



San Francisco  
Planning

DESIGN GUIDE

# Standards for Bird-Safe Buildings

**THE FACTS**

Over 100 million bird deaths annually

Reflective, transparent materials cause hazardous collisions

Birds attempt to reach shelter, food and migratory paths reflected in glass



**THE TRIGGERS**

New Buildings

Additions

Alterations - replacing 50% or more of glazing

**THE CODE**

Per San Francisco Planning Code Section 139, "Standards for Bird-Safe Buildings," there are two types of bird hazards:

**Location-Related Hazards:** Buildings within 300 feet of an Urban Bird Refuge.

**Building Feature-Related Hazards:** Uninterrupted glazed segments 24 square feet or larger.

*See back for treatment options >*

**Resources**

Standards for Bird-Safe Buildings document  
[sfplanning.org/index.aspx?page=2506](http://sfplanning.org/index.aspx?page=2506)

Golden Gate Audubon  
[goldengateaudubon.org](http://goldengateaudubon.org)

American Bird Conservancy  
[abcbirdtape.org](http://abcbirdtape.org)

U.S Fish and Wildlife Service  
[fws.gov](http://fws.gov)

LEED Pilot Credit #55 Bird Façade  
[usgbc.org](http://usgbc.org)

# Bird-Safe Building Treatments

Location-related hazards require treatment for 90% of glazing from grade up to 60 feet (Bird Collision Zone).

Buildings with feature-related hazards require treatment for 100% of feature.

Treatment patterns are required to be smaller than 4" tall by 2" wide (2x4 Rule).

## Glazing Options

- ▶ Glass that reflects the ultraviolet light (which birds can see) such as 'Ornilux'
- ▶ Glass which has photovoltaic cells embedded such as 'IQ Glass', or 'Voltalux'
- ▶ Dichroic glass
- ▶ Fritted glass such as *Viracon Silk-screen*
- ▶ Etched Glass
- ▶ Translucent glass such as 'Profilite'
- ▶ Film
- ▶ Others

## Building & Fenestration Strategies

- ▶ Layering and recessing glazed surfaces
- ▶ Louvers
- ▶ Overhangs and awnings
- ▶ Screening
- ▶ Netting
- ▶ Angled or faceted glazing - minimize reflectivity
- ▶ Opaque surfaces
- ▶ Structurally break-up large expanses of glass
- ▶ Others

## Additional Precautions: Lighting & Wind Generators

- ▶ Avoid beacon effect and blind spots
- ▶ Minimal external lighting
- ▶ No uplighting
- ▶ Shielded lighting
- ▶ No event searchlights
- ▶ Wind Generators must appear solid



Art silk-screen at City College of San Francisco Chinatown Campus



Etched louvers at San Francisco Federal Building



Screening at De Young Museum



Fritted silk-screen patterns

## Comparison of Different Treatments

Treatment	Upkeep	Longevity	Application	Cost
NETTING	*****	****	**	\$
FILM	****	***	****	\$
FRITTED/ETCHED	*****	*****	***	\$\$\$
UV/PV	****	*****	***	\$\$\$\$
SCREENS	****	****	**	\$\$
LOUVERS	*****	****	***	\$\$\$
<b>5 STARS/\$ =</b>	<b>MINIMAL</b>	<b>DURABLE</b>	<b>EASY</b>	<b>PRICEY</b>

Source: American Bird Conservancy, San Francisco Planning Department

## Exceptions: Zoning Administrator Waivers

- ▶ **Bird collision zone treatment exempt for:** residential-zoned buildings less than 45 feet tall with limited glass facade (less than 50% glazing); building feature-related treatment still required.
- ▶ **More treatment required (95%) for:** residential-zoned buildings less than 45 feet tall with substantial glass facade (more than 50% glazing).
- ▶ May waive or modify requirements per recommendation of qualified biologist.