

CENTRALCITY
2035

Decision Packet E: Bird Safe Glazing

PSC Work Session 4 – 01/24/2017



Bureau of Planning and Sustainability
Innovation. Collaboration. Practical Solutions.

City of Portland, Oregon
Charlie Miller, Mayor • Jason Anderson, Director



Portland Bird-Safe History

- 2013 – City Council Resolution directing bureaus to seek ways to infuse bird safe design into city plans and policies.



Fire Station 21 – LEED Gold Certification
Utilized the LEED 55 Pilot Credit: Bird Collision Deterrence

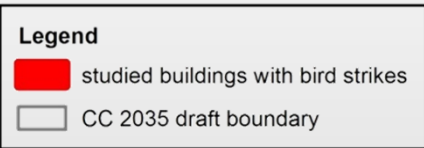
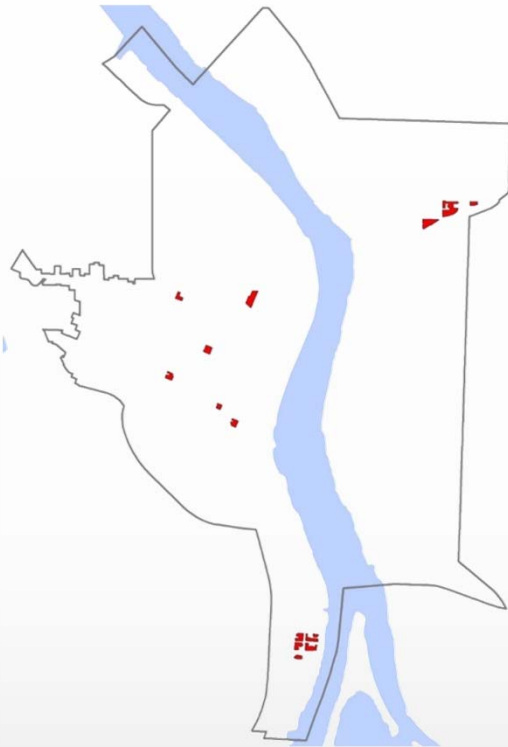


Problem: Glass

- Up to 1 billion birds die annually in the U.S. as a result of window strikes.
- **Birds do not perceive glass as a solid.**
 - Reflections: sky and vegetation create a habitat mirage.
 - Transparency: birds attempt to fly through to habitat visible on other side of glass.
- The % of **unmarked glass** on a façade is the strongest predictor of the magnitude of bird mortality at a building, **especially if it reflects vegetation**



Bird Window Collisions in Portland



Two Bird Collision Studies in Portland:

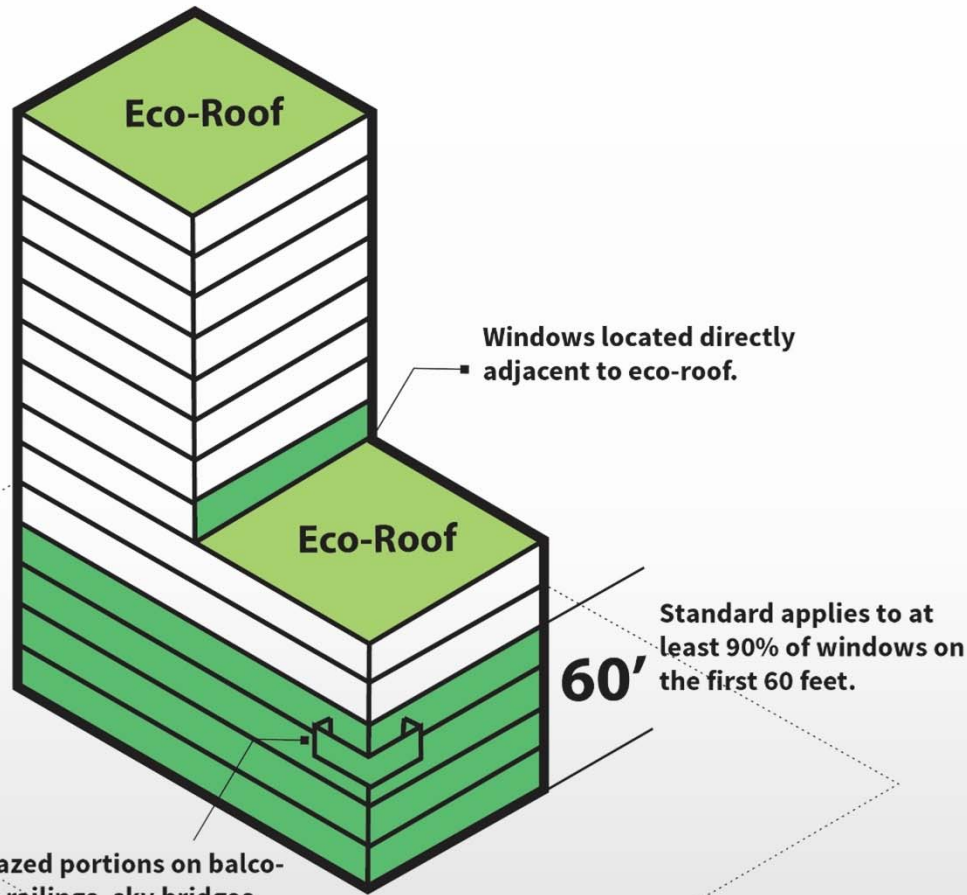
- Audubon Society of Portland 3 year study of Downtown and Lewis and Clark College

Summary Statistics (combined for both studies):

- 17 buildings
- 44 species (42 native, 2 non-native)
- 252 verified bird window collisions
- Predominately songbirds, hummingbirds, woodpeckers
- Large proportion of neo-tropical migrants



Overview of the Proposed Standard



Where the standard applies:

- New development and major remodels that alter at least 75 percent of the building's façade.
- At least 90 percent of windows on the first 60 feet of a building.
- Windows located directly adjacent to an eco-roof.
- Glazed portions on balcony railings, sky bridges, atria and glass walls.



Amendment #1. Apply standard to the entire Central City

Initial Proposed Draft Map:

- Standard applied to areas adjacent to the river general overlay and areas within 200 feet of one acre or more of contiguous tree canopy.

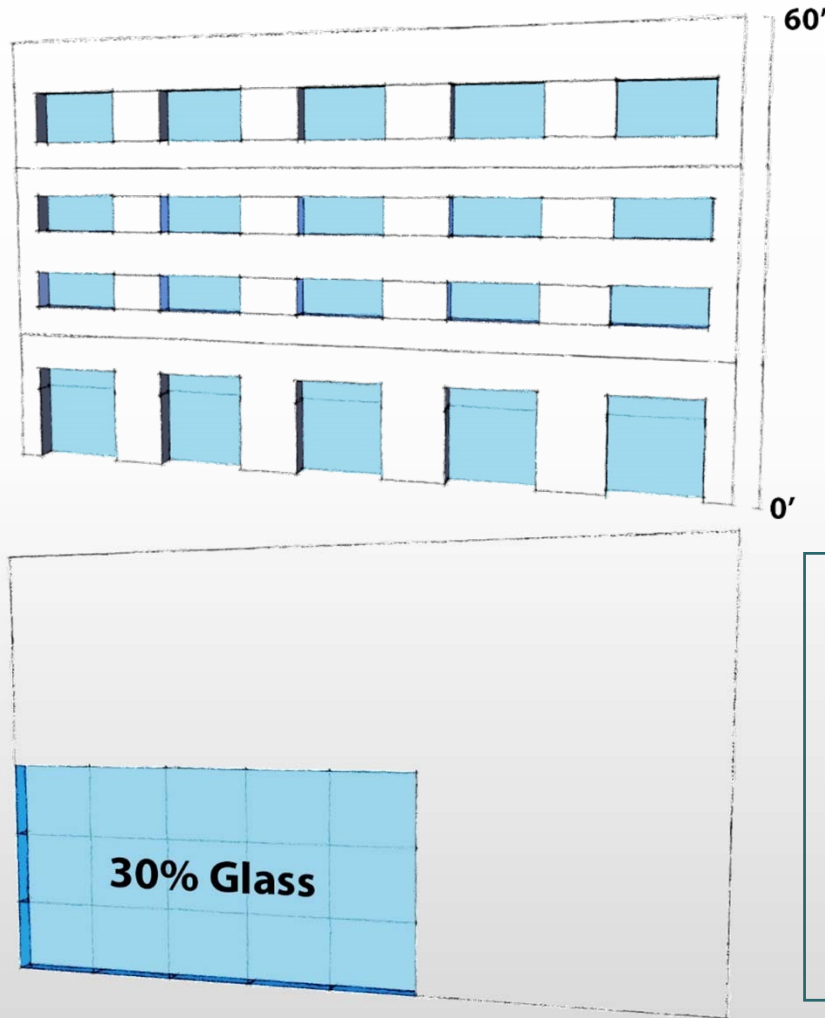
Reasons to apply standard Central City wide:

- BDS voiced concerns that the map was too complicated and would be difficult to implement; other ways to address affordable housing and traditional industrial
- BES voiced concerns that the map does not reflect the migration patterns of regional songbirds.
- The map does not take into account the high concentration of glazing AND goals to expand tree canopy throughout the entire Central City.



Amendment #1. Add Glazing Percentage Threshold

If a building façade has 30 percent or more glazing, the bird-safe standard will be applied to that facade.



Glazing percentage unlikely to affect:

- Traditional Industrial
- Affordable Housing

Exemptions in the code:

- Single Family Dwellings
- Landmarks or Contributing Structures in Historic or Conservation Districts



Amendment #1. Add Glazing Percentage Threshold

✓ Facade triggers the proposed standard

Cosmopolitan on the Park – New Construction



✓ North Façade
79% glazing



✓ East Façade
82% glazing



✓ West Façade
66% glazing



✓ South Façade
72% glazing

Towne Storage Building – Major Renovation



North Façade
1% glazing



East Façade
28% glazing



West Façade
27% glazing

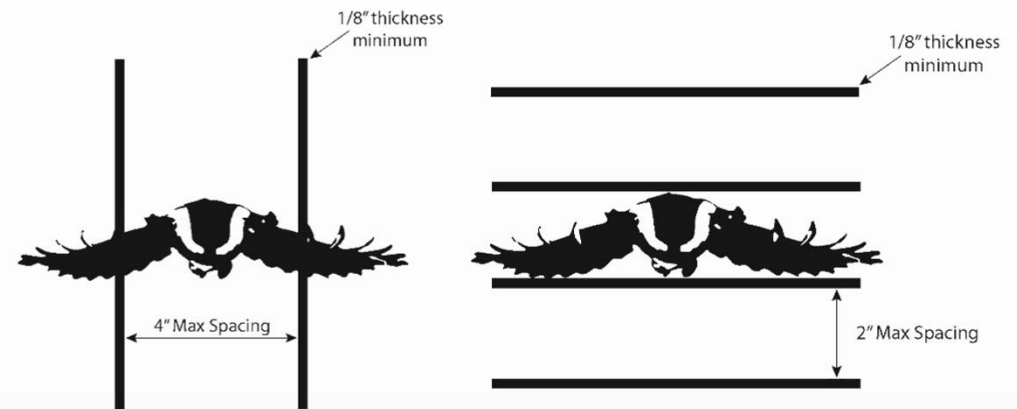


✓ South Façade
33% glazing

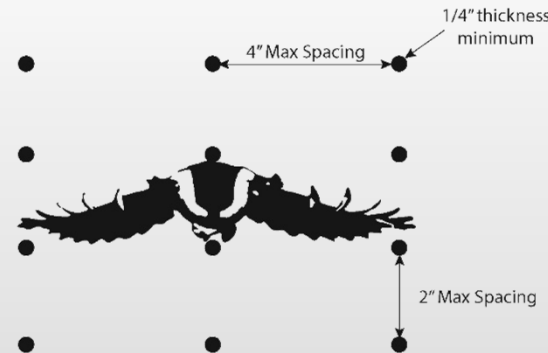
Amendment #2. Illustrate the Standard

The drawings will show types of patterns and dimensions (2x4 rule) which will provide clarity for design practitioners and help eliminate some measurement language in the code.

- Visible markers at least 1/8 inch wide, with a maximum spacing of 4 inches for vertical elements, or a maximum spacing of 2 inches for horizontal elements;



- Circular or square markers at least 1/4 inch in diameter



Amendment #2. Create Admin Rule for Available Options

City staff will be able to easily update the list of available bird-safe treatments in order to keep up with changing technology.



ASTM WK47853

New Test Method for Bird Collision Deterrence Material Threat Factor

[What is a Work Item?](#)

Developed by Subcommittee: [C14.08](#) | Committee [C14](#) | Contact [Staff Manager](#)



Amendment #3. Glazing Treatments for the Ground Floor

Identify bird-safe treatments such as UV coating, acid etch and lightly fritted glass, to ensure ground floor transparency and promote active streetscape.

U-V Coating



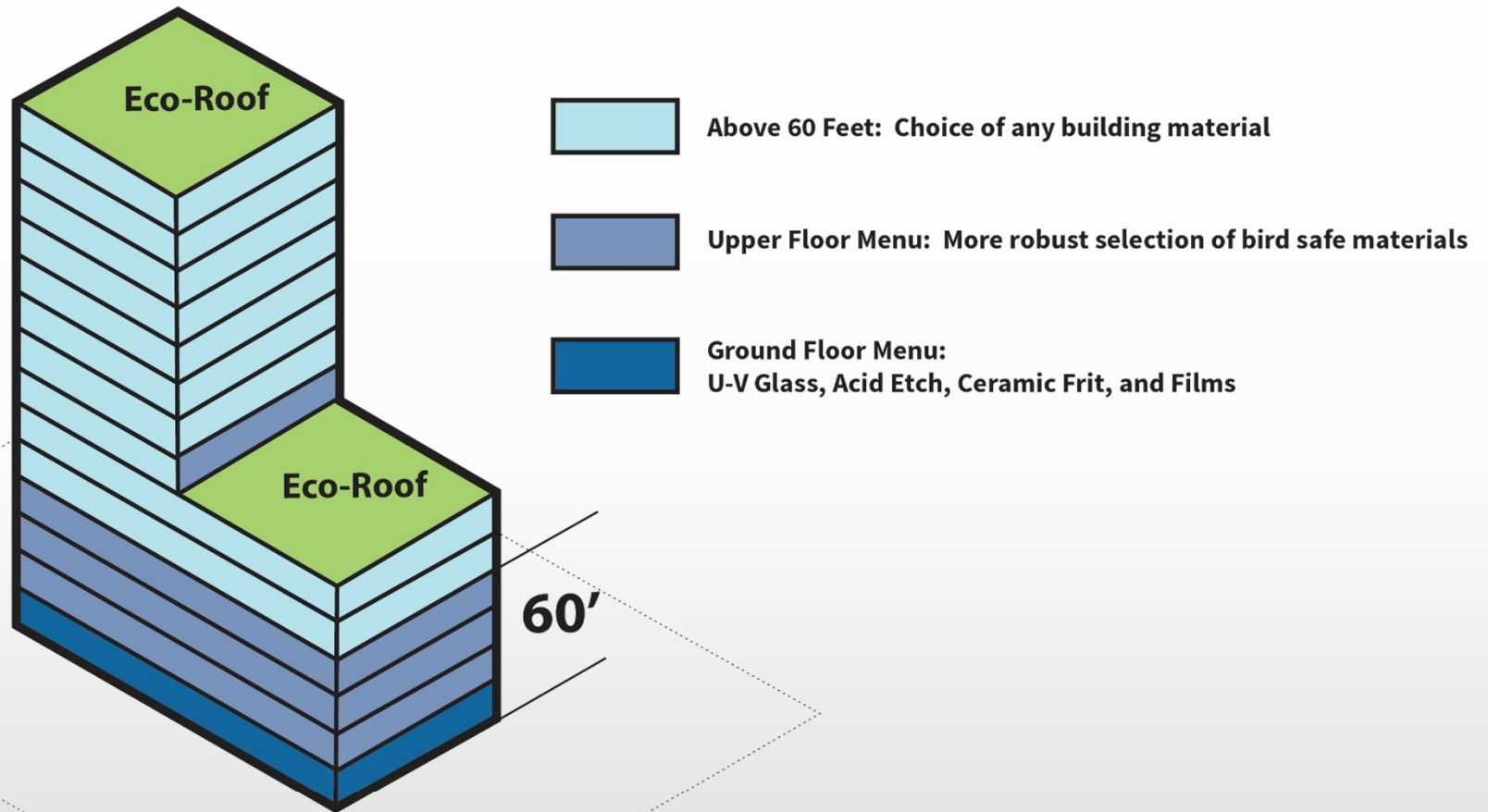
Acid Etch



Ceramic Frit



Amendment #3. Bird-Safe Building Materials Breakdown



Cost Comparison & Case Study

	Technology	Bird-safe square foot (similar thermal performance)	Increased square foot cost for bird-safe*
Standard glass: \$15/sf	UV glazing	\$25 - 38	\$10 - \$23
	Fritting	\$21 - \$25	\$6 - \$10
	Etching (acid)**	\$40	\$25
	Film**	\$19	\$4
<p>* Costs are rough estimates based on limited data ** These technologies involve post-manufacture treatments. Other technologies may be available that were not identified in this research.</p>			



Project: **Forest Hall, Oregon Zoo**

Status: **Complete**

Total Building Cost: **\$20,500,000**

Bird Safe Cost: **\$149,900**

Cost ratio of budget: **0.73% (.0073) of total budget**



Other Cities Developing Bird-Safe Regulations



Alphen aan den Rijn, Netherlands



Toronto



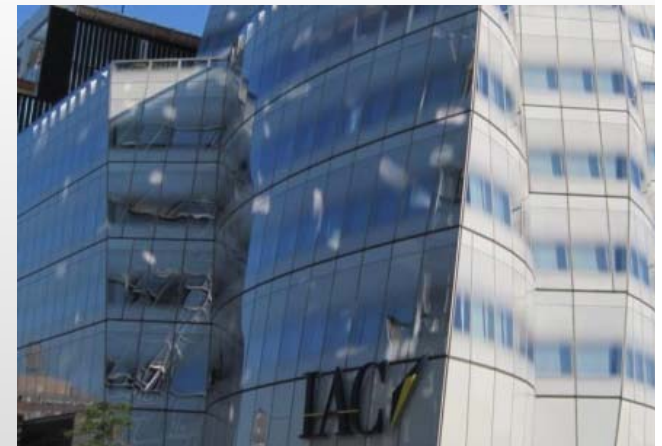
New York



San Francisco



Minneapolis



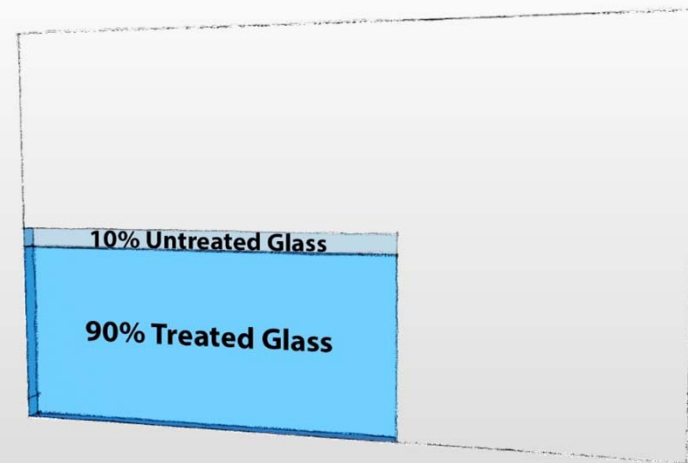
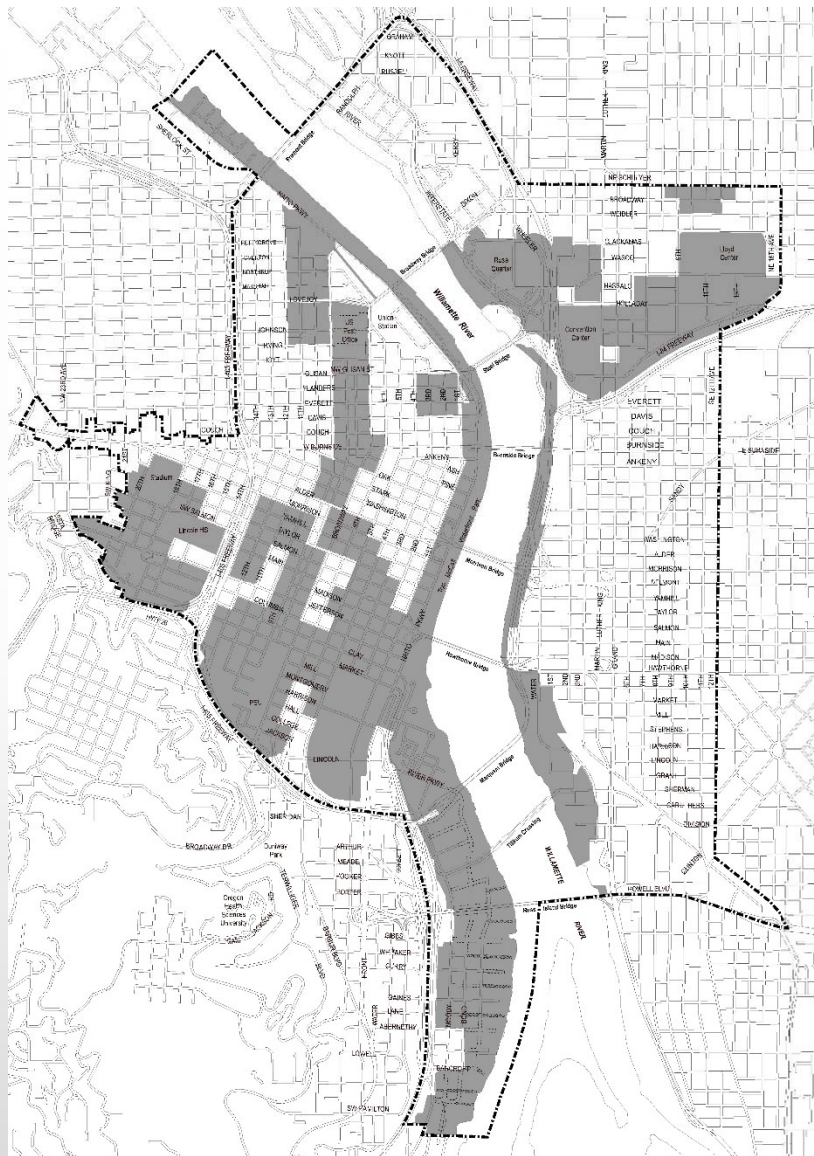
New York



Add'l slides

- 2015 - Updated Green Building Policy which requires all new city-owned structures and facilities to incorporate measures to reduce bird strikes and fatal light attraction.
- 2012 – City of Portland releases a voluntary Resource Guide for Bird-friendly Building Design.
- 2003 – Portland becomes a pilot bird city as part of the USFWS Urban Migratory Bird Conservation Treaty. Act.







Project:	Fire Station 21
Status:	Complete
Total Building Cost:	\$6,227,520
Bird Safe Cost:	\$52,311
Cost ratio of budget:	0.84% (.0084) of total budget



Technology	Bird-safe square foot (similar thermal performance)	Increased square foot cost for bird-safe*
UV glazing	\$25 - 38	\$7 - \$21
Fritting	\$21 - \$25	\$6 - \$10
Etching (acid)**	\$40	\$25
Film**	\$19	\$4

* Costs are rough estimates based on limited data

** These technologies involve post-manufacture treatments. Innovative and/or local variations may be available that were not identified in this research.

