

urban
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SEDUCED BY THE VIEW



Urban Green Council

Urban Green Council, the U.S. Green Building Council of New York, is a nonprofit dedicated to the advancement of sustainability in urban buildings through education, advocacy, and research. Our educational programs range from technical workshops for architects and engineers, to outreach to thousands of building owners on major new NYC laws, to GPRO—a national training and certificate program for building trades, contractors, and operators. With our in-house technical staff and network of expert members and pro bono consultants, Urban Green Council is a center for urban green building policy development, assisting with New York City's Greener, Greater Buildings Plan and leading the NYC Green Codes and Building Resiliency Task Forces.

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INTRODUCTION

If you've seen a crane in New York City over the last decade, chances are it was hovering over an all-glass building. That's because glass is incredibly popular: building owners consistently tell us that the bigger the windows, the easier it is to rent or sell an apartment or office space. And in turn, owners and brokers feed this trend by marketing glass as a key amenity. Promotional materials for buildings with all-glass walls promise "magnificent," "stunning," and "breathtaking" views where "shades are the only thing between you and glorious...sunsets," contributing to an "expansive living experience," "bathed...in natural light."

But views are not all that come with floor-to-ceiling glass. There can be loss of privacy¹, glare, increased noise², and excessive heat in summer or freezing walls in winter. All the tenants in the building may experience these problems, even if only people on upper floors get to enjoy the views.

From an environmental perspective,
glass buildings are a major step backwards.

Even the very best windows insulate barely as well as a single inch of wall insulation; by code, modern solid walls must provide about five times more insulation than modern windows.^{3,4} As a result, glass buildings use more energy (raising the bills) and have lowered resiliency during power outages, since the glass doesn't hold heat in winter or keep it out in summer⁵. Even birds are affected: the more glass, the more birds die flying into windows they can't see.^{6,7}

Once constructed, glass buildings won't go away anytime soon. Building equipment like lighting and boilers can be replaced with more efficient versions as technology improves, but the windows installed today will still be in place 50 years from now — or even longer. This means that over time the energy lost through the façade will become a larger and larger factor in the overall efficiency of the building, as other equipment improves but the windows and walls don't. A permanent, energy-wasting façade will sandbag a building's ability to improve in a future of rising energy prices and more frequent heat waves.

While the environmental downside of all-glass buildings is well documented in the green building community, we set out to answer a different question: what is the behavior of tenants in NYC who live and work in the all-glass residences and offices with those breathtaking views? We looked at dozens of all-glass buildings and found that on average, blinds or shades covered about 59 percent of the window area. Tenants are moving into these rooms with a view, but more often than not, can't see out the window.

DATA COLLECTION & REPORTING

For our study, we observed 55 buildings that could be easily photographed from the street, including 18 commercial and 37 residential properties. We photographed all exposed sides of the building, noting the direction the windows faced and the location, date, and time the photo was taken. Almost all the photos were taken on weekdays, and never while it was raining. In all, we took a total of 107 photos in Manhattan, Brooklyn, and Queens from July–September, 2012.

We then measured and recorded the fraction of each window in the photo that was covered by blinds or shades. We only counted the glass that people can see through, known as “vision” glass. Other parts of the building may look like glass, but are non-transparent. This non-vision glass was not included in the study. We added up the total vision glass and the areas covered by blinds from multiple photos to calculate the overall percentage of vision glass blocked for each side of every building.





55 buildings were photographed
in Manhattan, Brooklyn, and Queens.

● Residential Buildings ● Commercial Buildings



SEDUCED BY THE VIEW : A CLOSER LOOK AT ALL GLASS BUILDINGS

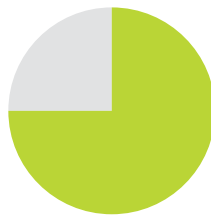
ANALYSIS

We started with some questions about how tenants use the blinds and shades in their apartments and offices. In the morning, are the blinds pulled more on the east side of a building to block out the rising sun? Does this change in the afternoon as the sun sets and west-facing windows encounter the solar glare? And what would that mean for north and south facing windows? Were there differences in tenant patterns between commercial and residential buildings? Our analysis isn't conclusive since our sample size was relatively small, but the consistency of the results strongly suggests common patterns of tenant behavior.

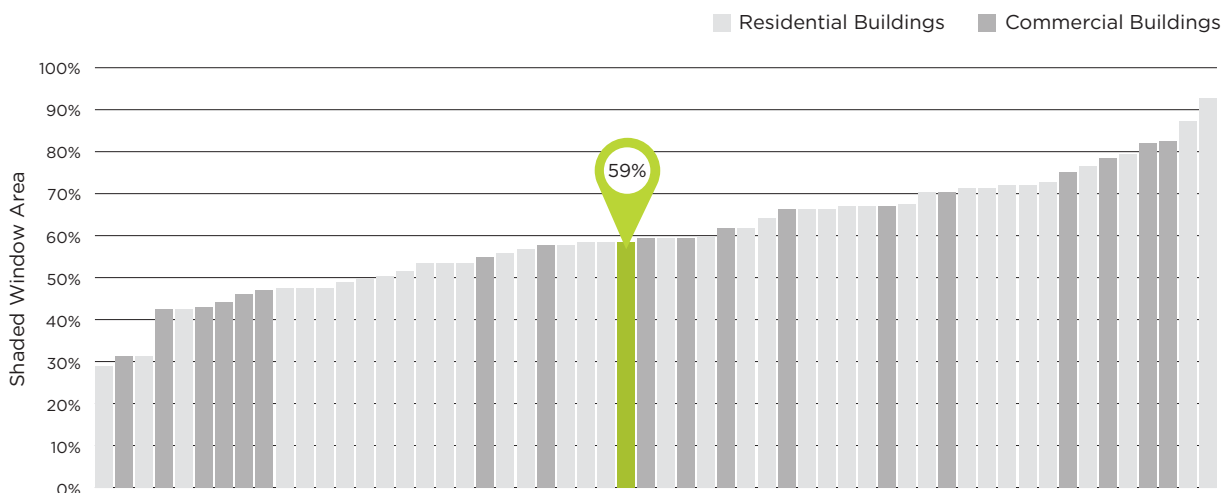
Overall, our analysis found:



On average, 59% of window area was covered by blinds or shades



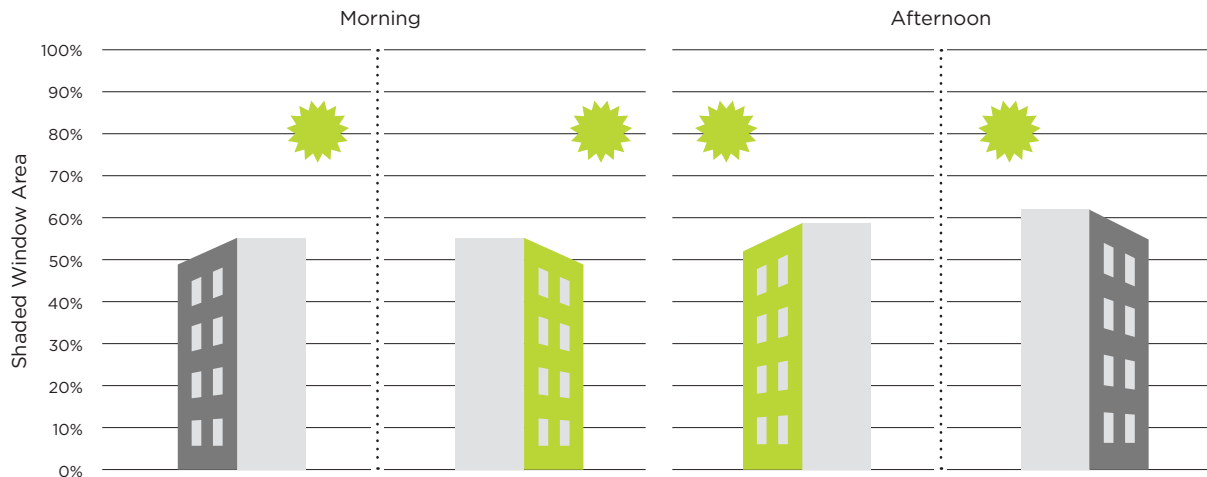
Over 75% of buildings had more than half their window area covered by blinds or shades



Sight unseen? Shades cover 59% of window area

ANALYSIS

Contrary to what we expected, we found that tenants did not close eastern blinds in the morning and western ones in the afternoon. In fact, in the morning, there was slightly more window area covered by blinds on the west-facing side, even though the sun was rising from the other direction. And in the afternoon, slightly more east-facing window area was covered, despite the sun setting in the west. However, the differences were not statistically significant, and about the same fraction of the window area was covered regardless of the time of day and the direction the window faced.



Shaded window area does not depend on window direction or time of day

Also, we did not observe a significant difference in window coverage based on the direction a window faced (north, south, east, or west), and there was no appreciable difference between commercial and residential properties. On average, tenants had blinds or shades closed to cover about 59 percent of the window area, in all directions and in both building types.

To see if tenants opened the blinds more in the evening than during the day, eight buildings were selected at random and photographed between 7 and 8 pm. Blinds covered 62 percent of the window area in these evening photos, not significantly different from the daytime results.

CONCLUSIONS

A photograph of a person from behind, adjusting horizontal window blinds. The scene is bathed in a strong yellow-green light, creating a high-contrast, almost monochromatic effect. The person's hands are visible as they pull on the cords of the blinds. The blinds are partially open, showing horizontal slats.

In the sample we investigated, the average coverage of windows is more or less constant regardless of time of day, direction the window faced, and type of building: about 59 percent of window area was covered by blinds. This suggests glare may not be the reason blinds are widely in use — perhaps it's privacy, the inconvenience of raising them once they are lowered, or some other cause.

Views from all-glass buildings cost tenants a premium in energy bills and even the monthly rent. But society also pays a price: higher energy costs and risk of blackouts due to the increased power needs of these buildings, and in turn more carbon pollution that contributes to global climate change and increases air pollution in our city. Tenants also experience drawbacks from large windows, including less privacy, more noise, and an increased risk of dangerous indoor temperatures during a blackout.

NEXT STEPS

Daylighting and incredible views can be a valuable amenity for tenants. But tenants can get these benefits without experiencing the problems that arise from having too much glass. There are two key steps to improving the situation:

■ Better design

Architects, engineers, and developers should work together to discover ways to resolve energy and comfort issues while maintaining great views. For instance, designing frames of windows to transfer less energy by reducing their size, changing their shape, and using materials such as fiberglass instead of highly conductive aluminum may help. Careful study of human design factors, allowing the bottom two or three feet of a wall to be an insulated structure rather than glass, or having floor-to-ceiling glass only on portions of a wall are other possible design solutions that can provide plentiful natural light and desirable views.

■ Broker communication

Brokers should make sure that tenants realize the full implications of an all-glass building — not just the great views, but also the downsides they may experience. That way, prospective tenants can make decisions with a clear understanding of what's in store before they move in. There is a place in the market for buildings that give tenants everything they want — city vistas that don't compromise resiliency and energy savings — but these buildings won't be built until brokers communicate these desires to developers.

Tenants are choosing glass buildings and then drawing the shades over the view. Today, they may not be aware of the hidden price they pay for the view they have obscured. But with time, they may start to see through the widespread promotion of all-glass buildings, resulting in a market shift to better walls. This shift may already be occurring on the Upper East Side⁸, and is a topic for further studies or the media.

With improved building design and broker communication, New York can have offices and apartments with natural light and great views without sacrificing the other critical benefits of a well-designed building.

ENDNOTES

¹ Zara, Christopher. "Arne Svenson, Photographer Who Spied On Tribeca 'Neighbors,' Wins Legal Battle In Privacy Court Case." International Business Times (August 6, 2013). Retrieved from <http://www.ibtimes.com/arne-svenson-photographer-who-spied-tribeca-neighbors-wins-legal-battle-privacy-court-case-1374381>

² Buckley, Cara. "Behind City's Painful Din, Culprits High and Low." The New York Times (July 12, 2013). Retrieved from http://www.nytimes.com/2013/07/12/nyregion/behind-citys-painful-din-culprits-high-and-low.html?_r=0

³ American Society of Heating, Refrigerating and Air-Conditioning Engineers. ANSI/ASHRAE/IESNA Standard 90.1-2010. Atlanta, GA.

⁴ International Code Council, Inc. 2012 International Energy Conservation Code. Washington, D.C.

⁵ Straube, John. "Can Highly Glazed Building Façades Be Green?" Building Science Corporation, (September 11, 2008). Retrieved from <http://www.buildingscience.com/documents/insights/bsi-006-can-fully-glazed-curtainwalls-be-green>

⁶ "Bird Friendly Building Design." American Bird Conservancy and New York City Audubon. Retrieved from <http://www.abcbirds.org/newsandreports/BirdFriendlyBuildingDesign.pdf>

⁷ Foderaro, Lisa. "A City of Glass Towers, and a Hazard for Migratory Birds." The New York Times (September 14, 2011). Retrieved from http://www.nytimes.com/2011/09/15/nyregion/making-new-yorks-glass-buildings-safer-for-birds.html?_r=0

⁸ Barrionuevo, Alexei. "The New 'Old Money' Upper East Side," The New York Times (January 10, 2013). Retrieved from http://www.nytimes.com/2013/01/13/realestate/big-deal-the-new-old-money-upper-east-side.html?_r=0

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