

SKY-HIGH BILLBOARDS & URBAN COMPUTING: PUBLIC REALM NORMS AND ZONING CRITERIA FOR TOWER FAÇADE DISPLAYS

by
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Light emitting diodes and other lamping source technological innovations, together with urban computing, have spawned private sector competition and citizen confusion within and among municipalities. Technological advances in outdoor displays promote creativity (and urban competitiveness, perhaps) while signaling achievement and status. Such displays increasingly are imbedded within the built environment. Some generate light and glare that are disorienting and otherwise adversely affect adjacent dwellers. The outdoor advertising industry delivers media experiences that ignore other cityscape considerations beyond the paying customer’s brand recognition goals. The mélange of municipal reactions steers local government administrations off course into the land use entitlements realm. Zoning, and those applying land use regulations to maintain civic order, umpire the rise of outdoor displays that brand city enclaves without particular wayfinding purpose.

This Paper proposes land use standards and their application to high-rise building outdoor displays for intensely urbanized mixed-use intersections of work, dwelling, and play. These standards seek equilibrium to optimize harmonious occupancy. Competing urban concerns ought to be addressed, such as unwanted nocturnal over-stimulation inducing sleeplessness among dwellers in mixed-use enclaves, and responsible stewardship of the environment. Such concerns, and the balancing of vibrancy and artistic sensibility against neighborhood preservation, are among the topics discussed. The goal is to re-establish common-sense governance metrics where cities inject into their “quality of life” mix new phenomena like building façade decorations featuring wall-projected computer art and other interactive images.

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* © 2019 by the author, who is one among a half-dozen Zoning Adjustment Hearing Officers for the City of Phoenix, an attorney, and a college professor in Arizona. The opinions and prejudices expressed in this paper are not attributable to others in any capacity. This paper is for Bruce M. Culmer and Raj Richardson, men of substance who, fully self-aware, do not need their names displayed in LED lights.

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I. INTRODUCTION TO TALL BUILDING WALL SIGNS ISSUES

A. *Regulations and Sign Conspicuousness Under Industry Standards*

Lately, players in the high-rise sign stakeholder space seem focused on technical terminology and inconsequential inquiries in determining the appropriate balance between mixed-use development “expectations” (where dwellers are concerned), and ample identification for commercial building users and owners.¹ Part of the reason for these distractions is the rapid pivot from conventions and terminology after abandoning mercury vapor light sources and tube-based sign illumination (like neon) and their accompanying impacts in favor of Light Emitting Diode (LED) sources, shedding once familiar terms like “watts” and “candle power” and substituting jargon like “lumens” and “Kelvin,”² reflecting lamping technology changes. High-rise buildings are a subset of those municipal structures hosting exterior wall or rooftop signs, and they have peculiar local government requirements for placement, size, and brightness.

1. *Regulatory Statements of Policy*

Many municipal ordinances contain general statements of high-rise wall sign policy considerations, especially where mixed use and densification are express community development goals. The Phoenix, Arizona sign ordinance offers this policy

¹ Here, by “high-rise sign” I mean wall signs erected higher on the façade than a four-story building’s typical height, being about 56–60 feet.

² “Lumens” are a raw measure of light output, sometimes called brightness. The more lumens in a light bulb, the more intense is the projected light. “Kelvin” is an indicator of color temperature; here, the higher the “temperature,” the closer the sign comes to displaying blinding “white light.” For illustration of relative Kelvin measurements, a halogen lamp produces 3,000K; moonlight on a clear night resides in the range of 4,100K; and “broad daylight” is approximately 5,000K–5,500K, except in those intense “overcast glare” conditions, where the daylight measurement is approximately 6,500K. See *Bulbs 101: Part 1*, COLOR CORD CO., <https://www.colorcord.com/blogs/lighting-design-blog/bulbs-1> (last visited Mar. 8, 2020); Karolina M. Zielinska-Dabkowska, *Make Lighting Healthier*, 553 NATURE 274, 275 (2018). In short, while lumens tell you how easy it will be to read your book given the amount of available light, Kelvin tells you how hard it will be to see the pages without eye-squinting in respectively “cooler”—or “warmer”—lighted conditions. But the problem with using Kelvin as a measure is that it is a color temperature, an approximate measure not accurately describing the light spectrum; spectral characteristics of recommended light sources are best understood in nanometers. *Id.*

for tall buildings:

All signs shall be *no larger than necessary* for visibility and readability. Factors to be considered in determining appropriate size shall include topography, volume of traffic, speed of traffic, visibility range, proximity to adjacent uses, amount of sign copy, placement of display (location and height), lettering style and the *presence of distractive influences*.³

Other large American communities attempt to have tall buildings or multi-building projects adhere to comprehensive sign plan paradigms, avoiding piecemeal placement near other signs for prolonged periods. Here, too, community policy statements attempt, with mixed success, to afford guidance on the limits to approvals:

All signs shall be placed where they are *sufficiently visible and readable for their function*. Factors to be considered shall include the *purpose* of the sign, its location relative to traffic movement and access points, site features, structures, and sign orientation relative to viewing distances and viewing angles.⁴

Some elements of these policy statements confuse more than clarify. In the first bullet summary, what is meant by “no larger than necessary?” And in the second bullet summary, what constitutes “sufficiently visible and readable for their function?” At what distance separating the viewer from the sign copy? (These bulleted statements appear to be two efforts to say the same thing: “enough, but not too much.”)⁵ Furthermore, how are these statements affected by prior approvals of high-rise wall signs of a magnitude greater than needed upon approval, meaning exceeding “sufficiency” in scale? Also, what are “distractive influences”⁶—and how do they impact what is “necessary” or “sufficient” in context? It is likely reasonable that other large or bright signs on high-rise walls provide distractions, especially if these “competitors” bear color-changing letters or attraction-seeking aesthetic elements. An

³ PHOENIX, ARIZ., ZONING ORDINANCE § 705(E)(2)(b)(3) (2019) (emphasis added).

⁴ PHOENIX, ARIZ., ZONING ORDINANCE § 705(E)(2)(b)(1) (2019) (emphasis added). Oddly, if “distractive influences” are being addressed, then other, proximate, immodest signs must themselves be notable factors, but precisely how? Are other building signs to be a factor in determining the maximum square footage, letter heights and colors, and other aspects of the new applicant’s sign? See text at *supra* note 3.

⁵ The author prefers this carbuncle: “Everything in moderation, nothing to excess,” attributed first to Socrates. Also, the hearing officer/examiner/decider may explain metaphorically her decision for sign implementation:

No, you can’t always get what you want
 You can’t always get what you want
 You can’t always get what you want
 But if you try sometime you find
 You get what you need . . .

THE ROLLING STONES, *You Can’t Always Get What You Want*, on LET IT BLEED (Decca Records 1969).

⁶ Literally, of course, that means something else at any elevation proximate to the high-rise sign that diverts the typical traveler’s eye away from the wall sign copy.

unexplored thread that seems purposeful in bringing clarity addresses the function(s) of such signs (or their *purpose*, as the Phoenix ordinance states) in the context of the neighborhoods where they are operated.

2. *Illuminated Sign Owner Desiderata*

What does the sign industry inform us is essential for customer satisfaction? That depends, of course, upon the philosophical depth of the sign owner's world view. Some might say that the urban visitor or dweller has a deep-seated need for stimulation and expects her experience of the city to satisfy that need:

However, in a contemporary condition in which, according to [Hans Ulrich] Gumbrecht, we *desire* rather than avoid intensified stimuli, [Sigmund Freud's] protective mechanism then also entails that presence effects must increasingly intensify in order to effectively help us with achieving an enhanced sense of presence. This is because we continuously adapt to new levels of intensity. . . . In light of Gumbrecht's consideration of our desire for presence, Freud's protective shield may be considered a mechanism by which we *adapt* to stimuli and develop an ability to cope with our mediated reality; a mechanism that contributes to *pushing* our desire for more and stronger presence effects. Consider then how the economic growth logic on which the city light festivals and current upgrades of architecture with spectacular lighting schemes relies exactly on this *desire* for presence: on people's desire for spectacularizing experiences that make us feel present in the here and now. At this more sensible level, the pace of implementation of intensifying media aesthetic developments in urban environments reveals our *desire* for the ambient reality they create.⁷

If urbanite craving for ambient reality presence is as strong as presumed by the sign industry, then the main ingredient in consumer fulfillment is "noticeability," sometimes known as "conspicuity." This connotes the obviousness of the sign that is competing for a viewer's attention.⁸ Sign luminance is the most important key, besides size of the letters in the copy, to a sign's conspicuousness.⁹ There are calculation methods for estimating a sign's detection distance, using the luminance of the sign (in contrast with the luminance of the ambient environment) as one of those

⁷ Tanya Søndergaard Toft, *Contemporary Urban Media Art—Images of Urgency: A Curatorial Inquiry* 94 (Mar. 2017) (unpublished Ph.D. dissertation, University of Copenhagen) (on file with the Department of Arts and Cultural Studies, University of Copenhagen).

⁸ See John D. Bullough, *Factors Affecting Sign Visibility, Conspicuity and Legibility: Review and Annotated Bibliography*, 1 INTERDISC. J. SIGNAGE & WAYFINDING 2, 2 (June 2017). I observe here that sometimes the entire point of the sign is to cause passersby to notice the brand identified in the copy. The repetition of viewings increases the impulse to use or seek out the product or service identified with that brand. I have interviewed property managers who admitted to asking former clients to allow them to leave their management status signs "up" on these ex-clients' properties despite having no contractual relationship and no obligations, so that more passersby will view their brand more frequently.

⁹ *Id.* at 6.

factors crucial for detection.¹⁰ Unsurprisingly, higher sign luminance tends to make signs easier to detect at night.¹¹ The impact of sign luminance on conspicuity also interacts with factors such as the visual complexity of the ambient environment. Signs with higher luminance appear obvious in complex visual environments;¹² this explains why illumination levels recommended for signs are higher in brighter ambient environments such as downtowns or commercial nodes in heavily populated cities.¹³ Notably, ratings of the discomfort glare (the physical sensation of annoyance or pain experienced from viewing very bright light sources) from large-area sources depend on both the functioning luminance from the source and the *maximum luminance* of that source. Thus, two sources with the same average luminance can differ substantially in the amount of discomfort glare they produce.¹⁴

Luminance needs to be elevated to ensure adequate readability of a sign in dark (night or stormy) conditions. If luminance is too high, however, legibility can be reduced, a phenomenon known as disability glare.¹⁵ Increasing luminance can sometimes compensate for reduced visibility caused by factors such as small sign letter size,¹⁶ but if copy legibility already is adequate, increasing luminance may have little effect on improving legibility.¹⁷ The visual complexity of the ambient environment not only impacts a sign's conspicuousness, but also its legibility.¹⁸ To avoid light trespass, it is necessary to reduce the legibility index (the distance at which a sign of a given size can be read) under medium- and high-complexity visual environments, as distinguished from low-complexity environments. In addition, the luminance needed to achieve high levels of sign readability must be greater when a sign adjoins other nearby illuminated signs, contrasted with when the sign was visually isolated from other illuminated signs.¹⁹

¹⁰ Theodore W. Forbes, *Factors in Visibility and Legibility of Highway Signs and Markings*, in VISUAL FACTORS IN TRANSP. SYS.: PROC. OF SPRING MEETING, 1969 NAS-NRC COMMITTEE ON VISION 12, 17–19 (1969).

¹¹ *See id.*

¹² *See* Bullough, *supra* note 8, at 7; Frank Schieber & Charles H. Goodspeed IV, *Nighttime Conspicuity of Highway Signs as a Function of Sign Brightness, Background Complexity and Age of Observer*, in 41 PROC. HUM. FACTORS & ERGONOMICS SOC'Y ANN. MEETING 1362, 1362–66 (1997).

¹³ MARK S. REA, THE IESNA LIGHTING HANDBOOK: REFERENCE & APPLICATION 13-1–13-2 (9th ed. 2000) (noting that architects adopt lighting to enhance certain architectural features of a building during nighttime hours).

¹⁴ John D. Bullough et al., *Predicting Discomfort Glare from Outdoor Lighting Installations*, 40 LIGHTING RES. TECH. 225, 230–31 (2008).

¹⁵ KOHEI NARISADA & DUCO SCHREUDER, LIGHT POLLUTION HANDBOOK 296 (2013).

¹⁶ *See generally* Miles A. Tinker, *Experimental Studies on the Legibility of Print: An Annotated Bibliography*, 1 READING RES. Q. 67 (1966).

¹⁷ John D. Bullough & Nicholas P. Skinner, *High Visibility Reflective Sign Sheeting Materials: Field and Computational Evaluations of Visual Performance*, 33 TRANSPORT 344, 344 (2016).

¹⁸ ANDREW BERTUCCI & RICHARD B. CRAWFORD, USSC FOUNDATION BEST PRACTICE STANDARDS FOR ON-PREMISE SIGNS 4–5 (Richard B. Crawford et al. eds., 2015).

¹⁹ Jean Paul Freyssinier et al., *Luminance Requirements for Lighted Signage*, in SIXTH INT'L

While a good deal of research has been conducted on luminance levels that are optimal for signs, most of the field research is associated with traffic-related, not building-based, signs.²⁰ Given this morass of principles derived by analogies and customer demands, the next Subpart discusses why these policies and intentions generate conflict between the community's citizens served by regulatory schemes and signage advocates attempting to wrest every opportunity to increase the conspicuity of their brand-bearing signs.

B. Stakeholder Controversies

So-called “twenty-four hour” cities are today’s most electrifying American celebrations of the built environment.²¹ These cities compete successfully for knowledge workers and “creatives,” the workforce that large municipalities covet today.²² Some argue that the nighttime glow creates the city at night, generating excitement—even reverence—for the vibrant atmosphere of the metropolis, carved from the urban fabric by illumination.²³ Youthful subconscious desires for highly stimulating urban scenes within which potentially no one sleeps afford few opportunities to preserve modestly lit city blocks or dark sky ordinance enclaves.²⁴ Indeed, well-lit high-rise buildings are forms of status symbols or landmarks, orienting and helping visitors in unfamiliar quarters of the city.²⁵ The right of property owners to express themselves freely through architecture, including the expressive character of an exterior wall sign, is protected under the First Amendment to a point, but free expression must be reconciled with the competing interests of the building’s residential neighbors.²⁶ These families and older adults dwelling in mixed-use enclaves expect some visibility of the night sky, the horizon dividing cityscape, and natural environments.²⁷

CONF. ON SOLID ST. LIGHTING, PROC. SPIE 6337, 63371M (2006).

²⁰ DAWN JOURDAN ET AL., A LEGAL AND TECHNICAL EXPLORATION OF ON-PREMISE SIGN REGULATION: AN EVIDENCE BASED-MODEL SIGN CODE 18 (2013).

²¹ See generally Tim Heath, *The Twenty-Four Hour City Concept—A Review of Initiatives in British Cities*, 2 J. URB. DESIGN 193 (1997).

²² Michael N. Widener, *Animating Performance Zoning at Sustainability’s Competitive Edge*, 29 GEO. ENVTL. L. REV. 647, 671–73 (2017).

²³ See Taylor Stone, *Re-envisioning the Nocturnal Sublime: On the Ethics and Aesthetics of Nighttime Lighting*, TOPOI (2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3037926.

²⁴ See generally *id.* (arguing for “the creation and protection of dark sky reserves”); Heath, *supra* note 21 (discussing the development of urban “twenty-four hour” cities that thrive off night life).

²⁵ NARISADA & SCHREUDER, *supra* note 15, at 453.

²⁶ See Stephen F. Williams, *Subjectivity, Expression, and Privacy: Problems of Aesthetic Regulation*, 62 MINN. L. REV. 1, 40 (1977).

²⁷ See, e.g., Adrienne LaFrance, *Colorful Lights Are Turning Skyscrapers Into Tacky Billboards*, ATLANTIC: TECH. (Jan. 25, 2016), <https://www.theatlantic.com/technology/archive/2016/01/all-of-the-lights/423561/> (lighting designer quoted as saying, “In my view, even meaningless color-changing washes on the façades of buildings is a gross imposition in neighborhoods where

One ancillary expectation of adjacent dwellers is that buildings erected in their neighborhoods must form part of the cityscape, with lighting sources designed and operated to “fit” into the vicinity.²⁸ Neighbors typically view a tall building as part of the public realm, complementing the streetscape, a defining element of their city’s public space.²⁹ This realm is shared and neutral; here, no person should possess a better right to exploit the shared public space. Thus, wall sign lighting trespass becomes a selfish exploitation without offsetting public benefit, constituting a taking at others’ expense.³⁰ These residents further feel a sense of investment (and perhaps entitlement to dictate the sign permit’s outcome) after occupying abutting dwellings for years, sometimes predating commerce’s ascent in the vicinity.³¹ Revulsion of neighbors at overly conspicuous signs is commonplace, given longstanding opposition to their implementation on tall buildings without preceding dweller buy-in.³² The following is a terse summary of the conflicts between sign applicants and residential neighbors who are affected by a sign’s aesthetics and light emissions:

The unavoidable fact of signs is that they simultaneously “use” the land on which they rest and the land against which they abut. Since the principle of “use” cannot distinguish between the claims of either landowner, we are left with two options. Either we accept that ownership (distinguished from use) of land confers ownership in that land’s piece of the horizon, or we treat the

window blinds must be closed to keep the light and color out”); Keith Matheny, *Did Ford Field Dim the Glow After Complaints?*, DETROIT FREE PRESS (Feb. 15, 2017, 5:07 PM), <https://www.freep.com/story/news/local/michigan/detroit/2017/02/15/ford-field-lights/97959962/> (after 1,200 Detroit residents signed a petition presented to the city in February 2017, Lions team agreed not to leave its LED rooftop lighting system illuminated all night as it had since August 2016); Brittany Shammass, *Developers Want to Put Two Massive LED Screens on Miami Beach Building*, MIAMI NEW TIMES (Oct. 3, 2017, 9:00 AM), <https://www.miaminewtimes.com/news/miami-beach-developer-wants-gigantic-led-screens-on-alton-road-9717427> (noting local stakeholder complaints about artistic super graphics proposed by developer without limiting hours screens will be illuminated).

²⁸ NARISADA & SCHREUDER, *supra* note 15, at 453.

²⁹ *See id.*

³⁰ *See* Gen. Outdoor Advert. Co. v. Dep’t of Pub. Works, 193 N.E. 799, 808 (Mass. 1935) (noting that sign owners are “seizing for private benefit an opportunity created for a quite different purpose by the expenditure of public money in the construction of public ways and the acquisition and improvement of public parks and reservations”); Maureen E. Brady, *Property and Projection*, 133 HARV. L. REV. 1144, 1149 (2020) (targeted projections of images upon a building’s façade are forms of appropriation, as they disrupt the owner’s use and control of her property and cause dignity and privacy harms by taking the owner’s realty for unwanted ends); Lorraine Wild, *A Babylon of Signs*, DESIGN OBSERVER (Jan. 19, 2009), <https://designobserver.com/feature/a-babylon-of-signs/7907>. Light trespass consists of either unwanted light received on neighboring lots (from high luminance levels) or brightness excessive to the normal field of vision (sometimes called nuisance glare); *see also* REA, *supra* note 13.

³¹ *See* Michael N. Widener, *Shared Spatial Regulating in Sharing-Economy Districts*, 46 SETON HALL L. REV. 111, 151 (2015) (“Residents, especially long-time neighbors resistant to change, have legitimate claims that ‘they arrived first,’ and that ‘they built this community’ through their investments of money and energy.”).

³² *See* Wild, *supra* note 30.

horizon as a scarce public resource, the use of which should be determined by a separate set of rules. . . . Since the horizon is more than the sum of its parts, there is a potential for landowners to overuse it. As signs proliferate, landowners deplete the resource of an uncluttered horizon, and thereby impose external costs on others. The problem with signs is not that they extract benefits from [nearby public streets and sidewalks and their occupants]. Rather, like pollution, the problem is that they impose external costs by depleting a natural resource that is in some sense claimed by the public—the horizon.³³

The battle is over the municipal night skyline that some scholars assert is the metropolis's signature feature, its "defining landscape."³⁴ Promoters of ever-greater illuminance know that the sign industry recommends higher illumination when a new sign's proposed ambient environment is complex—that is, when other light sources spill luminance in the same view corridor as the new sign applied for.³⁵ Dwellers view luminance maximization as another visual mugging, or at least a thoughtless act of incivility. For impacted residents, sign luminance is transactional. That is, with each new lighted wall sign implemented in their proximity, ambient conditions escalate as glare cumulates. An ordinance requirement to consider ambient conditions in deciding to approve a new sign thus has different meanings to the surrounding dwellers and the sign applicant; the latter disregards the "ambient conditions" impact. (Likely the sign's owner has left such inquiries to the sign building consultant).

Heightening the tension between nearby neighbors and sign owners is the fact that the former constitutes a captive audience. Few residents gaze out the windows of their improved properties in the evening, entranced by intensely lit, high-rise exterior wall signs that light up their bedrooms and living areas.³⁶ To the proximately situated, a permanent intrusion prevails, since there is no way to completely avoid seeing these signs. Meanwhile, executives of the company erecting the sign go home for the evening to their darker-skied neighborhoods in suburbia. Ironically, those same executives cannot see wall- or roof-mounted signs from the interiors of their offices, while dwellers in the same vicinity can. They are not imprisoned by their chosen dazzling branding.

Solutions to the controversy are elusive in the morass of technical terms and formulae surrounding, for example, the Kelvin color temperature of LED fixtures. A far more simplified outcome of an us-versus-them zoning dispute asks whether

³³ Jacob Loshin, *Property in the Horizon: The Theory and Practice of Sign and Billboard Regulation*, 30 ENVIRONS 101, 145 (2006). Loshin's article essentially pertains to highway billboards, but, as noted here, the controversy over tall building signs merely migrates from alongside the suburban landscape into central business districts. The Article employs the term "roadway" in the bracketed portion of the quotation. The concept seems little different between the two contexts.

³⁴ See DAVID E. NYE, *WHEN THE LIGHTS WENT OUT: A HISTORY OF BLACKOUTS IN AMERICA* 12 (2010).

³⁵ Bullough, *supra* note 8, at 7.

³⁶ See Wild, *supra* note 30.

legitimate public “annoyance” with elevated glare conditions is offset (or outweighed) by the utility of the sign emitting the distracting light.³⁷ Glare level (with “glare” meaning conspicuous, dazzling intensity) is consequential. As appears in other similar ordinances, the Phoenix Zoning Ordinance recites that a use permit (known elsewhere as a special exception) for a sign may be granted if the requested use or the manner of its implementation does not generate glare in excess of ambient conditions.³⁸ Accordingly, utility dimensions of tall building exterior signs must be considered.

II. A COMMON-SENSE HIERARCHY FOR DETERMINING SUFFICIENT SIGNAGE AT HEIGHT

Common sense dictates that every tall building does not require high luminance to succeed as a commercial realty enterprise, nor do its tenants need continuous promotion in lights. Communities understand that they possess the right, subject to First Amendment considerations, to adopt *aesthetic* regulations to promote a healthy visual and natural environment.³⁹ Accordingly, a tall building’s sign can be regulated based on its face area, height, setback from street frontage, placement on the building wall, brightness of its lighting, or the materials used in the sign’s construction, all criteria that further a city public’s aesthetic regulatory interest.⁴⁰ The challenge is determining how best to do so in the adjudicatory municipal process of zoning adjustment, where passions run high, knowing (as the adjudicator must) that accommodating the individual applicant’s right to free expression must occur if a sign application decision is to be upheld as constitutional.⁴¹ Were more guideposts present, for example, resembling the Third Circuit’s decision in *Rappa v. New Castle County*,⁴² this task would be friction-free. In the *Rappa* opinion, the court allowed

³⁷ See PHOENIX, ARIZ., ZONING ORDINANCE § 307(A)(7)(a) (2019) (the applicant’s use permit cannot be granted if glare exceeds ambient conditions in the neighborhood of the use). Determining the persistent “level” of a neighborhood’s ambient conditions is implicitly required, but the instructions on how to proceed there are omitted. And, naturally, every time another illuminated sign is activated in an enclave, ambient “level” changes.

³⁸ *Id.*

³⁹ See, e.g., *Metromedia, Inc. v. City of San Diego*, 453 U.S. 490, 555–57 (1981) (Burger, C.J., dissenting) (discussing “the authority of local government to protect its citizens’ legitimate interests in traffic safety and the environment by eliminating distracting and ugly structures from its buildings and roadways”). Furthermore, Congress’s broad understanding of what constitutes the environment for regulatory purposes supports an understanding of aesthetic regulation as an environmental aim. The National Environmental Policy Act requires federal agencies to use “all practicable means” to “preserve important historic, cultural, and natural aspects of our national heritage” 42 U.S.C. § 4331(b) (2012).

⁴⁰ See Dawn Jourdan, *Community Aesthetics and Sign Regulations: How Far Can a City Go to Prescribe Aesthetics?* (Oct. 2013) (unpublished conference paper, National Signage Research and Education Conference), <http://www.signresearch.org/wp-content/uploads/Community-Aesthetics-and-Sign-Regulations.pdf>.

⁴¹ *Metromedia*, 453 U.S. at 490 (1981).

⁴² *Rappa v. New Castle Cty.*, 18 F.3d 1043 (3d Cir. 1994).

government officials to determine the relative importance of signage at particular locations.⁴³ This decision appears to grant significant administrative discretion over the subject matter of the sign. The decision does not, however, provide any fixed standard or metric for determining relative “importance” of a sign’s copy. Determining its consequence almost certainly requires analysis of the sign’s content—a dangerous decision for the zoning official to undertake.

A pragmatic test for determining, outside specially zoned districts,⁴⁴ who earns the biggest, brightest signs in urban cores is the formula measuring public necessity relative to illuminance’s deleterious impacts within the sign’s surroundings. Below is a hypothetical “ladder of priorities” for keeping the neighborhood from reaching “full moon conditions” when illuminated signs festoon a densely lived-in enclave, while concurrently respecting the importance of owners’ and tenants’ subjects of free speech.⁴⁵

Atop this ladder is the rung occupied by signs announcing a facility functioning as a public necessity. Most citizens agree that hospital emergency room entrances need immediate viewer visibility for identification. Think of this as a “lighthouse” effect: the facility’s operator announces that safety and aid abide within the building space. Fewer will agree, however, that all hospital functions justify more intense lighting on tall building upper vertical surfaces; a rehabilitation unit is one use not justified in creating intense illumination.

A rung further down this ladder is occupied by public convenience-type building uses. Were fueling stations incorporated into high-rise projects (especially if blocked from view by other buildings), many citizens would agree they should have brightly lit identifying wall signs as high as needed to reduce erratic traffic movements after the driver (bereft of fuel) coasts past the station’s entrance. Petrol stations historically needed visibility to guide drivers whose vehicles were nearly spent of fuel, thereby avoiding immobile cars occupying lanes and shoulders along major streets. Today, financial institutions in tall buildings require bright signs only if they offer ATM services *and* their visibility is blocked from nearly all public view by the presence of other tall buildings.⁴⁶ Even then, as the bank nearly always occupies the ground floor, visible signs are more effective when placed nearer to the ground. Note that the facilities justified in claiming some necessity have in common the element of wayfinding priority. In densely packed enclaves, facilities like national monuments and iconic commercial buildings may argue for lofty building signage, but that seems true only in the cases of commercial buildings offering high demand

⁴³ *Id.* at 1064.

⁴⁴ See *infra* note 90 and accompanying text.

⁴⁵ Cf. Brian J. Connolly, *Environmental Aesthetics and Free Speech: Toward a Consistent Content Neutrality Standard for Outdoor Sign Regulation*, 2 MICH. J. ENVTL. & ADMIN. L. 185 (2012).

⁴⁶ Financial institutions fast approach extinct sign-illumination justifications in the age of electronic banking transfers, online savings, person-to-person payment systems, and debit and credit card transactions dominance. I may be the only citizen using the night depository at my bank branch, at least B.C. (before coronavirus).

public services, situated among competing branding “displays” where scant remarkable architecture resides.⁴⁷

A rung or two further below are facilities on display in the hierarchy of high-rise sign permission, established based upon “contribution status.” By that phrase, I mean acceptance of those roles certain tall building developers or occupants play in the life of the community. A national corporate headquarters, or a building housing hundreds of employees (and thereby generating substantial tax revenues), exemplifies circumstances in which a community should acknowledge these contributions—a form of visual trophy. Bank headquarters or manufacturing executive offices are illustrations here. Also, 24-hour uses, such as smaller hospitals with no trauma units and universities, where some security and safety purposes are served, can justify using brighter illuminated signs. As to these uses, it seems most citizens living nearby would recognize that campus-type grounds, where people arrive and leave throughout the night, like their identifying signposts to be bathed in light.

Residing on the bottom rung are facilities desiring display either (1) for advertising goods and services offered by an on-site vendor,⁴⁸ or (2) for the sake of ego alone, where wayfinding consequences do not offset the effects of brightly lit signs upon the adjacent residents, and no legitimate expectation for community-wide “recognition” of their street location arises. Indeed, it should be acknowledged that some building tenants seek maximum ordinance-allowed signs because, in the long term, a tall building’s brightly lit sign is more cost-effective than buying billboard copy on highly trafficked streets in the community.⁴⁹ In summary, when approved, these signs are wall-mounted billboards.

⁴⁷ Justifying brightly illuminated signs just below the parapets of New York’s Chrysler Building or Flatiron Building requires imagination. The Empire State building, however, has used colored lights illuminated on its upper stories as a form of public information advertising since the bicentennial of the U.S. in 1976. See LaFrance, *supra* note 27.

⁴⁸ In a very tall building, vendors of intangible goods and services include securities brokers, accountants, lawyers, and insurance offices; however, these mostly provide appointment-based services to the extent they are not located on the ground floors of such buildings. Alternatively, these services are business-to-business (B2B) oriented, not depending upon office appointments. These businesses mandate relatively low wayfinding signage since directions often are provided to customers either online or by telephone. Few retailers seeking walk-in customers locate themselves in high-rise buildings, except occasionally those located next to hotels (like newsstands and cafés serving the guests) that share space on upper floors. As a result, traffic safety improvements are not a commonplace justification for allowing retailers exterior signs of substantial intensity or dimension high aloft skyscrapers’ outer walls.

⁴⁹ See Ron Galperin, *How Companies Put Names Up in Lights: Signs: Building Identification Can Enhance Leasing Activity, But the Design and Approval Process is Expensive and Can Be Discouraging*, L.A. TIMES (Feb. 4, 1990, 12:00 AM), <https://www.latimes.com/archives/la-xpm-1990-02-04-re-453-story.html> (noting that even at the cost of \$1 million, lighted signs mounted on high-rise building walls are a less expensive form of advertising than other forms, especially when associated with an architectural landmark).

III. APPLYING SENSIBLE STANDARDS BASED ON APPLICANT SIGN FUNCTIONS

This is an illustration of how to apply technical standards to a tall building sign application from a large company neither headquartered in the applicant's city nor focusing its employment base there, when the company nevertheless seeks maximum allowed signage. The sign applicant did not build the building, nor is it remodeling it beyond the walls of its suite. It does not own the building to which the wall sign will be mounted. Upon the adjudicator's examination of witnesses and review of exhibits, these additional facts are established:

The wall sign serves no wayfinding function. No substantial number of visitors or customers come to the site. Conferencing centers for large meetings are not part of the business conducted by the named tenant or the project. Tours of the occupied space of the tenant named on the proposed high-rise sign are negligible. Indeed, the evidence demonstrates that the firm engages in business-to-business (B2B) functions, thus the operation fits the definition of "back-office" activities, as opposed to those centered on public interactions.

The Kelvin temperature of the proposed wall sign's LED bulbs will spill intense light ("cool white" or "warm white," the latter of which has blue light of shorter wavelengths⁵⁰) in all directions from the sign lettering and logo. Why is this a finding of consequence? The human eye, subjected to artificial blue-rich white light at night, whether from screens, electronic devices, or artificial illumination, reacts.⁵¹ Specifically, the photosensitive ganglion cells in the human retina signal the brain to stop producing melatonin.⁵² This can affect sleep and waking cycles, eating patterns, metabolism, reproduction, mental alertness, blood pressure and heart rate, hormone production, temperature, mood patterns, and the immune system.⁵³ Additionally, evidence exists that electromagnetic radiation from wireless lighting controls, outdoor LED signs, and digital billboards can interfere with mobile phones, aviation towers, and medical equipment, such as hearing aids or implantable

⁵⁰ See Zielinska-Dabkowska, *supra* note 2, at 275 (noting warm white LEDs have color temperatures below 3,000 degrees Kelvin and less blue light in the spectrum).

⁵¹ White LEDs have an emission spectrum peaking both in the blue spectral region and at a longer wavelength. The exact properties depend, among other things, on the amount of phosphorus used in production. Blue peaks dominate blue-looking "cold white" LEDs, while the more boring phosphorous peak dominates reddish "warm white" LEDs. Blue light nevertheless is dangerous for the retina of the adult eye. See Martin Hessling et al., *LED Illumination—A Hazard to the Eye?*, 13 OPTIK & PHOTONIK 40, 40–41 (Apr. 2018), <https://onlinelibrary.wiley.com/doi/pdf/10.1002/opph.201800029>.

⁵² *Id.* at 40.

⁵³ See *id.* at 42–43; Zielinska-Dabkowska, *supra* note 2, at 275. With respect to mood patterns, concern grows that mental illness is exacerbated by persistent LED light exposure. See generally Michael Bauer et al., *The Potential Influence of LED Lighting on Mental Illness*, 19 WORLD J. BIOLOGICAL PSYCHIATRY 59 (Jan. 11, 2018), <https://doi.org/10.1080/15622975.2017.1417639> (noting areas of concern in mental health include the influences of blue light on sleep and upon other circadian-mediated symptoms).

cardiovascular devices.⁵⁴

The applicant's use is not one of public necessity, nor has the occupant earned "contribution status." This building is neither a national or regional business headquarters, nor does the sign signal the home of a major participant in community job creation or any other economic distinction.

There are no especially distracting elements immediately adjacent to the proposed sign location(s) substantially impeding their visibility.

Essentially, the *purpose* of the sign signals the presence of the business owner in the project, but aids little with its location relative to traffic movement and access points, emphasizing instead its orientation relative to viewing distances and viewing angles.

In summary, there is no compelling support for approving the applicant's maximum sign size, intensity, and brightness requests. The examiner should conclude that the proposed signs atop the building are *larger than necessary* for visibility and readability or, otherwise stated, they exceed what is sufficiently visible and readable for their intended function. The next question is to determine who is most directly impacted by the request, and to what degree the horizon is disrupted. Depending on the sign's illuminance and the cone of vision (within a fan-shaped envelope), positions of the persons in opposition, together with the other signs (and their luminance intensities) on display in the vicinity, the examiner may also find the potential glare from the proposed sign plan is likely to substantially increase distracting glare conditions. Thus, she denies the application as filed, approving it for something reduced in brightness and dimension than what was requested. In the process, the hearing officer may find that the luminance intended violates the "no nuisances impacts" prong of the special exception test.⁵⁵

Of course, if the applicant is dissatisfied, it files a protest of the decision to the community's appeals board, asserting that if it is willing to pay the cost of the biggest and brightest sign allowed given the building's size and applicable zoning district then it should be permitted full opportunity to "display." The applicant (represented by someone with a legal background) further asserts that the internally illuminated sign is not damaging to the neighboring streetscape's visual environment and that any restricting of the illumination of its sign raises free speech or substantive due process (lacking a legitimate governmental interest) problems.⁵⁶

⁵⁴ See Zielinska-Dabkowska, *supra* note 2, at 275.

⁵⁵ The hearing officer might impose the following requirements upon a sign with an LED display: it cannot exceed 0.3 foot-candle in luminance difference between the (a) "extinguished" state and (b) displaying a (i) white image for a full color-capable electronic message panel, or (ii) solid message for a single-color electronic message panel, in either case as measured by an accurate illuminance meter. MESA, ARIZ., ZONING ORDINANCE 11-41-7(C) (2018). Additionally, if the wall sign were a message center, it would be turned off entirely between 11:00 p.m. and sunrise if located within 150 linear feet of residential uses. MESA, ARIZ., ZONING ORDINANCE 11-43-5(B)(2) (2018). There is an exception to the turnoff rule for signs interrupted in their visibility to residents by an intervening commercial building in the putative line of sight. *See id.*

⁵⁶ *See generally* Connolly, *supra* note 45; Daniel R. Mandelker, *Sign Regulation and Free*

What should the appeals board consider, besides the advice of its own city attorney? They may contemplate the history of tall buildings as well as the purpose of dominant signage items aloft, considering impact first. Billboards typically occupy the shoulders of rights of way, “aimed” or directed at oncoming traffic. Once back- or ground-lit and pasted up by hand, now digital billboards change copy at steady intervals, programmed and instructed by software residing on servers located miles from the structure. They are more interesting (perhaps even “distracting”) than ever before. Yet, they are legible (as to copy) for no more than a few hundred yards distance to passersby—except to unlucky persons living adjacent to the structure, with a visual angle putting the billboard’s copy in that person’s field of vision. The “encounter” between the typical viewer in a motor vehicle and the billboard copy lasts no more than a few seconds, certainly not a half-minute or more at average motor vehicular driving speeds.

If this is the experience of viewing a billboard, those advertising structures existing only to draw attention to their copy, it seems a tall building’s sign visible from a half-mile or more away disproportionately appropriates the urban landscape shared with those dwellers in high-rise residential towers that are in the view angle and adjoin the signed building. Seemingly, only the aim of conspicuousness supports identity-based (project or tenant) tall building signs becoming a fixed part of the mixed-use landscape. Frequently the applicant’s argument boils down to just this: “If the owner of the sign can afford the application fee and the costs of occupying the tall building and erecting and illuminating the sign, then the sign owner’s message is entitled to be noticeable, even dominant within the viewshed, at every time of day.”⁵⁷ Such an argument disregards basic tenets of urban

Speech: Spooking the Doppelganger, in TRENDS IN LAND USE LAW FROM A TO Z 67 (Patricia E. Salkin ed., 2001).

⁵⁷ The sign owner developing the project deserves more consideration than the simple occupant, since the owner has a substantially greater investment in bringing the project to fruition, engaging in the process in some measure of placemaking, and investing in the neighborhood. Even here, there are negative externalities to be addressed. Project branding has economic value to be respected. See Michael N. Widener, *Brand: Modern Realty Transfers’ Iconic Dimension*, 51 REAL PROP., TR. & EST. L.J. 23, 25 (2016). At the same time, the brand value recognized should relate to the specific project, not to the developer, ubiquity of “Trump Towers” notwithstanding. In short, a sign notifying the public of the project’s location is legitimate wayfinding. Still passersby, most of whom will occupy vehicles along the street frontage, are able to see the commercial project’s branding little higher than 86 feet above grade—depending, of course, on the zoning district, the speed of vehicular movement, and the number of visual obstructions. See generally Philip M. Garvey & Beverly T. Kuhn, *Highway Sign Visibility*, in HANDBOOK OF TRANSP. ENGINEERING §§ 7.1–.17 (2d ed. 2011), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.452.7608&rep=rep1&type=pdf>; Beverly Thompson Kuhn et al., *Model Guidelines for Visibility of On-Premise Advertisement Signs*, 1605 TRANSP. RES. REC. 80, 80–87 (1997). Assuming the truth of this estimation, an illuminated wall sign mounted 20 stories aloft has little impact on identification to those driving by the property, but a likely greater impact on those living on the upper stories of residential towers to whom the illuminated sign is evident. And prospective customers of the project’s tenants are not typically looking for the building after the evening closing hours of the tenant.

placemaking,⁵⁸ unless placemaking means self-aggrandizement of the sign owner.

IV. TALL BUILDINGS' COMPUTATIONAL FUTURE GEWGAWES, AND CHOOSING COMMUNITY

Tall buildings initially were the product of egotistical attention-seeking of architects and owners. In the days of F.W. Woolworth, the “skyscraper” *was* the advertising medium, and the message was that its developer was remarkable if not superior to most.⁵⁹ (Strangely, a sign advertising the business located at the top of that building arguably detracts from an exceptional building’s architectural statement.) Indeed, its very structure symbolized the strength and stability of the owner occupying it.⁶⁰ In most cases, the skyscraper’s signage would not announce more than its original developer, with an occasional exception to acclaim its most remarkable occupants. Consequently, municipalities acknowledged that skyscrapers remained a mixed-use center’s limited podium for advertising copy. Until familiarity increasingly breeds “verticality contempt,” that is.⁶¹ Arguably, tall buildings in major cities, besides those lacking arresting architectural treatments, no longer uniquely adorn the densest urban streetscapes. That fact, plus the modern tendency to crave notice with accompanying commercial attention, is driving outdoor advertising to seek updated sign code flexibility for high-rise buildings in major cities like Chicago.⁶² The desire for tall buildings to serve a greater “podium” function today is stoked by recent interest in so-called media façades.⁶³ Meanwhile, the

⁵⁸ Urban placemaking is relevant in sign ordinance creation. *See Asselin v. Town of Conway*, 628 A.2d 247, 249–50 (N.H. 1993) (town passed the provision for legitimate purposes, including preserving scenic vistas, discouraging development from competing with the natural environment, and “promoting community character. The community character sought to be promoted is that of a country community . . . accustomed to having small hanging signs, or a business community that operated mostly during the daylight hours, not in the evening. There is support for the trial court’s finding that the natural appeal and general atmosphere of the area could well be negatively affected by the unregulated use of nighttime lighting. It is reasonable to infer that the scenic vistas sought to be preserved by the town include the splendor of mountains at twilight and the brilliance of stars at night.”) (internal quotations omitted). The appeals court found the sign regulation was rationally related to a legitimate public purpose. *Id.* at 373.

⁵⁹ *About Woolworth Building*, WOOLWORTH TOURS, <https://woolworthtours.com/about-woolworth-building> (last visited Aug. 5, 2020).

⁶⁰ *See id.*

⁶¹ Jo Palma, *Architects Need to Embrace Vertical Living*, ARCHITECTS’ J. (May 12, 2016), <https://www.architectsjournal.co.uk/opinion/architects-need-to-embrace-vertical-living/10006379.article>.

⁶² *See, e.g.*, Louis Greenebaum, *Proposed Ordinance Would Relax Chicago’s High-Rise Signage Rules*, BURNHAM NATIONWIDE (Oct. 11, 2018, 10:45 AM), <https://www.burnhamnationwide.com/final-review-blog/proposed-ordinance-would-relax-chicagos-high-rise-signage-rules> (comparing the proposed new Chicago rules for skyscraper signage with those of New York, San Francisco, and Los Angeles).

⁶³ Amal Abdou et al., *The Environmental and Economic Impacts of Using Media Façades in Commercial Buildings in Egypt*, 1 INT’L J. ENVTL. SCI. & SUSTAINABLE DEV. 1, 1 (Sep. 18, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3037926; Katia Gasparini, *Media Façades*

nearby residents may prefer the anonymity of high-rise corridors to festooning (or to a harsh critic, littering⁶⁴) of tall buildings' exteriors with changing colors and decoration.

The term “media façades” encompasses “installations in which displays are integrated into architectural structures.”⁶⁵ This is often accomplished with LED displays and digital projectors; the installations are a form of urban computing, integrating digital displays into buildings connected to screens and vivified for lit-up publicity.⁶⁶ The affected building's façade itself becomes dematerialized, transformed into a large canvas suited to ornament architecture, advertise, and project news headlines as are on display at Times Square in Manhattan.⁶⁷ Fundamentally, these are exterior video walls featuring moving images.⁶⁸ These façades range from tastefully artistic treatments to riots of animation and graphics reminding one of a video game. As one sign industry journalist enthuses:

Such dynamic video coverage gives the building a dream-like presence as its pictorial content swirls around the exterior walls. . . . The use of video as a cladding is both a victory for architects and for advertisers. . . . For building owners, it becomes an obvious additional revenue [source] and a source of pride with their building's lit up video walls easily dominating the surrounding skylines and becoming a tourist destination in its own right. . . . Image content on these super-sized buildings vary, some are billboards, but others are more subtle and combine branding and art to brighten up the surrounding

and the Immersive Environments, 19 INTERNATIONALE ZEITSCHRIFT ZUR THEORIE DER ARCHITEKTUR 253, 253 (Dec. 2014), https://www.researchgate.net/publication/270281488_Media_Facades_and_the_Immersive_Environments; Nikou Javadi & Uğur Dağlı, *Media Façades Utilization for Sustainable Tourism Promotion in Historic Places: Case Study of the Walled City of Famagusta, North Cyprus*, 10 INT'L J. HUM. & SOC. SCI. 431, 431–34 (2016), <https://waset.org/Publications/media-facades-utilization-for-sustainable-tourism-promotion-in-historic-places-case-study-of-the-walled-city-of-famagusta-north-cyprus/10003523>.

⁶⁴ See Wild, *supra* note 30.

⁶⁵ See Peter Dalsgaard & Kim Halskov, *Designing Urban Media Façades: Cases and Challenges*, in PROC. SIGCHI CONF. HUM. FACTORS COMP. SYS. 2277, 2277 (2010), <http://www.peterdalsgaard.com/documents/publications/dalsgaard%20-%20designing%20urban%20media%20facades.pdf>; Greenebaum, *supra* note 62 (describing Salesforce's installation on its supertall San Francisco building); Charlott Greub, *Reviewing Two Street Blocks in Downtown Salt Lake City: Towards Re-envisioning the Circulation Spaces and Passages*, 3 INTERDISC. J. SIGNAGE & WAYFINDING 28, 39–40 (2019).

⁶⁶ See Abdou et al., *supra* note 63. The original idea of projects like Salesforce's illumination project, the Merchandise Mart project in Chicago, and Los Angeles's ConvergenceLA was to make a lasting impact on viewers of the city's skyline as a form of exterior digital art display. See Greenebaum, *supra* note 62.

⁶⁷ See Louis M. Brill, *Media Façades: High-Tech Digital Building Wraps*, SIGNINDUSTRY.COM (Feb. 16, 2009), http://www.signindustry.com/outdoor/articles/2009-02-16-LB-LED_Media_Facades_High-Tech_Digital_Building_Wraps.php3.

⁶⁸ Chicago's proposed sign ordinance does not change current requirements for exterior video “hung screens” used for commercial purposes. See Greenebaum, *supra* note 62.

cityscape.⁶⁹

There are two practical applications of this technology. First is to advertise a message's dominance of the nearby observers' visual experience. Second is to provide decoration promoting a tourist-centric "vibe," attracting more people to the illuminated project or enclave, leading to an enhanced nighttime economy for local merchants generally. If this ambition of the urban computing community, partnering with building owners and advertisers, is endorsed by municipalities, nothing prevents eventual repurposing of cellular towers, church spires, and other taller, vertical municipal surfaces as well.⁷⁰ Perhaps media façades ultimately will create opportunities for tourists engaged in public gaming contests displayed on tall building walls. There seem to be no sign-related industry incentives to cut back on attention-seeking and mood-creating dimensions of LED technology. The technology for printing LED screens onto building glazing is within reach. For example, Samsung recently introduced "The Wall" at CES; this modular TV design features MicroLED technology that "delivers incredible definition, without restrictions as to size, resolution or form."⁷¹ Before too much longer, sign industry players and the development community will seek approval to implement LED building façades in every densified commercial area, intending to replicate, or outdo, the visual splendor of the Taipei Twin Towers.⁷²

Corporations are persons like any human for many purposes.⁷³ Corporate citizens need to exhibit operating in environmentally responsible ways, engaging in community quality of life improvements and participating in other vital public

⁶⁹ Brill, *supra* note 67. To neighbors in surrounding residential areas, it may seem misguided for a landlord to prefer tourist spectacle to cohabitant comfort, but that sentiment is not shared by the owner trying to attract (or raise) rent revenues from tenant prospects seeking to occupy a modern video icon in the form of the owner's project. Oddly, there are few authoritative published studies reporting on efficacy of wall signage versus negative externalities of unregulated advertising. See, e.g., Charles R. Taylor, *Illuminated vs. Non-Illuminated Signage—Economic Impact of Illumination*, SIGN RES. FOUND., <https://www.signresearch.org/wp-content/uploads/Illuminated-vs-Non-Illuminated-Signage-Economic-Impact-of-Illumination.pdf>; Hendrikus E. van Bulck, *The Effectiveness of Outdoor LED Advertising Signs*, 1 ACAD. BUS. RES. J. 34, 35, 51 (2011).

⁷⁰ See LaFrance, *supra* note 27 (noting that in the 1930s, the world's tallest advertising sign was the illuminated Citroën sign mounted onto one face of the Eiffel Tower).

⁷¹ See Lloyd Alter, *MVRDV's Taipei Twin Towers Are Wrapped in "Interactive Media Façades"*, TREE HUGGER (Jan. 14, 2019), <https://www.treehugger.com/green-architecture/mvrdvs-taipei-twin-towers-are-wrapped-interactive-media-facades.html>. Samsung's MicroLED technology transfers micrometer-scale LEDs into LED modules, resulting in what resembles wall tiles comprised of mass-transferred clusters of almost microscopic lights. See *The Wall*, SAMSUNG, <https://www.samsung.com/us/business/products/displays/direct-view-led/the-wall/> (last visited Aug. 5, 2020).

⁷² See Alter, *supra* note 71.

⁷³ *Citizens United v. Fed. Election Comm'n*, 558 U.S. 310, 392 (2010) (asserting that a corporation cannot be denied the right to speak [through political contributions] on the simplistic ground that it is not "an individual American").

matters where they do business.⁷⁴ This does not involve dominance of a community's visual narrative through attention-seeking initiatives. Outdoor media advocates, especially those seeking serial "pop-up" interventions with participatory engagement,⁷⁵ should ponder this:

In the never ending quest to seek human's attention, the speed and intensity of light movement and stroboscopic light flashes often create unnatural visual noise that disturbs both humans and non-humans alike. . . . Nevertheless, while LED lights offer cost and energy savings compared to incandescent light bulbs, they also have greater ecological impacts on nocturnal animals. . . . [Some] have argued for planning policy to be the regulatory vehicle to inform and manage the implementation and use of media architecture. Such policies should be changed and adapted in response to the more dynamic and complex nature of media architecture, media façades, and pervasive display installations.⁷⁶

Municipalities should hold all their citizens, corporate citizens occupying tall buildings included, in check, controlling persistent "displays" staged merely for attention-seeking.⁷⁷ Endless self-presentation is a small child's or narcissist's enterprise. It creates a community reputation of self-promotion and incivility toward other stakeholders, yielding little corporate competitive advantage. Furthermore, in a time of angst about global warming, corporations and citizens alike should be concerned about needless warmth generated by 24-hour building sign illumination, except when the sign's illumination is paramount for safety and security at night. Keeping a wall sign mounted well above street level on a tall building, illuminating that sign continuously on the chance that a few pedestrians on the curb and people moving in vehicles along neighboring streets will take notice of a sign during hours of darkness,⁷⁸ is not responsible stewardship of the environment. Neither is continuous lighting of signs the hallmark of an EcoCity or of "smart city"-style governance.⁷⁹ Regarding new media façades, experts are calling

⁷⁴ See EDMUND M. BURKE, *CORPORATE COMMUNITY RELATIONS: THE PRINCIPLE OF THE NEIGHBOR OF CHOICE* 39–40 (1999).

⁷⁵ See Joel Fredericks et al., *The City as Perpetual Beta: Fostering Systemic Urban Acupuncture*, in *THE HACKABLE CITY* 67, 69–71 (Michiel de Lange & Martijn de Waal eds., 2019) (ebook).

⁷⁶ Marcus Foth & Glenda Caldwell, *More-Than-Human Media Architecture*, in *PROC. 4TH MEDIA ARCHITECTURE BIENNALE CONF.* 66 (C. Zhigang ed., 2018), <https://dl.acm.org/doi/pdf/10.1145/3284389.3284495>.

⁷⁷ See Emily Badger, *Donald Trump Just Inspired Chicago to Rewrite the Rules on Absurdly Large Building Signs*, *WASH. POST* (Sep. 25, 2014, 8:49 AM), https://www.washingtonpost.com/news/wonk/wp/2014/09/25/donald-trump-just-inspired-chicago-to-rewrite-the-rules-on-absurdly-large-building-signs/?utm_term=.a3b0cf9d4443.

⁷⁸ See JOURDAN ET AL., *supra* note 20, at 40 n.5 (noting that high-rise signs above a certain height prescribed within the evidence-based model sign code "fall outside the cone of vision," meaning few if any viewers are seeing them aloft).

⁷⁹ See João R. Galvão et al., *Energy Systems Models for Efficiency Towards Smart Cities*, in *IEEE EUROCON 2015, INT'L CONF. ON COMPUTER AS A TOOL* (Nov. 2, 2015), <https://ieeexplore.ieee.org/document/7313682>. Notably, LED fixtures produce heat. Aluminum

for electromagnetic field emissions from LED outdoor advertisements to be controlled, limiting digital displays on façades to the brightness levels of illuminations suffusing nearby streets, buildings, and squares.⁸⁰ “Installations should be switched off late in the evening to reduce light trespass into residential buildings,” especially when the purveyor of the light is not open for public business all night long.⁸¹

The capacity to live harmoniously,⁸² avoiding needless mutual friction from zero-summing,⁸³ discloses fully realized adult conduct. This intention enabled humankind, unlike any other living species, except penguins (at south polar fringes), to live in large aggregated communities.⁸⁴ Humans thereby abandoned packs of like-minded individuals migrating with changes in seasons.⁸⁵ Permanent settlements

extrusions dissipate the heat away from the LED diodes, thereby increasing lumen output. The cooler the LEDs run, the longer their diodes’ lives extend. See ALUMINUM EXTRUDERS COUNCIL, WHITE PAPER: ALUMINUM EXTRUSION USE IN LED LIGHTING FIXTURES, https://cdn.ymaws.com/www.aec.org/resource/resmgr/PDFs/AEC_LED_White_Paper_041614.pdf (last visited Aug. 5, 2020). There have been estimates made of outdoor lighting energy usage “waste,” but it is unclear whether such studies were conducted in the pre-LED or post-LED usage contexts. See Stone, *supra* note 23; Taylor Stone, *The Value of Darkness: A Moral Framework for Urban Nighttime Lighting*, 24 SCI. & ENGINEERING ETHICS 607, 609 (2018), <https://doi.org/10.1007/s11948-017-9924-0>. In addition to the glare, a brightly lit sign illuminated all night (or well after dark) draws down on the city’s electric grid, which is not an optimally sustainable practice. The energy expenditure is compounded when several hundred of such signs or wraps are involved, implicating the “rebound effect”—as energy efficiency increases, people use more of it rather than capturing the savings advantage. See Alter, *supra* note 71. The EcoCity model is based on the integration of urban geography, urban climatology, and urban ecology, including regulating the thermal environment in urban planning to limit induced urban heat island effects. WenHui Kuang et al., *An EcoCity Model for Regulating Urban Land Cover Structure and Thermal Environment: Taking Beijing as an Example*, 60 SCI. CHINA: EARTH SCI. 1098, 1100, 1107–08 (2017).

⁸⁰ See Zielinska-Dabkowska, *supra* note 2, at 276.

⁸¹ *Id.*

⁸² Harmony impacts the entire ecosystem, not just the human species. For instance, Andrea L. Johnson’s paper summarizes the impacts of light pollution on animals and humankind. Andrea L. Johnson, *Blinded by the Light: Addressing the Growing Light Pollution Problem*, 2 TEX. A&M J. PROP. L. 461, 465 (2015).

⁸³ Zero-sum gamesmanship is the mindset that “my gain ensures your loss.” Residential neighbors sometimes claim that, while they live alongside a major boulevard, meteors and stars in the heavens should be visible above after dark. Forty-year residents of downtown areas who expected (and continue expecting) the business district’s immutability during their lifetimes are not urban folk. That fact does not prevent their asserting that all high-rise signage should be stopped—or the signs be turned off when their bedtimes arrive. The ever-evolving metropolis’s mixed-use areas are a test bed for innovations not suited for the “steady state” set. But a mentality of pushing the envelope of sign size, luminance, and other features, without self-assessment of costs as well as benefits, is neither admirable nor behavior characteristic of citizens.

⁸⁴ See Jack W. Bradbury & Sandra L. Vehrencamp, *Complexity and Behavioral Ecology*, 25 BEHAVIORAL ECOLOGY 435, 439 (2014).

⁸⁵ Michael Balter, *The Seeds of Civilization*, SMITHSONIAN MAG. (May 2005), <https://www.smithsonianmag.com/history/the-seeds-of-civilization-78015429/>.

resulted in places featuring desirable natural resources like food, water supplies, materials for fabricating tools, and a quantum of environmental fulfillment.⁸⁶ These elements brought about a sense of contentment and “nesting” behaviors transcending incessant stimulation-seeking.⁸⁷ Fulfillment and stimulation are not synonyms. Aesthetic regulation of signs promotes community stability and strong visual identity. The formation of these virtues begins with understanding that the city’s dense urban core constitutes a visual commons, a public good suffused with meanings and associations fulfilling individual *and* group needs for identity confirmation.⁸⁸

The sign industry, landlords, and exuberant tall building occupants can manage sign design within guidelines contained in community regulations. Such regulations enable business visibility while maintaining neighborliness and shedding unwanted nocturnal over-stimulation, which induces sleeplessness among dwellers in those shared mixed-use enclaves.⁸⁹ One approach to this management with municipal support is to create, via a municipal zoning ordinance, districts in which there are fewer limits on sign illumination power and intensity (currently measured in degrees Kelvin), focused on media architecture or façades as an amenity promoting tourism or creating an entertainment or “experiential” vibe for art-form enthusiasts occupying their boundaries.⁹⁰ Such districting seldom will incorporate mixed-use residents among their advocates, and residents should not be compelled to participate in or to tolerate the resulting riot of “experiences” while compromising their health or well-being. Advocates of “municipal primogeniture,”⁹¹ under which city management prefers the values and desires of existing residents over the preferences of supposed future occupants,⁹² are faced with persons demanding the common good (or at least, the advantage of tourism and entertainment sector participants) be served by implementing untrammelled façade decoration, computer art, and wall-projected images despite adjoining citizens’ desires for aesthetic tranquility. The question resolves whether these indicia of modern urban living represent a common good—whether amusement trumps the familiar and

⁸⁶ *Id.*

⁸⁷ See Bradbury & Vehrencamp, *supra* note 84, at 437.

⁸⁸ See John J. Costonis, *Law and Aesthetics: A Critique and a Reformulation of the Dilemmas*, 80 MICH. L. REV. 355 (1982) (discussing theoretical aims of aesthetic regulation); Williams, *supra* note 26, at 41.

⁸⁹ See Bauer et al., *supra* note 53, at 3; Galperin, *supra* note 49 (noting IBM’s example of maintaining a lower signage profile in downtown Los Angeles on a tall building); Johnson, *supra* note 82, at 466. Disrupted circadian rhythms from light interference are not fantasy. See MARK S. REA ET AL., THE POTENTIAL OF OUTDOOR LIGHTING FOR STIMULATING THE HUMAN CIRCADIAN SYSTEM (2012), <https://www.lrc.rpi.edu/programs/solidstate/assist/pdf/ASSIST-TechnicalPaper-OutdoorLightingCircadianAnalysis.pdf>.

⁹⁰ See, e.g., Widener, *supra* note 31, at 153–61 (proposing entrepreneurial districts in residential enclaves, supporting those working outside conventional economic mechanisms).

⁹¹ See RICHARD F. BABCOCK, THE ZONING GAME 150 (1966).

⁹² See Steven J. Eagle, *Land Use Regulation and Good Intentions*, 33 FLA. ST. UNIV. J. LAND USE & ENVTL. L. 87, 124 (2017).

comfortable. This issue is fraught with community-centered ethical dimensions.⁹³ If promoters of seeming incivility operate outside designated “experience-centered” districts through zoning adjustment press for excessive sign treatments (measured by public reception from residents) in mixed-use neighborhoods, local authorities should counsel applicant behavior modification or, minimally, substantive consultation and negotiation among all impacted stakeholders before approving these requests.

⁹³ See Zielinska-Dabkowska, *supra* note 2, at 276.