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A Classification Scheme for Hostile Design

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Abstract

A discussion is emerging over what is called "hostile design," among other names, i.e., the construction of public-space objects in ways that exclude particular usages and with an alleged effect of discrimination against already vulnerable populations. Critics outline various examples, from spikes added to a ledge to deter loiterers from sitting to armrests added to a bench to discourage the unhoused from using it as a place to sleep. In an effort to sharpen the notion of hostile design as a critical tool, I develop an original typology, one in which the various examples are organized in terms of the mechanisms through which their hostility is enacted. This sets up reflections on some variables of hostile design—such as their level of "conspicuousness" and their "domain of effect"—that cut differently across these categories.

Keywords: hostile design; hostile architecture; public space; homelessness; defensible space

1. Introduction

The notion of "hostile architecture" or "hostile design" has become important within contemporary research and criticism on the politics of urban spaces, especially in online journalism, blogging, and social media. An academic discussion is also beginning to emerge, one that is widely interdisciplinary and still largely fragmented and exploratory (e.g., Savicic & Savic, 2013; Rosenberger, 2014; Schindler, 2015; Chellew, 2016; Petty, 2016; Armborst et al., 2017; de Fine Licht, 2017; Jensen, 2017; Rosenberger, 2017a; Stevens, 2017; Smith & Walters, 2018; Chellew, 2019; de Fine Licht, 2020; Eggersglüß, 2020; Crippen & Klement, 2020; Jensen, 2020; Lorini & Moroni, 2020; Rosenberger, 2020b; Binnington & Russo, 2021; Lynch, 2021; Nitrato Izzo, 2022; Giamariano et al., 2023; Kullman, 2023; Moatasim, 2023). The fledgling status of this discussion is reflected in the variety of terms used in different writings to refer to similar phenomena, which, in addition to "hostile architecture" and "hostile design," include "unpleasant design," "disciplinary architecture," "architectural exclusion," "defensive architecture," and others. In what follows, I primarily use the term "hostile design."

Roughly put, these notions refer to the ways that the objects of public spaces are sometimes designed to shut down usages typically taken up by specifically targeted and already-vulnerable populations. In contrast to a language of "defensive" spaces in particular, with its associations with crime reduction strategies and "broken windows" policing programs, the other notions are most often used as tools for criticism, i.e., as concepts for putting a spotlight on a particular aspect

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of allegedly unjust larger strategies adopted by cities for controling, pushing away, and otherwise concealing poor, unhoused, and marginalized people.[1] This work thus builds on a history of critical efforts in political science, geography, philosophy, urban studies, and related fields of research (e.g., Foucault, 1977; Winner, 1980; Whyte, 1990; Davis, 1990; Lefebvre, 1991; Flusty, 1994; Zukin, 1995; Deutsche, 1996; Smith, 1996; Dovey, 1999; Low, 2003; Loukaitou-Sideris & Ehrenfeucht, 2009; Minton, 2012; Mitchell, 2014). Hostile design must be understood, at least in part, as the concretization of urban revanchism.

To better understand what is referred to by this notion, let's briefly run through the main examples of public-space objects that are often labeled as hostile within academic and online discussions, as well as a few others that should also fall under our consideration. Perhaps the most paradigmatic example is what could be called "anti-homeless spikes." These often come in the form of pointed metal protrusions, and they serve to deter those who may want to rest upon a ledge or other surface (e.g., Fig. 1).

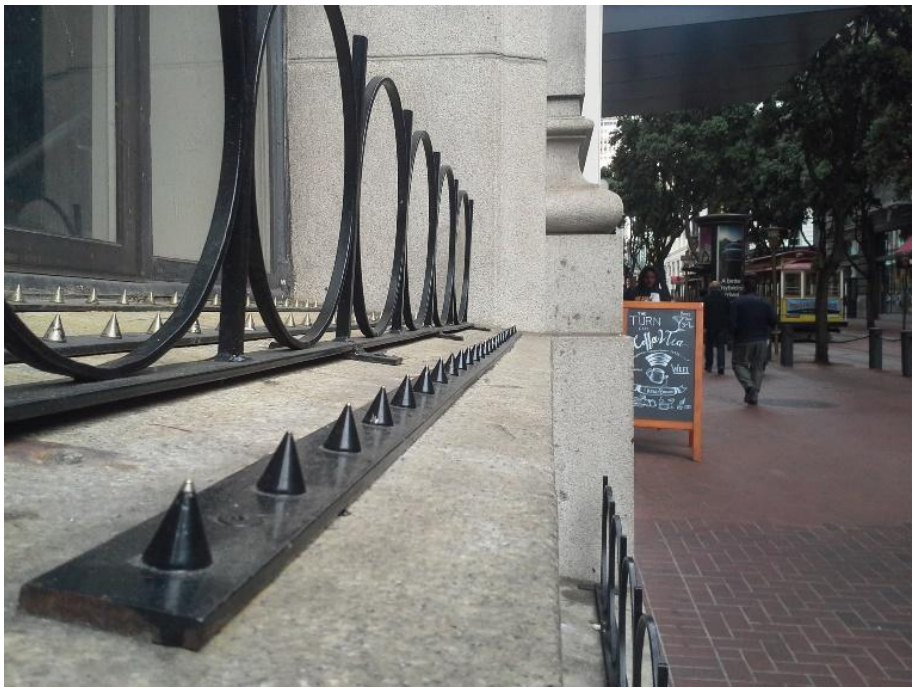

Figure 1: Ledge spikes, San Francisco, CA. (Photo by author.)

Another central example is what could be called "anti-sleep benches," i.e., public-space benches somehow modified to disable the use of their sitting surface as a place to lie down. Anti-sleep bench designs include things like armrests or seat dividers, or bucket seat and other separated seating options (e.g., Fig. 2).

Another main example in these discussions is what are referred to as "skatestoppers." These are small, often metal nubs added to places such as ledges, curbs, or railings to cut off their potential as a place to perform skateboard grinding tricks (e.g., Fig. 3).

Security cameras are also often noted in this literature as an example of hostile design. They may be situated in a highly visible manner or may be hidden from view (e.g., Fig. 4).

[1] For a helpful set of reflections on the different connotations of these different terminologies, such as "defensive" and "hostile," see de Fine Licht, 2020.

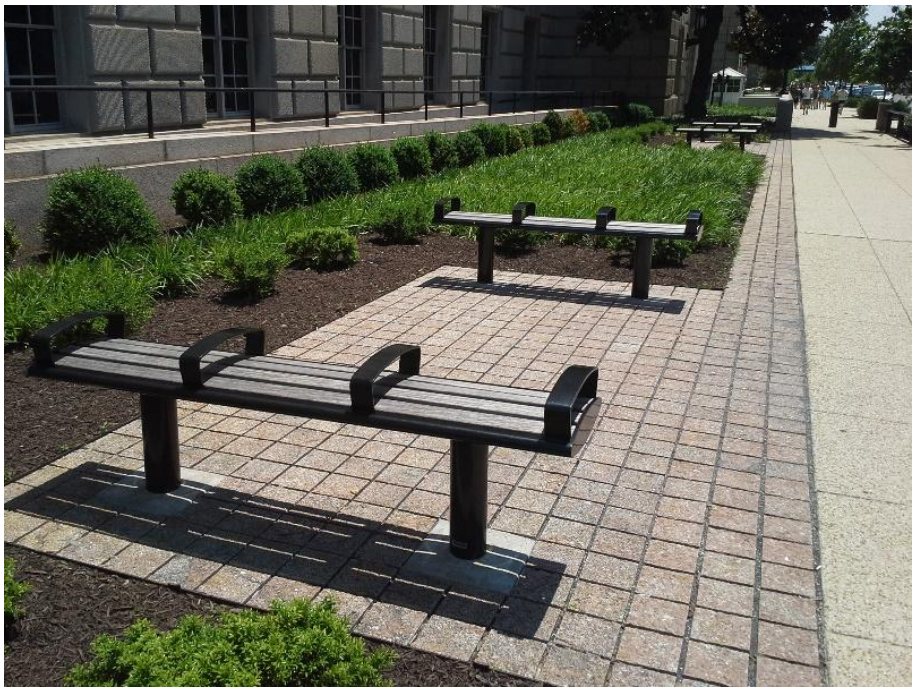

Figure 2: Benches with rounded surfaces and armrests, Washington DC. (Photo by author.)

There are many other forms of hostile design that are commonly noted in these online and academic discussions. They include everything from noise machines that make it annoying to spend time in a space, to fencing that blocks off access to places like small green spaces or highway underpasses, to water sprayed onto objects or alleyways where people might want to rest.

There are of course many more, some of which are not yet widely recognized. One that I would like to note is the hydrant lock (e.g., Rosenberger, 2017b; 2020b). Water access can be an important issue in some regions of the world, especially those that experience heat waves, and hydrants are at times tapped as a means for cooling off.

To prevent unauthorized access, sometimes locks or other devices are installed on fire hydrants (e.g., Fig. 5).

Another notable form of hostile design is what could be called "anti-pick trashcans" (e.g., Rosenberger, 2015; 2017a, ch. 3). Garbage bin lid configurations sometimes make it difficult or impossible to reach down inside. This can deter those who may want to use the trashcan as a source of discarded food or recyclable materials. Anti-pick lids are sometimes combined with outer can casings that may be sealed with built-in locks or hanging padlocks and chains (e.g., Fig. 6).

In addition to all of these examples of hostile designs added to objects or spaces, analysts are increasingly noting that hostile design may instead involve an act of removal. For example, rather than add an anti-pick lid and tamperproof casing to a trashcan, an area may simply not include any trashcans at all.

A complete understanding of a particular instance of hostile design often requires approaching it within its broader context. The effects of an individual instance—e.g., a particular anti-sleep bench or a particular set of spikes set into a ledge—may not reduce to those directly imposed by this instance in isolation. In many cases, they may also have effects as part of what could be called

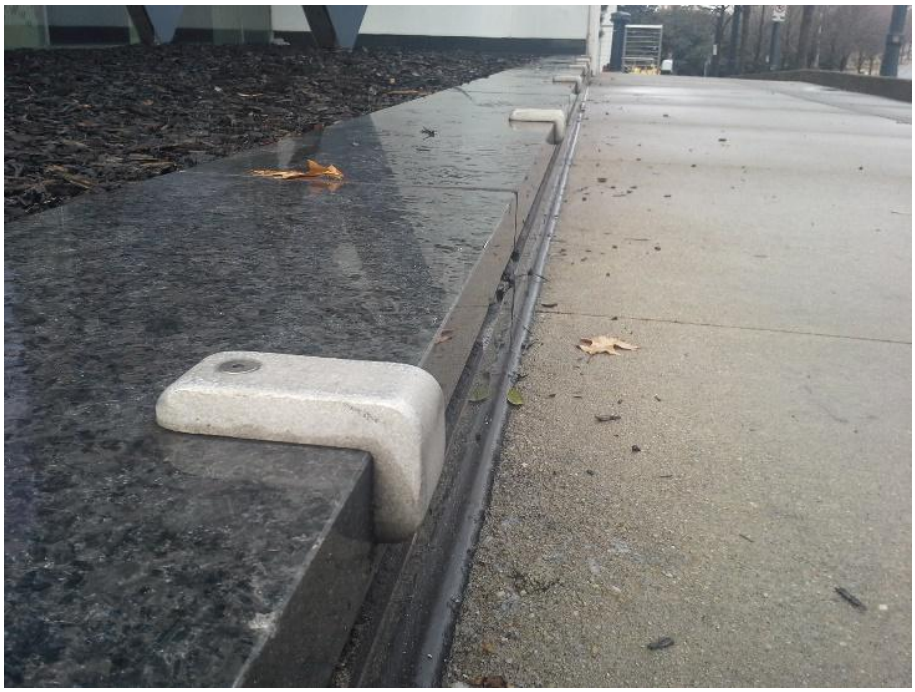

Figure 3: Skatestoppers in Atlanta, GA. (Photo by author.)

a "hostile agenda," i.e., a pattern of hostile designs, laws and policies, police practices, social customs, and other things that together target a particular population. These agendas can also include the interests of the bustling industries that manufacture the objects under consideration here, including skatestoppers, hydrant locks, noise machines, surveillance systems, outdoor furniture, and amenities, etc.

For example, that individual anti-sleep bench may enact its hostile effects not merely by shutting down the option of sleeping in that one spot; it may also accomplish this by working together with other things that deter someone from sleeping in an entire area (such as a park, subway station, or even an entire region of the city). That is, the anti-sleep bench might be one small contributor to a larger agenda that shuts down sleeping in a whole area, working together with, say, other anti-sleep benches, other types of hostile design (such as those spikes), anti-homeless laws and rules, as well as human actors that enforce these laws and rules, such as police officers and security guards.

One way this issue has been addressed is with the claim that hostile design should be understood as an unrecognized form of regulation. For example, in an extensive analysis of law, zoning, and design, Sarah Schindler argues exactly this, writing that:

> The built environment does not fit within the definition of "regulation" as legal scholars traditionally employ that term; it is not a rule promulgated by an administrative body after a notice-and-comment period. However, the built environment does serve to regulate human behavior and is an important form of extra-legal regulation (2018, 1944).

Or, as Valerio Nitrato Izzo puts it, for those targeted by systems of oppression, including the law, "Hostile design is just another normative face of a set of regulations" (2022, 533). Giuseppe Lorini and Stefano Moroni have been developing an account of the various forms of non-linguistically-

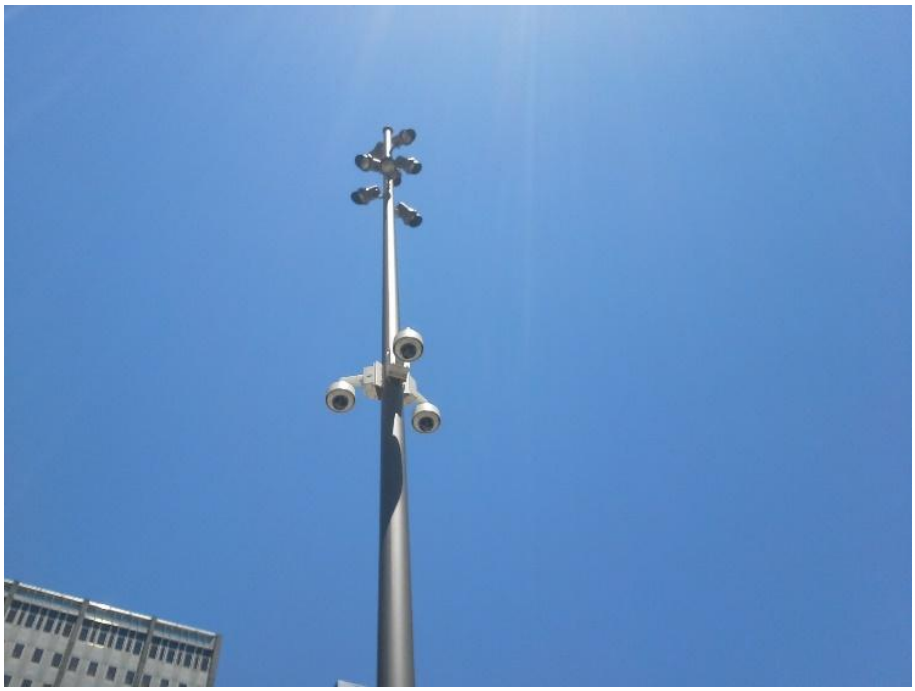

Figure 4: Security cameras, Philadelphia, PA. (Photo by author.)

based regulation, including those enacted through artifacts (e.g., 2020; 2022). They issue the warning that this kind of regulation "usually occurs in a 'hidden' fashion (resulting from its structural characteristics). This makes it a powerful yet, at the same time, risky form of intervention because it is not immediately recognisable and identifiable" (Lorini and Moroni, 2022, 522). These lines of thinking build on recent work expanding the notion of regulation to include things beyond written law (e.g., Lessig, 1999; Katyal, 2002; Shah & Kesan, 2007).

The unhoused population is a primary target of hostile design. They are also often subjected to a variety of anti-homeless laws, including those against camping, panhandling, loitering, vagrancy, storing objects in public, and even sitting and lying down in public (sometimes called sit/lie laws). Critics—myself included—argue that in many cities, these laws function to make homelessness itself a crime. This means that one of the primary ways that many cities address the problem of homelessness is by prosecuting the unhoused as criminals. Many other institutions target the unhoused as well, from the posted rules and hours of public parks to transit authority policies regarding the spaces under its jurisdiction to the patterns of privatization and the rules of the public spaces within privately held portions of the city. As Don Mitchell puts it,

> The anti-homeless laws being passed in city after city in the United States work in a pernicious way: by redefining what is acceptable behavior in public space, by in effect annihilating the spaces in which the homeless *must* live, these laws seek simply to annihilate homeless people themselves, all in the name of recreating the city as a playground for a seemingly global capital which is ever ready to do an even better job of the annihilation of space (2014, 167).

In this way, one aspect of the hostility of a device like an anti-sleep bench is the role it plays in a larger anti-homeless agenda that may have purchase to different degrees across the city, constituted

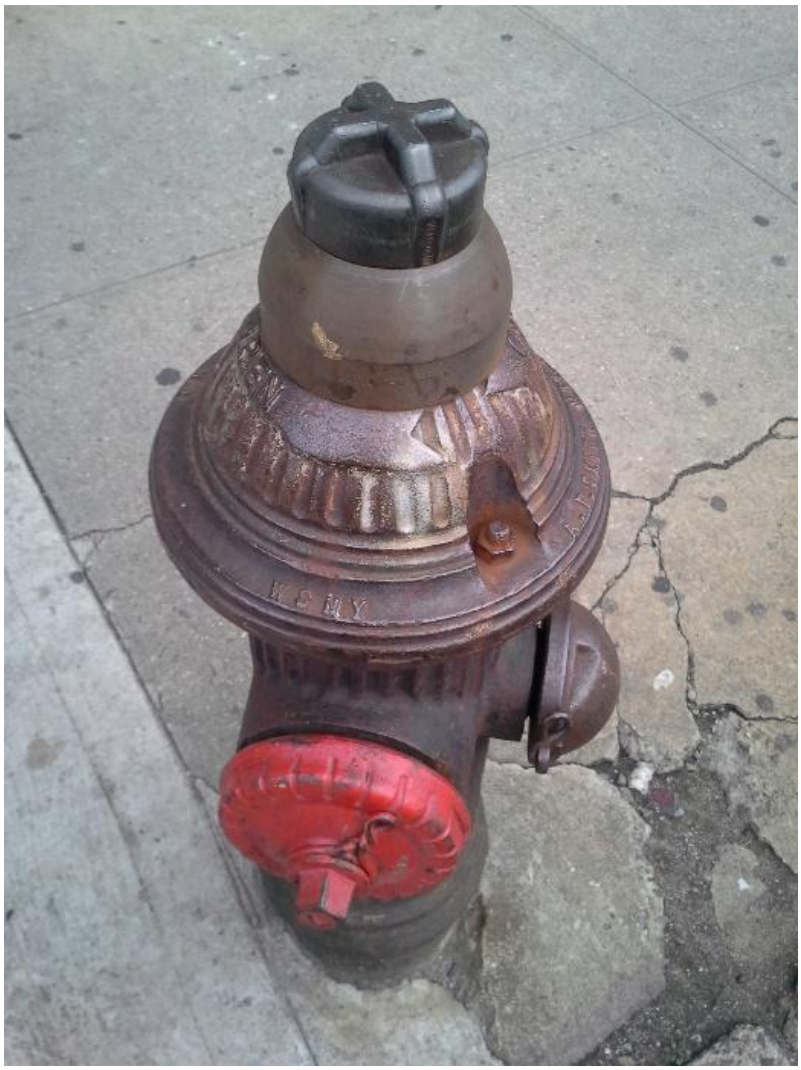

Figure 5: A fire hydrant with a "custodian"-style plus-shaped lock installed on top, New York City, NY. (Photo by author.)

by a variety of actors, including an assortment of anti-homeless laws, and patterns of anti-homeless designs.

An emerging challenge for this research is to somehow organize, and perhaps even taxonomize, these various examples so that they can be better understood, anticipated, identified out in the world, and subjected to criticism. The categorizations of hostile design on offer so far have tended to take the form of online repositories of the various examples, with categories like "benches," "spikes," "skatestoppers," etc.[2] One useful kind of classification scheme can be found in the work of scholars such as Steven Flusty and Jeremy Németh, who develop categories for the different ways that spaces

[2] For helpful examples, see the websites of Nils Norman, Cara Chellew, and Dan Lockton: www.dismalgarden.com/archives/defensive_architecture, www.defensiveto.com/typology, and http://architectures.danlockton.co.uk/architectures-of-control-in-the-built-environment/. See also the thorough work of the Interboro collective, especially in their collection, *The Arsenal of Exclusion & Inclusion* (Armborst et al., 2017).

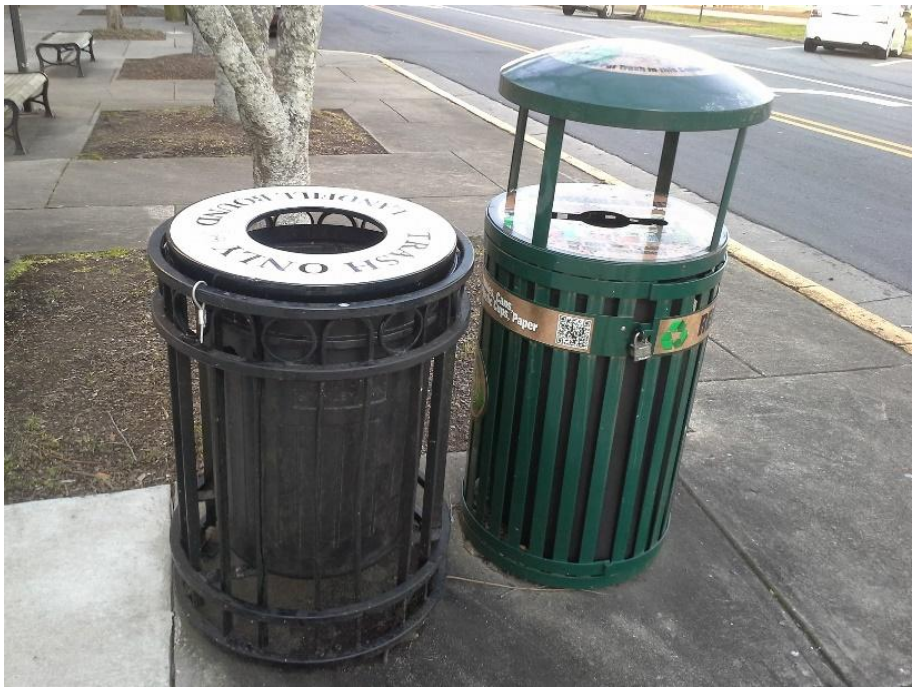

Figure 6: Trashcan and recycle can with lids, casings, and locks, Athens, GA. (Photo by author.)

can be designed to exclude particular behaviors and people (Flusty, 1994; Németh, 2009). For example, Flusty proposes a list of "interdictory spaces" to outline the various ways that public-space features can become hidden, blocked off, or made uncomfortable (with category names that include "stealthy," "slippery," "crusty," "prickly," and "jittery" spaces). A similar categorization scheme is needed for hostile design.

In what follows, I hope to contribute to the advancement of this critical toolkit through the development of an original scheme for categorizing the various examples of hostile design under discussion. My strategy is to attempt to group these examples in terms of the manners by which their hostilities function. Through what means are these various forms of hostility enacted? I offer a list of six "hostile mechanisms" through which the various specific examples enact their hostility and two "variables" that can apply differently across instances within these categories. I suggest that these categories may be useful for activist criticism of hostile design and for prompting further thinking about what it means for public-space objects to be labeled as "hostile." However, let's first reflect further on the meaning of hostility in design.

2. What is Hostile Design?

What ideas should be conveyed by "hostile design" and the related set of concepts? We can begin with a kind of working definition: hostile designs are things that can be criticized for closing off usages of objects or areas of public space in ways that target vulnerable populations. Such restrictions enacted by these designs work to the benefit of some and to the detriment of others in a condemnable manner. If we think of this phenomenon in roughly these terms, then several things become apparent.

For one, the notion of "hostile design" possesses an ineliminable value connotation. The classification of something *as* hostile is not an innocent or objective description; it is a judgment and an accusation. This is the case for other terms also used to refer to these phenomena, such as "unpleasant," "exclusionary," or "defensive," although the implied evaluations do not always go in the same direction.

This issue of values is highlighted when we recall that for any particular instance of design, alternatives are possible. That is, the installation of hostile design is a choice that has been made in the face of other options. This becomes clear when we consider examples of resistance, such as the work of designers to create different ways to address the same situation or the work of activist artists that call attention to and criticize existing hostile designs.[3] One of my favorite examples is the New York City spray cap program.[4] Like many cities, NYC has systematically mounted locks on its hydrants. However, residents have the option of asking the local fire department to install a temporary spray cap on a particular hydrant to transform it into a community sprinkler.

Of course, not all alternatives to hostile design rely on official channels. For example, the artist Stuart Semple has developed eye-catching stickers to be posted upon instances of hostile design to quite literally slap these objects with this label.[5] Other straightforward examples of resistance can be found in simple acts of vandalism, such as when anti-surveillance activists sabotage cameras or when skateboarders pop off skatestoppers with grinders or crowbars.

It may be tempting to attempt to develop a neutral terminology. However, I worry that this would have the effect of obscuring the nature of these phenomena. Many things stop people from doing things. Many things influence people's behavior. And it does not seem appropriate to put the label of "hostility" on all of these restrictive or behavior-influencing designs. Some fences keep people from falling off a ledge or cliff. A lowering warning arm deters cars from driving onto the tracks when a train is approaching. Our work on hostile design should be able to identify when a vulnerable group is being targeted in a condemnable way. Otherwise, these ideas risk a failure to distinguish between the perpetuation of unjust societal hierarchies and things like a fence at a cliff.

A second thing to be noted is that an accusation of hostility should not imply that the effects of the thing under criticism are somehow entirely or exclusively hostile ones. In addition to an alleged hostile effect, the object (or modification to an object) in question may, of course, perform many other functions. For example, the labeling of an anti-pick trashcan as hostile could usefully point out the ways a can's lid configuration may deter people from accessing it for things like food or recyclables. However, we can also recognize the various additional effects that the same anti-pick lid designs may also have, from preventing rain from falling into the can to deterring animals from entering, among others.

A third thing to note about hostile designs is that responsibility for an object's alleged hostility rarely, if ever, reduces to that of one particular actor. It can even be the case that a particular object may enact a hostile effect even though nobody had intended for that outcome. As Karl de Fine Licht puts it, "Even though this might seem strange, that, for example, an environment can be hostile even though you had no hostile intent while creating it, it seems reasonable given how we generally think about similar matters in other areas" (2020, 5). Of course, occasionally, we see cases in which a powerful actor clearly states their hostile intentions in the design of a particular space or object,

[3] For some examples of activist artwork that criticizes anti-homeless design, see (Rosenberger, 2017a, ch. 5).
[4] E.g., Rosenberger, 2017b, and see: https://portal.311.nyc.gov/article/?kanumber=KA-01035.
[5] See: https://hostiledesign.org.

and such moments can be useful.[6] However, in most cases, an instance of hostile design will reflect the work and decision-making of many people, including designers, manufacturers, retailers, and then anyone involved in their purchase and installation, from city officials to park planners to the best practice guidelines for the design of things like bus stops and subway platforms. It is important, then, to keep an eye on all of the various actors potentially responsible for hostile designs and also to maintain our focus on the hostile effects of our designs rather than only the intentions of particular people.

A fourth thing to be noted about hostile design is that it often relates to issues of visibility. One reason that a critical toolkit of concepts regarding hostile design is important is that instances of hostility are not always obvious. If you are among those *not* targeted by a particular design, then in some cases, you may not notice an instance in front of you. For example, someone who may never think about the possibility of sleeping on a bench may only perceive a particular armrest on a particular bench *as* an armrest and may not also recognize its anti-sleep function. Critics of anti-homeless agendas, like myself, often claim that the inconspicuousness of the design is no accident; a key part of a hostile agenda against the unhoused is that much of that agenda itself remains hidden from those not targeted by it. A critical conception of hostile design helps not only to put a spotlight on particular instances as they appear in our cities but also upon larger hostile agendas.

If the above constitutes a rough characterization of hostile design, then it seems possible to sort out the various identified examples into useful groupings.

3. Six "Mechanisms" of Hostile Design

Instances of hostile design can be categorized in different ways. Here, I attempt to spell out the various means by which hostile designs dissuade people from using particular devices and spaces in specific ways and, in effect, to push away targeted groups. That is, I want to catalog the different ways hostile designs shut down specific uses of public space. Let's consider the different hostile functionalities at issue, or what we can call here, the different "mechanisms" of hostility that characterize the various examples of hostile design. In what follows, I outline six hostile mechanisms: "physical imposition," "sensory interference," "concealment," "confederacy," "self-coercion," and "absence."

3.1. Physical Imposition

The majority of the examples typically identified as hostile design function in a similar manner: they interrupt or impede a particular bodily engagement with an object of public space. They "get in the way" of a particular manner in which the device or space could be used. We could say that such instances of hostile design operate by a mechanism of "physical imposition."

People can physically interact with a device in multiple ways. And spaces afford multiple uses. Alterations to such devices or spaces can be made in accordance with a hostile agenda, deterring particular physical engagements. For example, if someone wishes to keep others from sleeping on a particular bench, then they may attempt to impede this usage by adding physical "anti-sleep"

[6] See, for example, the public spaces of Trump Tower in Manhattan (Rosenberger, 2018a), or the more recent case of the removal of benches from a New York City subway station: "MTA Deletes Tweet Explaining Why Subway Station Benches Were Removed," by S. Nessen. *Gothamist.com*, 2/7/2021. https://gothamist.com/news/mta-deletes-tweet-explaining-why-subway-station-benches-were-removed

barriers to it in the form of armrests, dividers, or some other design modification. If someone wants to deter others from using a skateboard to slide across a particular ledge, they may attempt to disrupt the physical possibility of this action by studding the ledge with metal nubs. If someone does not want merchants selling goods along a particular sidewalk, then they may attempt to cut off this space by installing a series of large planters or bollards. If someone doesn't want others taking items out of a particular recycle can, then they may redesign the opening to make it physically difficult to reach one's arm down inside.

Anti-homeless spikes, hydrant locks, and graffiti-resistant surfaces all function by a mechanism of physical imposition. So does the practice of fencing or caging off areas like underpasses, dumpsters, grassy hillsides, alcoves, and vents. Setha Low has chronicled the phenomenon of "gated communities" and has noted that they tend to be:

> surrounded by walls, fences, or earth banks covered with bushes and shrubs, with a secured entrance. In some cases, protection is provided by inaccessible land such as a nature reserve and, in a few cases, by a guarded bridge. The houses, streets, sidewalks, and other amenities are physically enclosed by these barriers, and entrance gates are operated by a guard or opened with a key or electronic key card (2004, 12).

As such, gated communities can become defined, at least in part, by an array of design features that operate through physical impositional mechanisms.

3.2. Sensory Interference

Some examples of hostile design interfere with users' sense perception. They present sensory stimuli that are annoying, unpleasant, or unbearable, or render it difficult to perceive the world in particular ways. We can refer to these as instances of hostile design that operate through a mechanism of "sensory interference." The main examples are machines that emit specific hostile sounds and certain forms of lighting that disrupt targeted behaviors. As Erin Lynch writes, "Often times, hostile design in the city involves tactility; since touch is a very localized experience of space, the effects of these measures can be targeted. However, defensive spatial intervention can also involve the sound of spaces," and she notes instances of classical music used to deter teenage loitering and even the hostile changes to the smell of spaces, such as the use of stink bombs to clear out squatters in abandoned buildings (2020, 105).

A good example in these discussions is the Mosquito noise device. It is a small speaker that projects an irritating high-pitched sound that only young people can hear. The idea is that the annoying auditory stimuli will drive away youths who may otherwise loiter outside storefronts or in school parking lots. The Moving Sound Technologies company, a distributor of the Mosquito in the U.S., pitches the device as a "simple, safe and benign way to disperse crowds of anti-social youth."[7]

Sometimes, music broadcast very loudly in public spaces can constitute an example of hostile design. This can have the effect of indiscriminately shooing everyone away. However, it is the unhoused who tend to be targeted by this form of hostile soundscape alteration; loud music, annoying music, and noisy industrial sounds are sometimes played at night in parks and other public spaces to deter campers.

[7] See: movingsoundtech.com/mosquito-faq.

Another example is the installation of uncool or unflattering lighting. The target population is once again loitering young people. Some forms of lighting may be deemed not sufficiently masculine by a group of boys concerned with looking tough. At least, this was the idea behind the installation of pink bulbs within an underpass in Mansfield, England, and other places across Britain.[8]

3.3. Concealment

Another form of hostile design is when an expected amenity *is* available within a public space but is somehow hidden from view. This kind of hostile design could be understood to operate through a mechanism of "concealment." An amenity may be tucked away and largely unnoticeable, rendering it functionally available only to those who already know that it is there. Steven Flusty has raised concerns over the ways that important amenities in public spaces sometimes "cannot be found" or are "camouflaged, or, more commonly, obscured by such view impediments as intervening objects or grade changes" (1994, 16). For example, if a space were to include a public restroom, but that amenity were to be positioned around a corner and out of view, and if no signage points to its presence, then such a situation could have the hostile effect of discouraging its usage. We could expect that this will, at times, be to the benefit of property owners, planners, or city officials who receive recognition for providing the amenity and yet, at the same time, benefit from the hostile effect of concealing its presence.

This can be of special concern for "privately-owned public spaces," or POPS, i.e., public spaces owned and maintained by a private entity in exchange for zoning bonuses or something else beneficial to the property developer (e.g., Kayden, 2000; Németh, 2009; Rosenberger, 2018a; Schindler, 2018). POPS tend to take the form of things like plazas, breezeways, sunroofs, and atriums. Each POPS agreement is different, with different benefits to the private owners and different public amenities legally required in return. However, as Jerold S. Kayden notes, "Privately owned public space introduces an axiomatic tension between private and public interests. After the euphoria of receiving the floor area bonus has faded, the owner is left with a space whose public operation may not necessarily please the building's occupants or otherwise serve profit-oriented interests" (2000, 55). Thus, it is a perpetual problem that some owners continuously fail to live up to their agreements or skirt requirements through hostile design strategies. For example, a recent audit by the Comptroller's Office of New York City reports that "151 of the 333 POPS are not required by the Zoning Resolution to post signs identifying the location as a POPS because they were built prior to signage requirements being put in effect. Without such signs, however, members of the public would be highly unlikely to know that a location is a POPS."[9] Public groups such as the Advocates For Privately Owned Public Space (APOPS) have emerged to help bring awareness and visibility to otherwise concealed POPS in our cities through mapping websites, guides, and smartphone apps.[10]

[8] See: news.bbc.co.uk/2/hi/uk_news/england/nottinghamshire/7963347.stm.

[9] See page 2 of "Audit Report on the City's Oversight Over Privately Owned Public Spaces," SR 16-102A, April 18th, 2017. comptroller.nyc.gov.

[10] See, for example, the website of APOPS for privately-owned public spaces in New York City: https://apops.mas.org/. Or see the work of SPUR on the city of San Francisco: www.spur.org/publications/spur-report/2009-01-01/secrets-san-francisco.

3.4. Confederacy

Some examples of hostile design function in direct collaboration with human authorities. They stand in ready assistance to the security guards, managers, police officers, and others who may be working to control a public space in a hostile manner. If a person is acting according to some hostile agenda, then the objects that directly assist them in those actions can be conceived as instances of hostile design. We can say that such objects operate through a mechanism of "confederacy."

One example can be found in efforts to quasi-privatize public spaces through the use of sign-in desks. Manned by a human receptionist or security guard, sometimes buildings with spaces open to the public' require visitors to sign in and out on a clipboard or computer. Such a procedure can have the effect of discouraging certain populations from entering. For example, someone living unhoused and whose everyday behaviors have been criminalized may not appreciate such monitoring. That desk may assist the receptionist in an effort to enforce rules in the area that function in accord with some hostile agenda. The desk, clipboard, and computer do not serve their hostile act alone but function as a confederate to human authorities enacting a hostile agenda.

Hidden cameras are a paradigmatic example of hostile design that operates through this mechanism. We can note that cameras in public spaces are potentially hostile in two distinct ways: (1) they enable authorities to monitor a space more efficiently and thus enforce potentially hostile rules, and (2) their visible presence incites people to follow the rules for fear of drawing the authorities' attention. It is this first form of potential hostility that operates through a mechanism of confederacy. The camera—insofar as it is used by authorities to watch over the space and insofar as those authority figures act according to a condemnable agenda—functions in hostile confederation with the human watchers. It is a tool that extends their visual range. The hiddenness of a camera furthers its efficacy in these terms; those under surveillance remain unaware that they are being watched.[11]

3.5. Self-Coercion

Some examples of hostile design do not force particular behavior or enforce restrictions, but instead pressure a target population to actively restrict their behavior. We could say that the mechanism of hostility at work in these kinds of public-space designs is one of "self-coercion," that is, one that incites the target population to police themselves.

One straightforward example is clearly posted signage. Of course, one major function of public-space signage is simply to provide information. A sign that lists park rules is an object that functions to inform people about what is and is not allowed, e.g., park hours, whether dogs are welcome, etc. However, a prominently posted sign that lists a rule that is part of a hostile agenda can itself additionally function to coax the members of the targeted population to act accordingly. It serves as a reminder that behaving otherwise could bring down consequences from the authorities (e.g., Fig. 7). A "No Camping," "No Loitering," or "No Skateboarding" sign is not simply a device that communicates the existence of a regulation. It is a physical object in public space that has hostile effects on a targeted population, effects that the targeted people are incited to impose upon themselves.

The specifics of the design of public space can also communicate hostile attitudes toward the targeted group. Take the case of anti-homeless spikes. They restrict a particular behavior through a mechanism of physical imposition; you cannot easily sit or lay on a surface studded with spikes.

[11] One cutting-edge issue related to hostile hidden camera confederacy is facial recognition and its potential for algorithmic bias (e.g., Garvie et al., 2016).

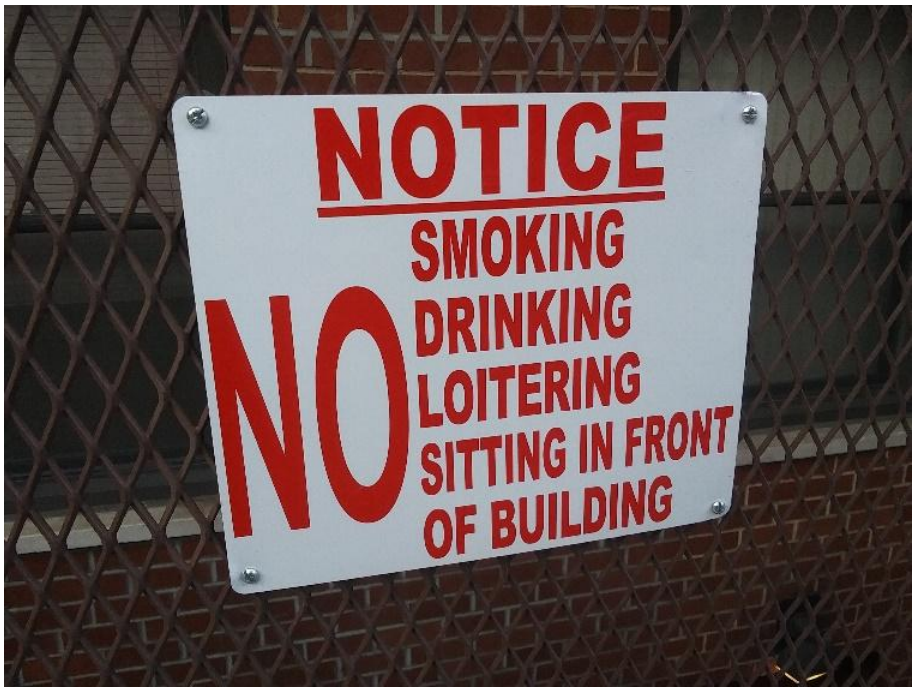

Figure 7: Signage, New York City, NY. (Photo by author.)

But the spikes are additionally very noticeable, and the intentions behind their installation are unmistakable. This unhidden and unequivocal signal of the attitude toward a specific behavior of a target population may also discourage this group from behaving in that way and possibly also from spending time in such spaces altogether. That is, not only do the spikes prevent sitting, but they also send a loud message to the unhoused that they are not welcome. Insofar as the hostility of the effects of a design is obvious to the targeted, this communication of hostility could incite self-policing. In this way, there is often an element of the mechanism of self-coercion at work in many of the examples of hostile design under consideration above.

The paradigmatic example of a public-space object operating through a mechanism of self-coercion is the conspicuous security camera. As mentioned, the visibility of a highly noticeable camera communicates to those in its presence that they are under surveillance. The highly visible camera itself—in its very visibility—can serve as a threat that there are consequences to violating the rules. The presence of the camera, as an object in public space, serves to remind people that they are being watched. A version of this mechanism is apparent in the example of the highly visible camera that is also "masked" such that those under surveillance cannot see where the camera is pointing. This is the case for a camera positioned behind a tinted dome or hanging within a tinted sphere (e.g., Fig. 4). Since such a tinted sphere hanging from a ceiling or mounted on a pole is itself a highly visible thing, and since the exact spot being watched by the camera within in the sphere cannot be observed at a given moment, people in the entire surrounding area are encouraged to behave as if they are under surveillance.[12]

[12] These issues of self-coercion in relation to security cameras are a central issue within the field of surveillance studies (e.g., Lyon, 2001; Ball et al., 2012; Marx, 2015), and in particular work in relation to Michel Foucault's philosophy of the panopticon (e.g., Foucault, 1977; Friesen et al., 2009; Rosenberger, 2020a).

3.6. Absence

It is also important to develop ways to describe a lack of expected features of an object or area and how such a shortage can result in hostile effects. For example, rather than add an armrest to a bench, authorities might decide to remove the entire bench altogether.[13] Or, rather than removing an already existing feature, developers may decide to fail to include commonly expected amenities. A community may decide to remove (or never install) sidewalks to deter pedestrian foot traffic. To deter loiterers in a region with high temperatures, there may be none of the expected trees or shade.[14] We can refer to these designs as operating through a mechanism of "absence."

Cara Chellew has alternatively referred to this phenomenon with the useful term "ghost amenities," observing that,

> These are public amenities like washrooms, benches, and water fountains that are often included in public spaces to make them more comfortable, but are absent due to disrepair, reduced operation, or intentional omission. This is done as a way to reduce maintenance costs, avoid vandalism, or to deter loitering (2019, 23).

Such absent features can function as crucial elements within larger hostile agendas against poor and unhoused individuals, with a paradigmatic example in the absence of public restrooms. Entire swaths of a city may lack public restrooms, with the only options available to paying customers in private businesses. As Mike Davis claims, public-space restrooms are "the real Eastern Front of the Downtown war on the poor. Los Angeles, as a matter of deliberate policy, has fewer available public lavatories than any other major North American city" (1990, 234).

The purpose of this kind of categorization scheme is to help in the identification of hostile mechanisms as they appear in the world. Of course, there is no reason to assume that the above suggestions for categories are necessarily comprehensive. Another purpose of this scheme is to set up the possibility for recognizing additional mechanisms not yet commonly included in research and activist discussions on hostile design.

The categories listed above are not mutually exclusive. It is possible for an individual instance of design (however they are individuated) to enact hostility through more than only one mechanism. There is also the potential for borderline cases. That is, there will be examples that defy attempts to clearly fit within one category to the exclusion of others. Take the example of an area designed with a rough or bumpy ground surface that does not lend itself to skateboarding. The rough surface could be conceived as a form of physical imposition, one that merely discourages skateboarding through its sub-optimal surface texture rather than prohibits it. This same example could instead be conceived as a form of sensory interference, interrupting the smooth haptic experience with the skateboard; skateboarding is still possible, but the preferred touch sensation of the experience has been disrupted. The point of this kind of taxonomizing is ultimately not to develop exclusive categories but to provide practical tools for critical analysis and to offer jumping-off points for further conceptual work.

[13] See both examples in footnote 7.

[14] There are yet unexplored connections to be made between issues of the hostile absence of urban tree coverage and empirical research on issues of canopy equity (e.g., Heynen, 2004; Schwarz et al., 2015; Locke et al., 2021).

4. Two Variables

Hostile designs can be characterized in various manners that refract differently across the mechanisms listed above. Let's refer to these aspects here as "variables," and let's consider two of them: what we can call "conspicuousness" and "domain of effect."

4.1. Conspicuousness

The various examples of hostile design can be more or less conspicuous. They may call more or less attention to themselves. Some may be designed specifically to be as unnoticeable as possible, especially to those who are not targeted by them. And as noted, of course, many instances of hostile design also simultaneously perform other non-hostile functions. For example, the anti-sleep bench modifications might also serve as armrests or seat dividers. The anti-pick trashcan lid might also serve as a rain hood. These additional functions can obscure a design's hostile effects, a longstanding strategy finding new expression in contemporary design. Or as Rosalyn Deutsche puts it, "These tactics of urban restructuring are not entirely new; neither is the erasure of the less appealing signs of its manufacture or the denial of its social consequences" (1986, 86).

It can be to the advantage of a hostile agenda to be as inconspicuous as possible to the non-targeted. This can be achieved in part by creating hostile designs that do not draw attention to their hostile effects. The results of such inconspicuous design can be twofold: (1) The non-targeted may fail to notice instances of hostile design, and (2) this could have the result of hiding not only the hostility of the design but also the larger issues to which it relates. For example, as Maria Foscarinis and colleagues plainly observe, "Some cities have pursued comprehensive policies with the stated purpose of driving homeless people out of sight" (1999, 147). The anti-homeless agendas at work—to different degrees and in different ways—within many cities across the globe should be understood to not only attempt to force the unhoused out of public spaces but also to attempt to hide the problem of homelessness itself.

However, we must also note that some hostile designs are conspicuous in the very manner by which they enact their hostility. One example is anti-homeless spikes. A ledge or other surface adorned with spikes may be very noticeable, even to those with no inclination to sit in that space. (There are versions that are less so, such as bolts or bumps that may serve the same purpose.) Spikes are an interesting example of hostile design because not only are they highly conspicuous in themselves, but they are often immediately noticeable in terms of their hostile functionality. It's often obvious exactly what they're for.

There are other examples of hostile design that are conspicuous as an inherent part of their hostile functioning, such as a highly noticeable security camera that enacts hostility through a mechanism of self-coercion. Think about the way a security camera may have a hostile effect as a targeted person sees the camera, recognizes that they are under surveillance, and becomes incited to police their own behavior in line with some hostile agenda. In such a case, for this hostility to function, the camera itself must stand in plain sight. Some instances of highly visible security cameras engage in a kind of performative conspicuousness; they are designed specifically to be seen, and they may even be accompanied by signage to remind people that they are under surveillance. (There are even examples of fake security cameras, objects that are intended to give people the false impression that they are being watched.)

Also, some examples of hostile designs that operate through a mechanism of sensory interference must be highly conspicuous as a part of the way they function. Loud music or annoying music

played in a public space to, say, deter camping is almost necessarily conspicuous as a part of being loud or annoying. Even still, we see that such music might be played only at night, and thus at a time when the non-targeted would be less likely to be around. The Mosquito anti-loitering noise machine, while highly noticeable to young people within its range, is at the same time inaudible to older members of the public.

Thinking about the variable of conspicuousness raises an important point about the situatedness of hostile design: the hostility of public-space objects will be more or less noticeable to different populations of the city. On the one hand, it may be the case that hostile designs, in particular, and hostile agendas, more generally, will be more apparent to those targeted by them. This hostility may be noticeable to targeted populations precisely because they experience this hostility directly. On the other hand, it may be the case that hostile designs (and the wider agendas in which they take part) will be less apparent to the non-targeted. As noted, such designs may be configured specifically to be inconspicuous to the non-targeted, to have additional non-hostile purposes, and to be otherwise non-disruptive to non-targeted people's use of the space. These kinds of issues more generally reveal the situated politics of human perception and their relationships with the political situation of the built environment.

Let's return once more to the example of the anti-homeless spikes. As noted above, they are highly noticeable. This noticeability has, on occasion, drawn them into controversy. In their ready comparability to the kinds of spikes used to shoo away pigeons and other vermin, activists raise awareness of the seemingly clear and objectionable intentions behind their installation and have, at times, successfully petitioned for their removal. And yet, they are a complex case. On the one hand, the outrage occasionally provoked by anti-homeless spikes reflects the way that the smooth functioning of many hostile agendas is in part dependent on the inconspicuousness of such agendas to the non-targeted; the various other examples of anti-homeless design do not prompt the same outrage as often because they tend to go unnoticed. On the other hand, it is not always clear what the outrage on the part of the non-targeted represents. For some, it may represent a genuine solidarity with the vulnerable population—the unhoused in this case—unjustly targeted by a wider anti-homeless agenda. But for others, the motivation may be merely a distaste for any reminder of the problem of homelessness at all. As James Petty observes, "The spikes, as a protrusive and always visible spectacle of coercion, mean that homelessness remains within that space as a residue, haunting it and destabilising its constructed meaning" (2016, 76). Put differently, some may support the removal of anti-homeless spikes not in solidarity with the unhoused but instead for their failure to maintain the invisibility of both the problem of homelessness and the anti-homeless agenda itself since they'd prefer not to think about these things at all.

The variable of conspicuousness also relates to the fact that hostile designs sometimes function not merely as a kind of physical coercion but also as a kind of sign, a form of implicit communication. They sometimes serve as a signal of hostility. The spikes are again instructive in the atypical way they broadcast their intentions loudly and unequivocally. In some cases, this explicit signaling may be a feature, not a bug. An effect, for example, may be to communicate brazenly and brutally to a targeted population that they are not welcome. The signaling function of an extreme case like the spikes may be useful for what it reveals about less conspicuous examples. The spikes may announce to everyone that the unhoused are not welcome in a particular shared public space. Other hostile designs that target the unhoused—such as the anti-sleep benches or anti-pick trashcans—may make the same pronouncement, with the same brazenness and the same brutality, but do so in a way that is at once explicit to the targeted and at the same time slyly inconspicuous to the non-targeted.

4.2. Domain of Effect

Another aspect that differs between examples is the location of the hostility enacted by a particular device. The nature of the hostility of a device, in part, determines its area of operation. We can observe, for example, a contrast between (1) a hostile design whose domain of effect is how it—as a device—may be used and (2) one whose domain of effect is instead the options available in the surrounding space. Let's refer to this particular distinction as a difference between an "individual-object domain" and a "surrounding-space domain."

A hostile design with an individual-object domain of effect is one that, by the nature of its hostility, restricts the way that the object itself may be used. For example, the bench redesigned with anti-sleep armrests has a domain of effect of that bench itself. The anti-sleep design has the effect of closing off one of this bench's own potential usages. The skatestoppers affixed to a handrail deter skateboarders from performing tricks on that particular rail. Many of our examples of hostile designs that operate through a mechanism of physical imposition have this kind of domain of effect.

In contrast, a hostile design with a surrounding-space domain of effect is one that, by the nature of its hostility, restricts the way that the space around it may be used. For example, a sound system that plays annoying music to deter loitering has a domain of effect of the space where it can be heard. Unlike the examples of designs with an individual-object domain of effect, the sound system does not restrict the usage of the sound system itself as a material thing. The sound system has an effect on anyone that can hear within its acoustic range. This is similarly the case for the hostile effect of a security camera operating under a mechanism of self-coercion. If the presence of a highly noticeable security camera incites a targeted population to police themselves in a hostile manner, then this can be understood to be a surrounding-spatial domain of effect. The camera's presence does not change the targeted person's usage of the camera itself; it changes their relationship to the spatial area under surveillance. It is possible, too, for examples of hostile design that operate through a mechanism of physical imposition to have a surrounding-spatial domain of effect. For example, a fence that closes off an area in a hostile manner has an effect on that entire closed-off space. The fence does not place restrictions on the usage of the fence itself. It provides a form of physical imposition to the affected area.[15]

Reflection upon these differences in domain of effect highlights the nature of larger-scale hostile agendas. For example, this may help to articulate how an individual instance of hostile design both functions in isolation and how it may also contribute to a larger hostile agenda with a more expansive domain of effect. One individual anti-sleep bench might enact its hostility upon a domain of its own sitting space. However, in combination with other anti-homeless designs, including other anti-sleep benches as well as other anti-homeless tactics such as anti-homeless laws, the bench additionally becomes one piece of a larger agenda that targets the unhoused across a potentially wide-ranging domain of the city. As part of a pattern of anti-sleep benches, and possibly other designs that close off places to sit or lie down, and perhaps also laws that target exactly the same behaviors, these things function in the aggregate to deter not only sleeping in a particular spot; they disafford stopping and resting anywhere within a city's shared and visible public space.

In addition, insofar as the agenda has some success in these effects, the bench becomes a sign—at least to those targeted by its hostility—communicating that they are unwelcome. For example, as

[15] There are surely additional variables that could be identified. For example we could consider a variable of "temporality" in which examples are distinguished in terms of the durations of their effects. Or we could consider a variable of "discriminateness" in which examples are distinguished in terms of whether their effects target specific behaviors or instead that less discriminately close off many or all usages for all users.

Ole B. Jensen notes, "The complex relationship between laws prohibiting people from gathering and making shelter is together with the concrete artifacts of dark design working to create an atmosphere of rejection" (2020, 328). If the anti-sleep bench has the effect of signaling to the targeted population that they are not welcome, then a pattern of these and other hostile designs targeting that same population can create an atmosphere of hostility that extends across the city. Such atmospheres of hostility can even potentially overspill and be experienced by the non-targeted. As Anna Minton observes, " 'Defensible space' in fact produces isolated, often empty enclaves which promote fear rather than the safety and reassurance that automatically come in busy places, where people are free to come and go" (2009, 72). The cumulative effect of the spikes, fences, and cameras at times may be to leave many users feeling uneasy.

Even more, in its participation in a wider hostile agenda in these corporeal and semiotic ways, the bench becomes an accomplice to a larger revanchist undertaking, reclaiming cities in line with a particular vision for the public spaces, parks, downtowns, and business districts constituted by the systematic exclusion of the poor and other perpetual subjects of discrimination. As Neil Smith wrote on 1990's New York City, "The central areas cleared of homeless people are now open for business. The dynamic geographies of culture, real estate capital, and revanchism seem perfectly synchronized" (1998, 7). The domain of effect of hostile design can be more than only the immediate space around the device itself. Hostile designs can function as contributors to larger discriminatory visions for the future of the city.

5. Discussion

Hostile designs are, of course, not necessarily themselves the central cause of the issues to which they relate. Anti-homeless design, for example, is not itself the cause of homelessness. The removal of anti-homeless designs will not somehow by itself solve the problem of homelessness (even if such work would constitute at least some small level of harm reduction). However, a growing accumulation of contemporary activists and scholars are finding that the critique of hostile design can be useful for drawing attention to issues of concern in our cities.

There is a special potential in activism regarding hostile design. The exposure of hostile design can sometimes be useful for putting larger agendas on display. For example, a non-targeted person who was unaware of a particular hostile agenda within a particular city may at first be surprised to learn about the hostility of an individual object. This may prompt them to suddenly see a pattern of these hostile designs installed across the city. The recognition of these and other designs targeting the same vulnerable population might then set this person up to notice other things, such as laws or other institutions specifically aimed at this same group. As Sarah Schindler observes, "Architectural exclusion is pernicious in that it is invisible to most, and yet it continues to solidify otherwise defunct forms of legal exclusion" (2018, 1990). In this way, hostile designs can, at times, be the tip of the iceberg, jutting out into public space and indicating the existence of a larger agenda below the surface of what is readily visible. The work of revealing hostile designs to the public can be an important first part of the project of exposing larger-scale hostile agendas.

It is possible that raising awareness of hostile designs and larger hostile agendas will lead some members of the non-targeted population to sympathize with targeted groups and support efforts to resist their subjugation. Of course, not all non-targeted people will be moved to compassion. As Francesca Piazzoni points out, "Visibility alone, then, cannot guarantee justice. But the ability to see and be seen in the city remains a prerequisite for the empowerment of underrepresented groups"

(2020, 3). For example, making the problem of homelessness more visible will not lead everyone in the community to support the unhoused. However, it may be impossible to make progress on the problem of homelessness if the problem itself is made invisible.

The notions of "hostile design," "hostile architecture," and related ideas are providing scholars with a new way into the study of long-standing issues regarding the politics of city space. As Sanna Lehtinen observed, "We need a better understanding of how technologies are experienced, especially in cases where social justice is at stake. A better recognition of how new technologies are affecting the distribution of attention or aesthetic qualities of everyday environments is thus something in which philosophical and applied aesthetics can assist" (2020, 87). Perhaps the notion of hostile design and its related concepts can be useful for these kinds of critical projects. There is a need for empirical work and not merely for itself but for the refinement of this idea as a tool for criticism. There is also a need for further scholarly work to sharpen these concepts through their connection to traditions of thought on these issues.

References

Armborst, T., D. D'Oca, G. Theodore, & R. Gold, eds. 2017. *The Arsenal of Exclusion and Inclusion*. Actar Publishers.

Ball, K., K. Haggerty, & D. Lyon, eds. 2012. *Handbook of Surveillance Studies*. Routledge.

Binnington, C., & A. Russo. 2021."Defensive Landscape Architecture in Modern Public Spaces." *Ri-Vista* 19, no. 2: 238–255.

Chellew, C. 2016."Design Paranoia." *Ontario Planning Journal* 31, no. 5: 18–20.

Chellew, C. 2019."Defending Suburbia: Exploring the Use of Defensive Urban Design Outside of the City Center." *Canadian Journal of Urban Research* 28, no. 1: 19–33.

Crippen, M., & V. Klement. 2020."Architectural Values, Political Affordances, and Selective Permiability." *Open Philosophy* 3: 462–477.

Davis, M. 1990. *City of Quartz: Excavating the Future in Los Angeles*. Verso.

De Fine Licht, K. 2017."Hostile Urban Architecture: A Critical Discussion of the Seemingly Offensive Art of Keeping People Away." *Etikk I Praksis - Nordic Journal of Applied Ethics* 2: 27–44.

De Fine Licht, K. 2020."'Hostile Architecture' and its Confederates: A Conceptual Framework for How We Should Perceive Our Cities and the Objects in Them." *Canadian Journal of Urban Research* 29, no. 2: 1–17.

Deutsche, R. 1986."Krzysztof Wodiczko's Homeless Projection and the Site of Urban 'Revitalization.'" *October* 38: 63–98.

Deutsche, R. 1996. *Evictions: Art and Spatial Politics*. MIT Press.

Dovey, K. 1999. *Framing Places: Mediating Power in Built Form*. Routledge.

Eggersglüß, C. 2020."Orthopedics by the Roadside: Spikes and Studs as Devices of Social Normalization." In *Cultural Techniques*, edited by J. Dünne, K. Fehringer, K. Kuhn, & W. Struck: 87–106. De Gruyter.

Flusty, S. 1994. *Building Paranoia: The Proliferation of Interdictory Space and the Erosion of Spatial Justice*. Forum Publication No. 11. Los Angeles Forum for Architecture and Urban Design.

Foscarinis, M., K. Cunningham-Bowers, & K. E. Brown. 1999."Out of Sight—Out of Mind?: The Continuing Trend Toward the Criminalization of the Homeless." *Georgetown Journal of Poverty Law & Policy* 6, no. 2: 145–164.

Foucault, M. 1977. *Discipline and Punish*. Vintage.

Friesen, N., A. Feenberg, & G. Smith. 2009."Phenomenology and Surveillance Studies." *The Information Society* 25: 84–90.

Garvie, C., A. M. Bedoya, & J. Frankle. 2016."The Perpetual Lineup: Unregulated Police Face Recognition in America." Georgetown Law, Center on Privacy & Technology, Oct. 18th, 2016. www.perpetuallineup.org

Giamariano, C., P. O'Connor, & I. Willing. 2023."The Impacts of Hostile Designs on Skateboarding as a Form of Active Transportation and Recreation: Comparing Perspectives from Public Universities in Australia, the United Kingdom, and the United States." *Cities and Health* 7, no. 3: 416–432.

Heynen, N. C. 2004."The Scalar Production of Injustice within the Urban Forest." *Antipode* 35, no. 5: 980–998.

Howell, O. 2005."The 'Creative Class' and the Gentrifying City: Skateboarding in Philadelphia's Love Park." *Journal of Architectural Education* 59, no. 2: 32–42.

Jensen, O. B. 2017."Dark Design: Mobility Injustice Materialized." In *Mobilities, Mobility Justice and Social Justice*, edited by N. Cook & D. Butz: 116–128. Routledge.

Jensen, O. B. 2020."Atmospheres of Rejection: How Dark Design Rejects Homeless in the City." In *Ambiances, Alloæsthesia: Senses, Inventions, Worlds: Proceedings of the 4th International Congress on Ambiances*, edited by D. Mason: 326–331. Réseau International Ambiances Network.

Katyal, N. K. 2002."Architecture as Crime Control." *The Yale Law Journal* 111: 1039–1139.

Kayden, J. S., The New York City Department of City Planning, and The Municipal Art Society of New York. 2000. *Privately Owned Public Space: The New York Experience*. John Wiley & Sons, Inc.

Kullman, K. 2023."Hostile Prototypes: Plastic Urbanism in San Francisco." *Cultural Geographies* 30, no. 2: 219–238.

Lefebvre, H. 1991. *The Production of Space*. Blackwell.

Lehtinen, S. 2020."Living with Urban Everyday Technologies." *ESPES: The Slovak Journal of Aesthetics* 9, no. 2: 81–89.

Lessig, L. 1999. *Code and Other Laws of Cyberspace*. Basic Books.

Locke, D. H., B. Hall, J. M. Grove, S. T. A. Pickett, L. A. Ogden, C. Aoki, C. G. Boone, & J. P. M. O'Neil-Dunne. 2021."Residential Housing Segregation and Urban Tree Canopy in 37 US Cities." *NJP Urban Sustainability* 1, no. 15. https://doi.org/10.1038/s42949-021-00022.

Lorini, G., & S. Moroni. 2020."Ruling Without Rules: Not Only Nudges. Regulation Beyond Normativity." *Global Jurist* 20, no. 3. https://doi.org/10.1515/gj-2019-0051.

Lorini, G., & S. Moroni. 2022."Non-Propositional Regulation." *Philosophical Investigations* 45, no. 4: 512–527.

Low, S. 2004. *Behind the Gates: Life, Security, and the Pursuit of Happiness in Fortress America*. Routledge.

Loukaitou-Sideris, A., & R. Ehrenfeucht. 2009. *Sidewalks: Conflict and Negotiation over Public Space*. MIT Press.

Lynch, E. E. 2021."Laws of Perpetual Motion: The Sensory Regulation of Mobility in Public Space." *The Senses and Society* 16, no. 1: 102–109.

Lyon, D. 2001. *Surveillance Society: Monitoring Everyday Life*. Open University Press.

Marx, G. T. 2015. *Windows Into the Soul: Surveillance and Society in the Age of High Technology*. University of Chicago Press.

Minton, A. 2012. *Ground Control: Fear and Happiness in the Twenty-First-Century City*. Penguin.

Mitchell, D. 2014. *The Right to the City: Social Justice and the Fight for Public Space*. Guilford.

Moatasim, F. 2023."Safe Storage and Parking Lots: Anti-Homeless Laws and Homeless Service Spaces in Los Angeles." *Urban Geography*. http://doi.org/10.1080/02723638.2023.2169502.

Nitrato Izzo, V. 2022."Law and Hostile Design in the City: Imposing Decorum and Visibility Regimes in the Urban Environment." *Oñati Socio-Legal Series* 12, no. 3: 522–539.

Németh, J. 2004."Redefining Security in Public Space: The Case of LOVE Park." *IEEE Technology and Society Magazine* 23, no. 3: 19–20.

Németh, J. 2009."Defining a Public: The Management of Privately Owned Public Space." *Urban Studies* 46, no. 11: 2463–2490.

Petty. J. 2016."The London Spikes Controversy: Homelessness, Urban Securitisation and the Question of 'Hostile Architecture.'" *International Journal for Crime, Justice and Social Democracy* 5, no. 1: 67–81.

Piazzoni, F. 2020."Visibility as Justice: Immigrant Street Vendors and the Right to Difference in Rome." *Journal of Planning Education and Research*. https://doi.org/10.1177/0739456X20956387.

Rosenberger, R. 2014."Multistability and the Agency of Mundane Artifacts: From Speedbumps to Subway Benches." *Human Studies* 37: 369–392.

Rosenberger, R. 2015."'No Camping' and Other Laws that Sneakily Push the Homeless Away." *The Atlantic* online, Oct. 25th, 2015. https://www.theatlantic.com/business/archive/2015/10/no-camping-and-other-laws-that-sneakily-push-the-homeless-away/412216/

Rosenberger, R. 2017a. *Callous Objects: Designs Against the Homeless*. University of Minnesota Press.

Rosenberger, R. 2017b."On the Hermeneutics of Everyday Things: Or, the Philosophy of Fire Hydrants." *AI & Society* 32: 233–241.

Rosenberger, R. 2018a."The Public Spaces of Trump Tower Reflect the Cruelty and Self-Dealing of the Trump Administration." *Antipode Intervention*, 12/4/2018. https://antipodeonline.org/2018/12/04/the-public-spaces-of-trump-tower/

Rosenberger, R. 2018b."Why It Takes Both Postphenomenology and STS to Account for Technological Mediation: The Case of LOVE Park." In *Postphenomenological Methodologies: New Ways in Mediating Techno-Human Relationships*, edited by J. Aagaard, J. K. B. Friis, J. Sorenson, O. Tafdrup, & C. Hasse: 171–198. Lexington Books.

Rosenberger, R. 2020a."Hostile Design and the Materiality of Surveillance." In *Relating To Things: Technology and the Artificial*, edited by H. Wiltse: 135–150. Bloomsbury.

Rosenberger, R. 2020b."On Hostile Design: Theoretical and Empirical Prospects." *Urban Studies* 57, no. 4: 883–893.

Savicic, G., & S. Savic, eds. 2013. *Unpleasant Design*. G.L.O.R.I.A.

Schindler, S. 2015."Architectural Exclusion: Discrimination and Segregation Through Physical Design of the Built Environment." *The Yale Law Journal* 124: 1937–2024.

Schindler, S. 2018."The 'Publicization' of Private Space." *Iowa Law Review* 103: 1093–1153.

Schwarz, K., M. Fragkias, C. G. Boone, W. Zhou, M. McHale, J. M. Grove, J. O'Neil-Dunne, J. P. McFadden, G. F. Buckley, D. Childers, L. Ogden, S. Pincetl, D. Pataki, A. Whitmer, & M. L. Cadenasso. 2015."Trees Grow on Money: Urban Tree Canopy Cover and Environmental Justice." *PLoS ONE* 10, no. 4: e0122051.

Shah, R. C., J. P. Kesan. 2007."How Architecture Regulates." *Journal of Architectural and Planning Research* 24, no. 4: 350–359.

Smith, N. 1996. *The New Urban Frontier: Gentrification and the Revanchist City*. Routledge.
Smith, N. 1998."Giuliani Time: The Revanchist 1990s." *Social Text* 16, no. 4: 1–20.
Smith, N., & P. Walters. 2018."Desire Lines and Defensive Architecture in Modern Urban Environments." *Urban Studies* 55, no. 13: 2980–2995.
Stevens, S. 2017."Life and Letting Die: A Story of the Homeless, Autonomy, and Anti-Social Behaviour." *Organization Studies* 38, no. 5: 669–690.
Whyte, W. H. 1980. *The Social Life of Small Urban Spaces*. Project for Public Spaces.
Winner, L. 1980."Do Artifacts Have Politics?" *Daedalus* 109, no. 1: 121–136.
Zukin, S. 1995. *The Cultures of Cities*. Blackwell.