost of bird-safe glass at present is not as low as assumed in the analysis. The reason for this approach is that a bird-safe building regulation will be in place for decades. To use higher short-term costs would bias the analysis. A short-term cost-curve could have been added, but since this standard will affect the cost and benefits of 40,000 buildings, it would not affect the results to a significant degree.

**The Cost of Bird-safe Glass Cost Will Fall**

This and similar regulations in many other jurisdictions will increase the demand of bird-safe glass and drive down its cost. According to the Swanson’s law, every doubling of the demand for a glass product reduces its cost by 20 per cent. Because twenty communities have enacted or are in the process of developing birds safe glass regulations, the market will drive down the price. Thus, it is reasonable to expect those reductions in the cost of bird-safe glass cost to occur in the relatively near future. Another glass product, solar collectors, have dropped in price by 89% since 2010.

**Conclusion and Recommendation**

The Commission can be confident that when it approves a mandatory bird-safety standard, it will not significantly burden the construction sector.

**Section 2. Comparing the costs and benefits of raising the bird safety level to 100 feet.**

**California Law requires a comparison of the costs and benefits of new regulations.**

In the following the “cost” is the added cost to builders caused by raising the bird-safe standard to 100 feet. The “benefit” is the number of bird fatalities saved if the 36 standard is raised to 100 feet.

**Single Building Comparison of Cost and Benefits.**

The cost and benefits can be compared on a building-by-building basis or statewide. In the case of an individual building, if the bird-safe standard is raised to 100 ft, it costs the regulated builders only 0.1% percent, but the bird-safe level is raised by over 200 percent. The benefits of raising the safety standard are far greater than the increased cost to the builder.

**State-Wide Comparison of the Cost and Benefits of the 100 ft. Safety standard.**

To compare the two safety standards -- two steps are necessary.

1. An assumption must be made of the added bird deaths from the lower standard compared to the 100-foot standard.
2. An estimate of the added cost to the industry of the 100-foot standard is needed.

## The added bird deaths assumed at the lower standard compared to the 100 ft. standard.

To establish a sound policy, it is not necessary to make an exact estimate of the added bird deaths by retaining the 36 ft. standard. Instead, the analysis can be based on an assumed level of mortality. To be valid it should be based on sound science and be conservative. If using conservative assumptions, the benefits are greater than the costs, *a fortiori,* the benefits will be greater if a greater number of birds are saved.

Thus, we do not attempt to predict that exact number of added deaths caused using the 36-foot standard, compared to the 100-foot standard. Instead, we assume that there would be only two (2) additional bird deaths per building per year. This is not a prediction of the number of added deaths. It is an assumption used to permit a comparison of the costs and benefits. The number of added deaths may be higher, but is extremely unlikely to be lower than two birds per building.

The document upon which the 40-ft standard is based states that only 70% of the fatalities will be prevented at this height. Thirty percent of fatalities will not be prevented. The most cited estimate of bird fatalities by building height is an article in the ornithological journal *Condor*. It estimates that 20-23 birds are killed by commercial buildings. If the 30% is applied to the *Condor* estimates one could expect about 6-7 fatalities. *Bird–building collisions in the United States: Estimates of annual mortality and species vulnerability*, Scott R. Loss, Tom Will, Sara S. Loss, and Peter P. Marra The Condor, 116(1) : 8-23 American Ornithological Society URL: <https://doi.org/10.1650/CONDOR-13-090.1>

Since the 100 feet standard is 260% higher than the 36-foot standard, 2 additional bird fatalities due to the lower safety standard is a reasonable assumption**.**

The analysis is based on these further assumptions:

1. Raising the safe level from 36’ to 100 ft. saves two birds annually.
2. The regulation will be in effect for 10 years. There will be about 40,000 new buildings during this period under the 36 ft. standard.
3. These buildings will have useful life of 20 years.
4. The cost of raising the safe level from 36 feet to 100 feet is 0.1% (See calculations in the analytical tool found at P64 in the “base Worksheet. https://ornithologycenter.com/commercial-building-resources/

**Results. The lower 36 ft standard in the proposed standard will result in about 1.7 million additional bird deaths. These deaths occur over the life of the buildings approved under this code, assuming the code is in force for 10 years.** These estimates for analytical purposes, not predictions.

How can it be so large?

**The Multipliers – Why Codes Are So Important**

The proposed code will apply to about 40,000 new buildings over the next 10 years. Each of those buildings will be causing added bird deaths for 20 years because of the low 36 ft. standard.

A small increase in bird mortality has very large consequences.

## An Estimate of the Added Cost of Increasing the Safety Level to 100 feet to the Builders.

The cost to the regulated industry of increasing to the 100-foot level is only about 0.1% of the cost of a new building. It is only $18,000 for a $18,000,000 building.   It is so low because (1) only the cost of the glass will increase to meet bird safety standards and (2) it is only the added cost of increasing from 40 feet to 100 feet that is relevant. Most of the cost of a window is the cost of a frame, the fabrication and shipping and the installation. Thus, the cost to the builder of increasing the bird-safe level to 100 ft is very small. This is shown in <https://ornithologycenter.com/commercial-building-resources/> Base Spreadsheet at P55.

Conclusion - Positive Comparison of Benefits and Costs.The comparison of the cost versus benefit is very clear. The higher bird safety level (100 feet) will save about 1.7 million birds at a cost to the builder of only 0.1%. That is a positive benefit vs. cost ratio in favor of the higher safety limit of over 1,000 times.

**Parking Place Costs Compared** Some local ordinances require a certain number of parking spaces for every X number of square feet of a building. It costs $28,000 for a free-standing space, not including land cost. Why don’t we save the builders the cost of one parking space in return for a higher bird safety level? The net savings to the builder will be $10,000.

## ****Section 3 The Ten Percentage Exemption****

It may be that this exemption was added at the request of the retail industry. If this provision is designed to exempt display windows, it is the equivalent of driving a carpet tack with a sledgehammer.

**First, it is Too Broad.**

According to Department of Energy statistics only 16% of commercial buildings are mercantile.  The other 84% are office, warehouse, lodging, food service and health care buildings. These types of buildings are not dependent on window shopping as a primary means of inducing consumer purchases. Even in the case of retail establishments, there are often windows which are blocked from the back so that there is no vision through them. Such windows are very reflective and dangerous to birds.

**Second, it is Unnecessary.**

UV based windows, with collision prevention components, can be seen by birds, but do not interfere with human vision. Eastman Kodak currently has a patented product based on a UV system which was tested at the Acopian Center and found to be over 90% effective. It is essential that any UV product be carefully field tested by an independent organization. Not all UV based products are effective. Requiring bird-safe glass in the retail sector in California will demonstrate to glass manufacturers that there will a major market for this type of glass.

**Phase-in Option Preferable.**

In the first few years of the implementation of the regulation, bird-safe glass which is only 28% above the cost of non-bird safe glass may not be immediately available.  Thus, it would be reasonable for the commission to offer a phased-in program while the manufacturing capacity is developed. A phase-in is clearly preferable to lowering the safety standard below 100 feet. The higher standard will reduce avian deaths for decades. The long-term savings clearly outweigh any loss in avian deaths due to a phase-in.

**60% of All the windows Above 40 Feet** The regulation also says that“No less than 60 percent of building elevation, 40 feet (12 m) above grade to the top of the building elevation, shall incorporate bird-friendly mitigation strategies.” This requirement may be very beneficial, but also very costly. At present there is not enough information to make any considered judgment about this provision.

**Appendix 1. Computing the Added Bird Deaths Caused by Using a Lower Bird-Safe Height (36 feet.)**

**The number of new buildings** each year in California is at 1, C - 4,058 new commercial buildings.  Based on Deportment of Energy data.

**Birds Saved Per Buildings Annually** Assume that just 2 birds are saved by increasing the safety height from 40 to 100 feet.  See 2.C

The 4,058 new commercial buildings multiplied by the birds saved (or lost) In this hypothetical it is 2 birds.  See 3,C

**Added Death over 20-year Building Life.** Since the typical life of a building is 20 years, the annual extra deaths (2) per building is multiplied by 20 years, which yields the number in 3, C. These are the deaths from the buildings started only in the first year the code in in place.

**Life of Code Provision** The code will be in place for many, many years – assume 10 (7,B)

**All Buildings, 20 Years over that Decade**. Over that decade 40,000 more new buildings will be built all killing 2 per building per year for 20 years.  Thus the one year fatality level – in 5,C is  multiplied by 10 and the result is in 8,C  It is about 1.6 million bird deaths from the lower standard.

**Higher Bird Saving Assumptions** If we assume instead that increasing the bird safe height to 100 feet saves 4 or 6 birds, the added dead birds is 3 to 5 million.C9,C10

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| --- | --- | --- | --- |
| 1 | Number of new bldgs. built annually in California (subject to new code) |  | 4,058 |
| 2 | Assumed birds saved by increasing to 100 feet |  | 2 |
| 3 | Extra bird deaths caused by the 4058 buildings in the first year |  | 8,116 |
| 4 | Typical life of a building | 20 |  |
| 5 | So the new 4,058 buildings in the first continue to kill the extra birds for 20 years |  | 162,322 |
| 6 | Future years |  |  |
| 7 | Assume that the 40' standard, which causes the deaths of 2 added birds is in place for 10 years. (This is conservative.) The number of buildings over that 10 years is | 10 | 40,581 |
| 8 | Extra kill from the40,000 buildings built at the 40' code over the next 10 years |  | 1,623,223 |
| 9 | Extra kill if higher safety level 100' saves 4 birds |  | 3,246,446 |
| 10 | if 6 birds saved |  | 4,869,669 |
|  |  |  |  |

**Appendix 2** The economic analysis on which these estimates are made assume a 9-floor building, 100-foot high, of 32,400 square feet costing $562 sq. ft. The entire front of the building is glass. The total cost is $18,208,000. Three scenarios were run assuming that bird-safe glass costs 12%, 28% and 55% more than standard commercial glass. The mid-range estimate is used in these comments. The analysis can be downloaded at <https://ornithologycenter.com/commercial-building-resources/>