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Aimi Hamraie

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# Universal Design and the Problem of "Post-Disability" Ideology

## Aimi Hamraie

Aimi Hamraie is Assistant Professor of Medicine, Health, & Society and American Studies at Vanderbilt University. Their areas of expertise are design, critical disability studies, contemporary feminist theories, and science and technology studies. Hamraie's book on the history of Universal Design, *Building Access*, is forthcoming from the University of Minnesota Press in 2017. Their work also appears in *Disability Studies Quarterly*, *Foucault Studies*, and *Hypatia: A Journal of Feminist Philosophy*.
aimi.hamraie@vanderbilt.edu

ABSTRACT    Although Universal Design gains popularity as a common sense strategy for crafting built environments for all users, accessibility for disabled people remains a marginal area of inquiry within design practice and theory. This article argues that the tension between accessibility and Universal Design stems from inadequate critical and historical attention to the concept of disability as it relates to discourses of "good design." This article draws upon critical disability theory to reveal the persistence of "post-disability" narratives and "ideologies of ability" from the eugenics era into the present theory and practice of Universal Design.

KEYWORDS: Universal Design, built environment, Americans with Disabilities Act, critical disability studies, eugenics, rehabilitation

When I go out, it's as if the stairs are all bright red. It's as if they are all talking about me. But I don't know

> what they are saying … They are manifestations of something much more sinister: discrimination. (Sunaura Taylor, *Thinking Stairs*)

Disabled artist Sunaura Taylor's *Thinking Stairs* (Figure 1) depicts a gray-scale sidewalk flanked by cartoonish red staircases emitting empty speech bubbles. The landscape appears disembodied, impartial, until the final frame, in which Taylor herself appears as a black and white figure driving her powerchair amid staring pedestrians. Wordlessly, the *stairs* communicate what the people – and their *stares* – do not: Taylor is out of place. This world was not built with her in mind.

Twenty-six years after the passage of the Americans with Disabilities Act (ADA) in 1990, discriminatory features endure in built environments, and accessible design remains marginal within mainstream design practice and theory. Indeed, design scholars and practitioners rarely recognize disability narratives, such as Taylor's, as valuable sources of architectural and design critique. The discourse of Universal Design, however, gains popularity in design criticism, journalism, and scholarship as a common sense strategy for making built environments more usable for all people.[1] While few would object to the promise of a more usable world for everyone, I argue that the portrayal of Universal Design as simply a form of neutral, common sense "good design" (and not design that ensures accessibility for disabled users) distances this approach from the civil rights mandates of the ADA and, by extension, from the notion of disability itself.

Universal Design's relationship to disability has been a frequent subject of debate since the mid-1990s. Designers, advocates, and scholars have framed the approach as an historical evolution beyond accessibility and barrier-free design, which they claim focus excessively on disabled users.[2] While most proponents acknowledge Universal Design's origins in the work of disabled designers and activists, very few offer reflexive historical analyses of the phenomenon as an evolving, value-laden discourse. Nor do proponents contend with the influence of medical, social, and bioethical assumptions about disability (as pathology, lack, disqualification, and functional limitation) on Universal Design discourse.

Debates regarding Universal Design's relationship to disability remain at an impasse because proponents have not adopted the insights of critical disability theory. I resolve this impasse by historicizing the discourses of accessibility and Universal Design as they relate to dominant medical, rehabilitation, and bioethical models of disability. While not often considered as part of design theory or history, these models have shaped the ways in which twentieth-century architects and designers understood the shifting figure of the "user," particularly the disabled user, as well as standards of what counts as "good design."
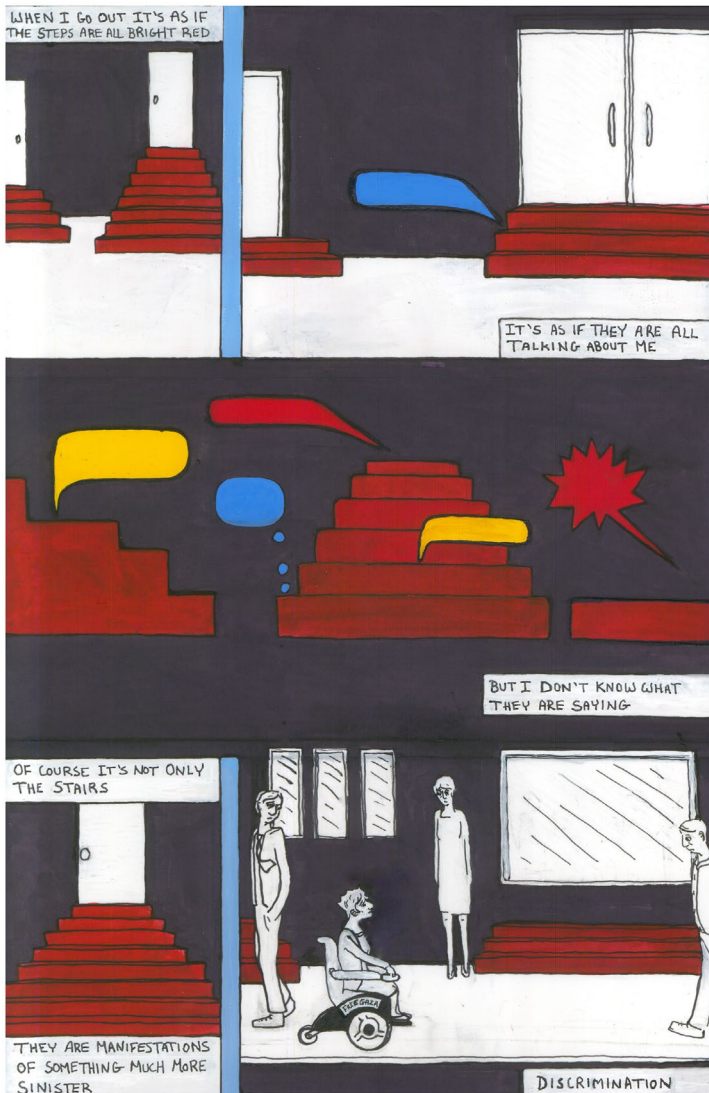
**Figure 1**
Sunaura Taylor, *Thinking Stairs*, first published in *Modern Painters Magazine*, October 2014. Photo courtesy of the artist.

## Critical Disability Theory

The field of Disability Studies coalesced in the 1980s around the "social model of disability," which critiqued medical and rehabilitation models of disability (Oliver 1990, 22; Union of Physically Impaired Against Segregation 1972, n.p). According to the social model, disability is an experience of discrimination resulting from inaccessible built environments, rather than an inherent pathology or impairment in the body. More recent critical disability theories, however, argue

that the social model's sole focus on the functionality of built environments does not go far enough to challenge the cultural logics of ableism. Ableism, or the "ideology of ability," dictates that life without disability is preferable to life with disability (Siebers 2008, 8). When societies frame disability as deviation from dominant norms and therefore "a problem to be eradicated," critical disability theorist Alison Kafer (2013, 8–10) explains, "ableist understandings of disability" appear as "common sense," while the notion of preserving or even desiring disability appears as pathological or unthinkable. Disability has thus become a "master trope of human disqualification," a concept whose presence is treated as a de facto problem to eliminate (Mitchell and Snyder 2006, 125).

Critical disability theorists emphasize instead that the design of "habitable worlds" must involve treating disability itself as a valuable way of being in the world, one that societies must work to accept and preserve rather than cure or rehabilitate (Garland-Thomson 2014, 300). A habitable world, in other words, would offer more inclusive ideological assumptions about disability, and not simply more accessible structures. Attention to cultural representations of disability has been largely missing from Universal Design discourse, however. Proponents often treat Universal Design as a de facto good, untouched by broader social and political forces, and neutral toward disability. Critical disability theory, by contrast, offers historical and theoretical tools for examining the persistence of ableism in contemporary Universal Design discourses.

### Design and Disability in the Pre-ADA Era

Debates about Universal Design's relationship to disability often treat accessible design as a stable, ahistorical phenomenon. This presumed stability enables advocates to frame Universal Design as an objective example of "good design" and accessible design as a manifestation of "bad design." Design historian Stephen Hayward (1998, 222) argues, however, that since its emergence in the 1930s, the representation of "good design" as "common sense" has been an "exercise of power, concomitant with a hegemonic idea of progress or modernity, and the antithesis to a contrary world of 'bad' or 'uncultivated' design." Accordingly, understanding Universal Design's seemingly neutral claim to be "good design" requires a more critical engagement with issues of history, power, and privilege surrounding the concept of disability. When informed by critical disability scholarship, this kind of engagement can also help distinguish the intentions underlying Universal Design discourses and the consequences of these discourses for disability inclusion or exclusion.

### *Eliminating Disability*

In the late nineteenth and early twentieth centuries, design, medicine, and state power converged around the project of eliminating

disability. Thousands of people with supposed cognitive and physical defects (presumed to be excessively dependent or incapable of becoming productive citizens) were incarcerated or sterilized in US institutions; these spaces subsequently provided templates for Nazi eugenics programs (Chapman, Carey, and Ben-Moshe 2014, 6–7; Friedlander 2000, 7–9; Johnson 2003; Mitchell and Snyder 2006).[3] Together, eugenics and institutionalization separated disability from public life, rendering the presence of disabled bodies in public space unthinkable and reinforcing the association between disability and disqualification. When treated as common sense, the violence of eliminating disability appeared instead as a "humanistic solution to a social crisis" (Mitchell and Snyder 2003, 85).

Disability historians have shown that this imperative to eliminate disability – to imagine what I am calling a "post-disability" future, in which disability no longer poses a "problem" – extended to standards of "good design." Eugenicists defined "degeneracy" and "feeblemindedness" (often described as a lack of common sense and intelligence) by measuring an individual's ability to cope with the design of urban settings (Mitchell and Snyder 2003, 84–85). So-called "ugly laws" prohibited people with atypical bodily features from inhabiting public places. These laws, Susan Schweik (2009, 5) argues, targeted the figure of the "unsightly beggar," a figure often imagined as a disabled panhandler, but revealed a broader ideological investment in individualism, "which enabled the law's supporters to position disability and begging as individual problems rather than relating them to broader societal problems," such as economic and racial inequities. Industrial designers in the 1930s, according to Christina Cogdell (2010), drew upon eugenic goals of culling disabled, non-white, and poor people from the human stock to inform their elimination of aesthetic and functional excesses from "streamlined" consumer products. Twentieth-century architectural handbooks adopted human statistics (derived from military and eugenics research) as standards for the typical inhabitant of architectural structures, and thus reinforced norms of race, gender, and ability (Hamraie 2012; Hosey 2001, 103). When defined by a preference for able-bodied users, "good design" relied upon what Rosemarie Garland-Thomson (2012, 340–341) calls the "eugenic logic" of disability elimination. It easily reinforced the ideology of ability by presenting inaccessible built environments (and the subsequent exclusion of disabled users) as part of the natural order of things, as common sense and untouched by power.[4]

The accessible design movement in the United States (known as "barrier-free design" beginning in the 1960s) emerged through early and mid-twentieth-century efforts to include disabled citizens in public life (Fleischer and Zames 2011, 36–37; Penner 2013, 215–217). Early accessibility sought to expose the norms of embodiment around which architecture and design cohered. However, early advocates focused on troubling the exclusion of disability from standards

of normalcy rather than challenging the imperative for normalization itself. In the post-World War II era, accessible design quickly became entangled with economic, medical, and military imperatives to create productive bodies and healthy citizens.[5] The return of injured soldiers from war renewed efforts at normalizing bodily function through medical and vocational rehabilitation, rather than through the social acceptance of atypical embodiments (Serlin 2004, 12). Rehabilitation experts and scientific managers such as Edna Yost and Lillian Gilbreth (1944) and Howard Rusk and Eugene Taylor (1949), and industrial designers such as Alexander Kira (1960) believed that when fitted with the correct tools, amputees, paraplegics, and other disabled veterans could become productive workers and citizens (Williamson 2012b, 215). Accessibility advocates argued that inclusive built environments with features such as wheelchair ramps, folding shower seats, elevators, grab bars, and wide doorways would grant disabled people access to public life, employment, education, and housing (Nugent 1960; Rehabilitation Services Administration 1967). Given the right equipment and appropriate built environment, injured soldiers could work in factories, drive automobiles, and realize the American Dream. Disabled people, in other words, could become normal by design (Serlin 2004, 27).

Rehabilitation experts, rather than designers and architects, produced the first accessibility standards in the US. At the University of Illinois, Champaign-Urbana in the late 1950s, researchers such as Timothy Nugent enlisted disabled students (often veterans attending university through funding from the GI Bill) for research on features such as ramps (Fleischer and Zames 2011, 36; Pelka 2012, 94–112). Thereafter, Nugent (1960, 53) wrote that rehabilitation professionals "are finding it very difficult to project clients into normal situations of education, recreation, and employment because of architectural barriers," adding that "solution of these problems is not within the realm of professional rehabilitation workers but must be accomplished by … the architects, engineers, designers, builders, manufacturers, and in all probability, the legislators, with encouragement and guidance from those professionally engaged in rehabilitation." Rehabilitation concepts and data were thus brought to bear on architecture and design practices, similar to the influence of ergonomics and human factors data on the field of industrial design through the work of Henry Dreyfuss (1960).

Though rehabilitation professionals were not architects, their evolving theories of disability involved the interactions between individuals and built environments. A key rehabilitation concept was the notion of "functional limitation," or the environment's effect on a person's ability to engage in life activities such as eating, cleaning, or working (Hahn 2002, 162–189; Institute of Medicine 1997, 148). According to an influential model proposed by medical sociologist Saad Nagi in 1965, functional limitation was situational and distinguished from the categories of "pathology" and "impairment,"

which presumed defects inherent to individual bodies (Nagi 1991, 309–327).[6] The shift to understanding functional limitation as distinct from pathology or impairment appeared progressive in the sense of rejecting medical and curative approaches to disability. Nevertheless, it followed from the functional limitation concept that disability was a problem to eliminate, and the concept thus maintained an attachment to what Robert McRuer (2006, 2) calls "compulsory able-bodiedness." Accessibility practices premised upon functional limitation likewise positioned architects, industrial designers, and engineers (rather than physicians) as experts with the tools to correct perceived limitations in a user's performance in the name of productivity, thereby reinforcing ideologies of ability (Williamson 2012b, 216).

### Preserving Disability

Concurrent to the rise of barrier-free design, disabled people responded to rehabilitation and eugenic logics of elimination with demands for acceptance and preservation. Beginning in the 1960s, disability communities responded to institutionalization by forming mutual aid networks, sharing knowledge, and crafting strategies to survive in existing built and social environments (Williamson 2012a, 8). Deaf and hard-of-hearing people formed culture around the shared use of American Sign Language (ASL) (Van Cleve and Crouch 1989). While targeted by eugenicists and often forced into schools that emphasized lip reading and spoken communication, deaf people formed activist networks to reject assimilation and emphasize the unique cultural, spatial, and ethical orientation of ASL communication (Silvers 1998, 71).[7] In communities of people with mobility impairments, wheelchairs and crutches became aesthetic and functional tools for dance and sports (Lifchez and Winslow 1982, 154–155). Self-taught design practices were often central to disability cultures. As Bess Williamson (2012a) has shown, people with post-polio disabilities and their families, for whom the mainstream of "good design" was not accessible, shared tips for tinkering with assistive devices, wheelchair ramps, and automobiles through newsletters and social networks. The disability culture that emerged from these efforts offered a view of disability as culturally vibrant and politically resourceful. Disability culture embraced a "counter-eugenic logic," according to which societies should embrace, rather than eliminate, disabled people's unique ways of relating to and engaging with one another (Garland-Thomson 2012, 341). When disabled people created culture and community, they challenged the association of disability with tragedy, pain, and decreased quality of life.

Disability activists of the 1960s and 70s imagined a future centered on the needs and expertise of disabled people, rather than compulsory rehabilitation and normalization. The Independent Liv-

ing movement, for instance, positioned disabled people as experts about their own experiences, worked to liberate disabled people from institutions and nursing homes, emphasized mutual aid, and promoted the value of interdependence (Pelka 2012, 113–130; "The University Picture" 1962). Unlike rehabilitation experts who sought accessibility as a tool for normalization, and unlike mainstream architects and designers who understood accessibility as antithetical to creative and aesthetic choices, disability activists claimed their expertise as users of built environments to justify their authority to redefine "good design." Architects Raymond Lifchez and Barbara Winslow capture this emerging disability design philosophy in their landmark *Design for Independent Living*, which catalogues the accessible design efforts of the Independent Living movement in Berkeley, California. They write:

> Is the objective to assimilate the disabled person into the environment, or is it to accommodate the environment to the person? … Currently, the emphasis [in barrier-free design] is on assimilation, for this seems to assure that the disabled person, once 'broken-in,' will be able to operate in a society as a 'regular person' and that the environment will not undermine his natural agenda to 'improve' himself. … [T]his assumption can be counterproductive when designing for accessibility. It may serve only to obscure the fact that the disabled person may have a point of view about the design that challenges what the designers would consider good design. Many designers have, in fact, expressed a certain fear that pressure to accommodate disabled people will jeopardize good design and weaken the design vocabulary. Though certain aspects of the contemporary design vocabulary may have to be reconsidered in making accessible environments, one must also look forward to new items in the vocabulary that will develop in response to these human needs – ultimately leading toward more humane concepts of what makes for good design. (Lifchez and Winslow 1982, 150)

In other words, activists redefined "good design" as accessibility and social inclusion for all disabled people, regardless of their productivity or conformity to dominant standards of citizenship. This position built upon the social model of disability, which defined the social exclusion of disability as environmentally produced, rather than a common sense or natural occurrence resulting from flaws in individual bodies.[8] The key difference between the social model and the "functional limitation" model, however, was the new emphasis on disability as a cultural resource that should be valued and preserved through accessible built environments.

Several practical and conceptual concerns limited the success of accessible design in the 1970s and 1980s. Despite the passage of

laws such as the Architectural Barriers Act of 1968 and Section 504 of the Federal Rehabilitation Act, enforcement remained limited or non-existent (Jeffers 1977). When these laws were enforced as a result of high-profile activist protests and sit-ins, their enforcement mechanisms – standardized codes and checklists – prioritized the needs of specific disabled people – particularly wheelchair users – who had been subjects of rehabilitation research. This was evident in the way that wheelchair users became emblematic of the broader disability community with the adoption of the "International Symbol of Access" on accessible parking placards and other signage (Ben-Moshe and Powell 2007, 500; Guffey 2015, 359–360). More expansive guidelines would be necessary to facilitate inclusion for people with other (or additional) physical, sensory, or cognitive disabilities. Finally, accessibility standards reduced disability to functional limitations that could be addressed through checklists solutions such as ramps of a certain slope or doorways of a certain width. They did not, however, promote a cultural or disability rights model that would emphasize qualitative dimensions of meaningful accessibility or creative design beyond minimal standards (Mace 1977, 160–161). These specific concerns involving bureaucratic codes, standards, and legal compliance approaches to accessibility culminated in a new discourse: Universal Design.

### Foregrounding Disability

Universal Design emerged from the work of disabled designers who lived through the struggles over enforcing accessibility codes in the civil rights era. Ronald Mace, a disabled architect and wheelchair user, had direct experience with long-term hospitalization, exclusion from schools, and employment discrimination.[9] In the late 1970s, he became involved with efforts to write new accessibility codes and educate architects and designers about best practices, but these experiences with bureaucratic compliance cultures left him frustrated (Mace 1980). Mace (1985, 147) coined the term "Universal Design" in 1985 to describe "a way of designing a building or facility, at little or no extra cost, so that it is both attractive and functional for all people, disabled or not." His article "Universal Design: Barrier Free Environments for Everyone" framed accessibility as a requirement for "good design" (just as disability activists had done in the late 1970s) (152).

Mace's (1985, 152, 148) concept expanded the focus of barrier-free design to a broader population of marginalized users of built environments, from "young people with moderate mobility impairments [who] are placed in nursing homes" to "older couple[s]" to temporarily disabled workers and deaf or hard-of-hearing people. Mace also sought to expand accessibility by framing it as a necessarily interdisciplinary phenomenon involving architects, product designers, engineers, builders, and manufacturers alike in the pro-

cess of building more accessible built environments as coordinated systems (148, 152). This interdisciplinary approach to "good design" pushed beyond checklist-style standards by requiring an understanding of how component parts of a space work in tandem to facilitate access. By emphasizing that Universal Design was a form of "good design," Mace strategically framed accessibility for all users (a radical, challenging, and far-reaching imperative) as a simple, common sense practice. This enabled him to draw upon disability rights, culture, and anti-institutionalization positions to challenge architects' conceptions of disabled people as an insignificant and powerless population and their assumptions about accessibility as inherently tied to distasteful institutional or medical aesthetics (148–149).

Like disability activists who emphasized that rehabilitation should not be a prerequisite for access and citizenship, Mace (1985, 150) argued that accessibility should be available even to those who do not have a formal disability diagnosis. Code compliance approaches often required people seeking barrier-free access to convince others of the degree of their impairment through a process that critical disability theorist Ellen Samuels (2014, 9) terms "biocertification" – for example, use of a wheelchair or assistive device or official proof of a diagnosis. In 1989, Mace and his colleague, disabled design expert Ruth Hall Lusher, framed Universal Design as a concept benefiting marginalized users regardless of medical biocertification:

> Instead of responding only to the minimum demands of laws which require a few special features for disabled people, it is possible to design most manufactured items and building elements to be usable by a broad range of human beings including children, elderly people, people with disabilities, and people of different sizes. This concept is called universal design. It is a concept that is now entirely possible and one that makes economic and social sense. (Lusher and Mace 1989, 755)

It is significant to note that Mace and Lusher proposed that Universal Design *foreground* disability, rather than arguing (as later proponents would) that Universal Design is distinct from disability access. While foregrounding disability, they also framed Universal Design as a resource for alliance between categories of users that were marginalized by mainstream standards of good design (albeit in different ways and to qualitatively different degrees). In doing so, they adopted a cultural understanding of disabled people as a disadvantaged minority group that exists *in relation to* other spatially excluded populations, such as children, elderly people, and people of different sizes.

This early framing of Universal Design reveals attention to the dimensions of power and privilege that determine belonging in built

environments. As design experts with mobility disabilities, Mace and Lusher were among those for whom a legal right to barrier-free design (however limited) was most thoroughly mandated (in the form of ramps, elevators, and automatic doors). They used their relatively privileged positions as disabled designers who *were* included in accessibility codes to advocate for those who were not – for "collective access," as activists and scholars would later call it (Hamraie 2013; Mingus 2010). Their attention to the collective stakes of access implied that disability advocates must seek inclusive design not only for themselves, but for other marginalized populations as well.

Mace and Lusher's approach closely matched a cultural understanding of disability that conveyed the ethos of alliance and affiliation over biocertification and standardization. Their framing disclosed a critical disposition toward disability, which David Mitchell and Sharon Snyder (2003, 10) describe as "a political act of renaming that designates disability as a site of cultural resistance and a source of cultural agency previously suppressed." Affiliating disability with other categories of social discrimination enabled Mace and Lusher to identify resonances between architecture and design approaches that challenged the normate template. Interaction designer Graham Pullin (2009, 93) would later refer to this sense of collective affiliation as "resonant design," which begins by including the most marginalized and then explores the benefits of those inclusions for broader populations. Mace and Lusher's framing also captured disabled people's resourcefulness in fostering interdependence and relationality: an ethos that feminist disability theorist Alison Kafer (2013) calls the "political/relational" dimensions of disability. These capacious political, relational, and resonant dimensions characterized disability-focused Universal Design in the late 1980s.

## Universal Design in the Post-ADA Era

A turning point came in 1990 when, through the ADA, disabled people gained civil rights to employment, government services such as public transportation, and access to restaurants and other public spaces. Although the ADA intended to address pervasive discrimination against over 50 million US citizens with disabilities, the law faced resistance from architects and designers who insisted that accessible design would hamper their creative processes and increase costs (Reno 2000). Universal Design advocates across the fields of architecture, product design, web design, and interior design countered that more accessible built environments would benefit all people. Universal Design became a convenient marketing discourse for persuading architects and designers of the desirability of accessible design.

### The Return of Post-disability Ideology

Paradoxically, disability began to disappear from the discourse of Universal Design in the post-ADA era. The term "Universal Design" entered the mainstream vocabulary, appearing in design newspapers, magazines, and handbooks as a signifier for a shifting array of meanings, from design that complies with the ADA to design that eschews the category of disability (Pell 1990; Remich 1992). Universal Design's departure from disability rights discourses in the post-ADA era rested upon the assumption that civil rights legislation had adequately addressed ableism by creating an equal playing field between disabled and non-disabled people, such that it was no longer necessary to discuss oppression based on disability.

Because the ADA marked the beginning of meaningful, enforceable civil rights, rather than an end point, this assumption had significant consequences. Within Universal Design discourse and practice, it led to the reemergence of "post-disability" ideologies, which imagined a world without disability and denied the existence of disability discrimination. My framing of post-disability ideologies in the 1990s and 2000s builds upon critical race theory's challenges to "post-racial" ideologies, which insist that racism is no longer a significant system of oppression because civil rights laws have ended material manifestations such as segregation. In the aftermath of the civil rights era, as Michelle Alexander (2012) has shown, race-neutral policies merely hide racial inequality within new institutions of mass incarceration. Likewise, legal scholars and philosophers argue that formal requirements for equality do not guarantee substantive changes and meaningful access – a critique that parallels Mace and Lusher's challenges to minimal guidelines and accessibility codes in the pre-ADA era (Silvers 1998, 13–53). Disability media scholar Elizabeth Ellcessor (2015) writes that treating oppression as inconsequential does not "reduce prejudice, discrimination, or stigma. Instead, such assertions may protect and extend racist or ableist structures, by failing to interrogate, alter, or demolish them." In its material practices, Universal Design has aspired to produce the kinds of accessible built environments that the ADA was meant to provide, replete with curb cuts, built-in ramps, and multi-sensory displays. However, in the post-ADA era, the discourse of Universal Design often disavows a relationship to disability (as a user group or a civil rights category), eschews a notion of disabled people's expertise, and infrequently challenges ableist assumptions about disability (Hamraie 2013; Williamson 2012a, 232–233).

### Disability-neutral Discourse

Recall that disability activists of the 1970s (as well as Mace and Lusher) reframed accessibility for disabled users as "good design," specifically in response to designers' claims that disability would reduce the aesthetic value and creativity of design. Following the

**Figure 2**
Center for Universal Design, *Principles of Universal Design 2.0*, 1997. Photo courtesy of the Center for Universal Design.

ADA, Universal Design advocates began using the phrase "good design" to describe a very specific, value-laden approach to accessibility, which called for greater functionality and usability but adopted disability-neutral language and thus failed to distinguish between marginalized users and the broader non-disabled consumer majority. Disability-neutral terms such as "all users," "everyone," or "the entire population" appeared as a point of contrast with barrier-free design and its focus on disabled users. For instance, a group of proponents released *Principles of Universal Design 2.0* in 1997 (Figure 2), redefining the approach as "the design of products and environ-

ments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Center for Universal Design 1997). The Principles offered guidelines for Universal Design in "all design disciplines, including those that focused on built environments, products, and communications" (Story 2011, 4.3). Despite Mace and Lusher's involvement, the Principles were an artefact of the post-ADA era, distancing Universal Design from the perceived stigma attached to accessibility. As Molly Story (2001, 10.6) documented it, "Equitable Use" was the last addition to the Principles, with guidelines for "Flexibility in Use" and "Simple and Intuitive Use" being among the first to be developed.

By the late 1990s, Mace himself shifted his focus to emphasizing Universal Design as a "marketing concept" (Mace 1994, 6). At a symposium on teaching Universal Design, he claimed, "Its what designers think they're doing anyway, but sometimes they're not, because they don't include the full spectrum of human needs and abilities in what is being built" (6). This framing made clear that Universal Design discourse revolved as much around the politics of defining meaning as it did upon changing the material practices of design. When framed through "post-disability" ideologies, however, Universal Design's marketing often defaulted to disability-neutral discourses. In the 2000s, the language of Universal Design advocacy turned toward distinguishing Universal Design from accessibility and disability rights in handbooks and design media. Architect Denise Levine wrote in 2003:

> Accessibility is a civil rights issue focused on eliminating discrimination against one minority group. In contrast, universal design is a market driven concept. Rather than responding to legal mandates, it reflects the realities of contemporary societies with their diverse populations. Instead of a focus on one minority group, universal design is an inclusive approach that benefits the entire population. (Levine 2003, 8)

Notably, Levine frames Universal Design as a marketing concept rather than a civil rights concern – a framing that explicitly divorces Universal Design from the politicized work of disabled designers and activists, as well as from the notion of disability as a marginalized identity. This framing contrasts with Mace and Lusher's emphasis on disability as a resource for alliance between marginalized users by framing Universal Design as primarily for the benefit of non-disabled users. Similarly, the conflation of accessibility with "legal mandates" represents the social value of disability inclusion as necessarily onerous and bureaucratic.

Levine (2003, 9) acknowledges as a myth the assumption that the ADA has "created equality, so there is no need to do any more," arguing that Universal Design goes beyond the ADA's focus on physical and sensory "limitations" by focusing on a broader array of

functional limitations "in the way people think and interpret things." She goes on to argue: "Throughout our lifespan, we all experience variations in our abilities. In fact, more than 50% of the U.S. population could be characterized as having some sort of functional limitation. Therefore, universal design eventually benefits all of us." Here, it becomes evident that Levine is not arguing against post-disability frameworks or in favor of accessibility as a disability right. Rather, she frames Universal Design as a necessary imperative for moving *beyond* the ADA because of the purported universality of functional limitation.

From the perspective of critical disability theory, however, conflating any type of imperfect user experience with marginalization and disability treats identities and embodiments as untouched by power and privilege. This conflation risks "erasing the line between disabled and non disabled people" (Linton 1998, 13) by assuming that everyone is or will become somewhat functionally limited at some point and implying an equal playing field in user experiences of design. It suggests that enhancing usability or convenience for normate users is a social goal equivalent to addressing discrimination against misfitting users. Disability scholar and activist Simi Linton (1998, 13) argues that when taken for granted as common sense, such erasures are depoliticizing, particularly "as long as disabled people are devalued and discriminated against, and as long as naming the category serves to call attention to that treatment."

By framing diversity as a marketing concept but omitting mention of disability politics and culture, disability-neutral discourses reduce functional limitation to an impartial demographic category. It may appear that encouraging non-marginalized consumers to buy Universal Design products fosters empathy and serves as a reminder of their potential future disablement. Critical disability theorists point out, however, that framing Universal Design as having (what I term) "added value" for non-disabled people privileges convenience for normate consumers over accountability toward those who are excluded – in the present – from built environments (Hamraie 2013; see also Williamson 2012b, 233). It equates the commercial imperative to enhance middle-class, non-disabled users' experiences of products and homes with the social and political imperative to grant disabled people the right to live outside nursing homes and institutions, find employment outside sheltered workshops, and be recognized as citizens and users of public space. Disability-neutral discourses of Universal Design that adopt marketing logics thus presume that disability-based discrimination in built environments is inconsequential or nonexistent.

Furthermore, when advocates focus on disability as functional limitation divorced from minority culture and politics, they preclude critical disability, Deaf, and neurodiversity perspectives on accessibility as a tool for preserving and accepting human diversity. Contemporary Deaf and Autistic scholars assert that broad differences in how

people think about and interpret the built environment are irreducible to functional limitations, but can be the basis of shared culture – such as when members of Deaf culture use the spatial practice of sign language to communicate, rather than adopting cochlear implants and other medical interventions, or when Autistic adults form communities on the Internet, rather than undergoing therapy to enable normative verbal communication and eye contact in non-Internet social spaces (Bauman and Murray 2014, xxi–xxii; see also Kapp et al. 2013; Sinclair 2012, 2). Additionally, the notion of universal functional limitation does not capture the sense of affiliation between marginalized users that drove early Universal Design. In Mace and Lusher's formulation, Universal Design foregrounds disabled users and children, the elderly, and people of different sizes without equating these categories to one another. Because they do not begin from an analysis of oppression, disability-neutral discourses fail to capture the relational ethics of disability culture. Nor do they foster a broad, politicized sense of misfitting as a basis for collective organization for structural change (Garland-Thomson 2011, 547).

### Anti-disability Discourse

Although Universal Design advocates' post-disability ideologies stem from attempts to persuade architects and designers to create a more just world for everyone, the consequences of these positions become obvious when disability-neutrality shifts into positions that more directly stigmatize disability. In a 2011 interview with *Metropolis Magazine*, architect Josh Safdie captures the discursive slippage between disability-neutral and anti-disability positions:

> The biggest 'barrier' to a richer understanding and more widespread application of Universal Design here in the US – and in particular among architects and planners – is the conflation of Universal Design with accessibility and, more specifically, the ADA Standards for Accessible Design. … [W]e have developed a broader definition of Universal Design that focuses on its role as a facilitator of human experience and performance. … This definition builds upon the World Health Organization's formal classification of disability as a contextual phenomenon which occurs at the intersection of the user and his or her environment(s). For me as a designer, this is an incredibly powerful idea: that through the design of thoughtful environments – ones which anticipate and celebrate the diversity of human ability, age, and culture – we have the capacity to effectively eliminate a person's disability. (Safdie and Szenasy 2011)

This statement clearly indicates support for (rather than resistance toward) the project of Universal Design. Safdie's interest is in creating environments that "anticipate and celebrate" a wide range of diver-

sities. His oppositional framing, however, reveals the persistence of post-disability and rehabilitation logics within this value-laden discourse. Safdie borrows the term "barrier" from barrier-free design to position accessibility as antithetical to the "design of thoughtful environments," a concept closely aligned with the notion of "good design." Compared to the disability rights position that disability access (beyond imperatives for normalization and assimilation) should be considered as part of designers' standards for "good design," he conflates the social goal of disability access with the bureaucratic enforcement of the ADA, and thus disqualifies considerations of justice in built environments for disabled people from *good design*. If Universal Design is "thoughtful design," disability access becomes characteristic of *bad design* – thoughtless compliance with checklist-style standards. Design that thoughtfully values or preserves disability becomes unthinkable in this logic, while eliminating functional or apparent disabilities becomes a priority.

While the term "diversity" might indicate acceptance of variability and read as a pro-disability position, it coexists with (and distracts from) the explicit call to "eliminate a person's disability" (understood as functional limitation) through good design. The call "to eliminate disability," argues Kafer (2013, 83), "is to eliminate the possibility of discovering alternative ways of being in the world, to foreclose the possibility of recognizing and valuing our interdependence." When architects and designers claim to eliminate disability through better design, their presumption is that a life with disability is begging for correction. This presumption resonates with the eugenic logic of streamlining and the rehabilitation logic of normalization, both of which frame disabled lives as inherently limited, tragic, and undesirable. As Barbara Gibson (2014, 2) argues in relation to rehabilitation metrics and the goal of eliminating disability in order to reinstate independence: "The idea that independence is good (desirable, preferable), and dependence is bad (undesirable, to be avoided) is not a given, but relies on a particular normative understanding of the subject and what constitutes a good life." If ableism is the belief that ability is better than disability and that disability must be eliminated, then arguing that disability is a "contextual phenomenon" (or functional limitation) that thoughtful design can "eliminate" has the unintended effect of aligning Universal Design with post-disability logics, rather than with disability acceptance. What is lost is, ironically, precisely what Universal Design discourses appear to promise: a world that is designed with everyone in mind.

Reinforcing the ideology of ability, "disability" appears as an object of elimination, while Safdie offers "human ability" as a condition that designers must anticipate and celebrate. However, elevating design for "the diversity of human ability, age, and culture" to the status of good design reinforces the binary between valued ability and devalued disability. The term "human ability" operates as a euphemism for disability, much like the terms "*physically challenged*, the *able*

*disabled*, *handicapable*, and *special people/children*" (Linton 1998, 14). While this language appears to "refute common stereotypes of incompetence," Linton writes that these are "defensive and reactive terms rather than terms that advance a new agenda" such as disability acceptance.

Critical disability theory offers that when advocates proclaim that Universal Design "does not discriminate against users based on their ability" (McAdams and Kostovich 2011), the reference to disability as "human ability," no matter how diverse, does not challenge discrimination based on *disability*. Instead, it centers the norm of able-bodiedness and denies the value of disability as a way of being non-normate. Ability is already considered a normal, desirable, and default state of being: people are rarely discriminated against because of their *abilities*. Rather, it is the perception of *disability* as a devalued state of being that leads to discrimination. Centering design for *ability* replicates the disability-neutral position that Universal Design should respond to "diverse populations" without naming these populations or considering the degrees of marginalization that separate them. Like post-racial arguments that race is biologically nonexistent and that all people are thus de facto equal, the notion that more thoughtful design can (and should) eliminate disability ignores the persistence of inequality, devaluation, and disqualification that would remain even if more inclusive consumer products were made available to people of all "abilities." Consequently, disabled people are not merely functionally limited in a vacuum, separate from issues of economic access, racial belonging, or gender identity. Even for those whose disability is (supposedly) eliminated through a better fit between body and environment, issues of affordability, perceived belonging among the cadre of desired users, and access to jobs and housing will still remain (Mingus 2010).

## Disabling Universal Design

Far from mere semantic differences or verbal slippages, the above examples reveal the continued influence of early rehabilitation models on Universal Design discourse and marketing concepts. Post-disability ideologies presume that disability-based discrimination in built environments is inconsequential or nonexistent. Despite their intention to persuade critics of Universal Design's value, proponents have not challenged misconceptions and assumptions about disability that drive opposition to accessibility. Similar to imperatives for diversity and inclusion that remain neutral on issues of power and privilege (and accordingly, reinforce hierarchies) (Ahmed 2012, 57), Universal Design has become emblematic of a depoliticized orientation toward disability, which invokes human variation as a value but refuses to understand difference as tied to systems of oppression such as racism, sexism, or ableism.

**Figure 3**
Patient No More exhibit, shown on in the atrium of the Ed Roberts Campus, Berkeley, California. © Anthony Tusler, 2015.

The question remains: can Universal Design *discourse* embrace, preserve, and celebrate disability, rather than promoting its elimination? If architectural features are forms of material discourse, the Ed Roberts Campus building in Berkeley, California (Figure 3) provides an instructive example (Pill 2015). The building's design argues against the ideologies of ability and discrimination exemplified by Sunaura Taylor's cartoonish red stairs. Exterior glass panels and steel beams reveal a bright red ramp torqued between the first two floors. The wall of windows and a circular skylight encase the ramp's bright panels and suspended cables with natural light. Inside the atrium, disabled and non-disabled people use the ramp as a surface on which to roll, walk, and dwell as they travel to offices or the transit system below. In the background, a fountain creates soothing sounds and helps to orient visitors within the space. Bathrooms with automatic doors and foot-operated controls signal the inclusion of multiple ways of moving through the world. A recent exhibit by the Paul Longmore Institute, *Patient No More*, utilized the building's structure to convey the story of radical disability rights protestors occupying federal buildings to demand accessibility laws. Rather than making accessibility invisible, the exhibit and these design features showcased disability as an aesthetic and functional resource (in a manner similar to Amanda Cachia and Sara Hendren's design of the *alterpodium*, described in Cachia's piece in this issue). These design strategies signal disability acceptance and materialize the aspiration for accessible futures. Similarly, a discourse of Universal Design informed by critical disability theory, rather than the ideology of ability, would realize proponents' underlying aspirations for the

approach. Such a discourse would claim disability, treat disabled users as valuable knowers and experts, understand accessibility as an aesthetic and functional resource, and foreground the political, cultural, and social value of disability embodiments.

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## Notes

1. The phrase appears as both "Universal Design" and "universal design" in the literature. Frequently, however, the latter is used as an ahistorical synonym for accessibility and barrier-free design practices. In this article, I use the capitalized form "Universal Design" to describe a specific phenomenon, which emerged in 1985 to distinguish itself from accessibility by making historical and substantive arguments (often against barrier-free design).
2. These debates dominate most discussions of Universal Design. For example, see Iwarsson and Ståhl 2003; Jones and Welch 1999; Mullick and Steinfeld 1997; Salmen 1994.
3. The consequences of eugenics and institutionalization were particularly severe for black and indigenous people facing segregation, and particularly for women of color who were subject to reproductive regulation and sterilization (Chapman, Carey, and Ben-Moshe 2014, 8–9).
4. To be sure, standards for "good design" rooted in ideologies of ability pre-date twentieth-century eugenics. Since antiquity, architects and designers had relied upon figures such as the Vitruvian Man to set standards for architectural aesthetics, form, and function (Hosey 2001, 102). However, twentieth-century "normate templates" for design drew upon eugenicists' calculations of "average bodies" (Hamraie 2012). They also established hierarchies between supposedly normal and deviant populations (Davis 2010, 4–10; Mitchell and Snyder 2003, 117).
5. Similarly, Hayward (1998, 223) argues that in the post-Second World War era, "good design" discourse became "allied to a notion of national efficiency and post-war reconstruction."
6. Nagi also distinguished between "functional limitation" and "disability," defining the latter as disadvantage created by society, rather than the functional misfit between body and environment. Later models of disability would conflate functional limitation and societal disadvantage by focusing upon supposed bodily deficits.
7. Deaf culture (distinguished from deafness as a medical or physiological category) grew from these historic communities to emphasize a shared minority identity. See Padden and Humphries 2005; Bauman and Murray 2014.

8. The social model is widely credited to a UK activist group, the Union of Physically Impaired Against Segregation, although similar ideas circulated in the US Independent Living movement. See Pelka 2012, 113.

9. According to photographs and letters in Mace's private home collection (courtesy of Joy Weeber), Mace spent one year (1950) in the Central Carolina Convalescent Hospital for polio treatment. Also see Golonka 2006.

## References

Ahmed, Sara. 2012. *On Being Included: Racism and Diversity in Institutional Life*. Durham, NC: Duke University Press.

Alexander, Michelle. 2012. *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. New York: New Press.

Bauman, H-Dirksen L., and Joseph J. Murray. 2014. "Deaf Gain: An Introduction." In *Deaf Gain: Raising the Stakes for Human Diversity*, edited by H-Dirksen, L. Bauman and Joseph J. Murray, xv–xlii. Minneapolis, MN: University of Minnesota Press.

Ben-Moshe, Liat, and Justin Powell. 2007. "Sign of Our Times? Revis(it)ing the International Symbol of Access." *Disability and Society* 22 (5): 489–505.

Center for Universal Design. 1997. "Principles of Universal Design 2.0." https://www.ncsu.edu/project/design-projects/sites/cud/content/principles/principles.html.

Chapman, Chris, Allison Carey, and Liat Ben-Moshe. 2014. "Reconsidering Confinement: Interlocking Locations and Logics of Incarceration." In *Disability Incarcerated*, edited by Chris Chapman, Allison Carey and Liat Ben-Moshe, 2–34. New York: Palgrave Macmillan.

Cogdell, Christina. 2010. *Eugenic Design: Streamlining in America in the 1930s*. Philadelphia, PA: University of Pennsylvania Press.

Davis, Lennard. 2010. "Constructing Normalcy: The Bell Curve, the Novel, and the Invention of the Disabled Body in the Nineteenth Century." In *Disability Studies Reader*, edited by Lennard Davis, 2–16. New York: Routledge.

Dreyfuss, Henry. 1960. *The Measure of Man: Human Factors in Design*. New York: Whitney Library of Design.

Ellcessor, Elizabeth. 2015. "Blurred Lines: Accessibility, Disability, and Definitional Limitations." *First Monday* 20 (9–7). doi: http://dx.doi.org/10.5210/fm.v20i9.6169

Fleischer, Doris Zames, and Frieda Zames. 2011. *The Disability Rights Movement: From Charity to Confrontation*. Philadelphia, PA: Temple University Press.

Friedlander, Henry. 2000. *The Origins of Nazi Genocide: From Euthanasia to the Final Solution*. Chapel Hill, NC: University of North Carolina Press.

Garland-Thomson, Rosemarie. 2014. "A Habitable World: Harriet McBryde Johnson's 'Case for My Life'." *Hypatia* 30 (1): 300–306.

Garland-Thomson, Rosemarie. 2012. "The Case for Conserving Disability." *Journal of Bioethical Inquiry* 9 (3): 339–355.

Garland-Thomson, Rosemarie. 2011. "Misfits: A Feminist Materialist Disability Concept." *Hypatia* 26 (3): 591–609.

Gibson, Barbara. 2014. "Parallels and Problems of Normalization in Rehabilitation and Universal Design: Enabling Connectivities." *Disability and Rehabilitation* 36 (16): 1328–1333.

Golonka, Krystyna. 2006. "Ronald Mace and His Philosophy of Universal Design." *Ergonomics* 28 (3): 184–190.

Guffey, Elizabeth. 2015. "The Scandinavian Roots of the International Symbol of Access." *Design and Culture* 7 (3): 357–376.

Hahn, Harlan. 2002. "Academic Debates and Political Advocacy." In *Disability Studies Today*, edited by Colin Barnes and Len Barton, 162–189. Cambridge: Polity Press.

Hamraie, Aimi. 2013. "Designing Collective Access: A Feminist Disability Theory of Universal Design." *Disability Studies Quarterly* 33 (4): http://dsq-sds.org/article/view/3871/3411.

Hamraie, Aimi. 2012. "Universal Design Research as a New Materialist Practice." *Disability Studies Quarterly* 32 (4): http://dsq-sds.org/article/view/3246/3185.

Hayward, Stephen. 1998. "'Good Design is Largely a Matter of Common Sense': Questioning the Meaning and Ownership of a Twentieth-Century Orthodoxy." *Journal of Design History* 11 (3): 217–233.

Hosey, Lance. 2001. "Hidden Lines: Gender, Race, and the Body in Graphic Standards." *Journal of Architectural Education* 55 (2): 101–112.

Institute of Medicine. 1997. *Enabling America: Assessing the Role of Rehabilitation Science and Engineering*. Washington, DC: National Academies Press.

Iwarsson, S., and A. Ståhl. 2003. "Accessibility, Usability and Universal Design – Positioning and Definition of Concepts Describing Person-Environment Relationships." *Disability and Rehabilitation* 25 (2): 57–66.

Jeffers, James. 1977. "Barrier-Free Design: A Legislative Response." In *Barrier-Free Environments*, edited by Michael J. Bednar, 44–66. Stroudsburg, PA: Dowden, Hutchinson, and Ross.

Johnson, Harriet McBryde. 2003. "The Disability Gulag." *New York Times Magazine*, November 23: 1–6.

Jones, Stanton, and Polly Welch. 1999. "Evolving Visions: Segregation, Integration, and Inclusion in the Design of Built Places." In *Proceedings of the 30th Annual Conference of the Environmental Design Research Association*, edited by Thorbjoern Mann, 106–116. Orlando, FL: EDRA. http://www.edra.org/sites/default/files/publications/EDRA30-Jones-106-116.pdf.

Kafer, Alison. 2013. *Feminist Queer Crip*. Bloomington, IN: Indiana University Press.

Kapp, Steven, Kristen Gillespie-Lynch, Lauren Sherman, and Ted Hutman. 2013. "Deficit, Difference, or Both? Autism and Neurodiversity." *Developmental Psychology* 49 (1): 59–71.

Kira, Alexander. 1960. "Housing Needs of the Aged, with a Guide to Functional Planning for the Elderly and Handicapped." *Rehabilitation Literature* 21 (12): 370–377.

Levine, Denise. 2003. *Universal Design New York*. Buffalo, NY: Center for Inclusive Design and Environmental Access. http://www.nyc.gov/html/ddc/downloads/pdf/udny/udny2.pdf.

Lifchez, Raymond, and Barbara Winslow. 1982. *Design for Independent Living: The Environment and Physically Disabled People*. Berkeley, CA: University of California Press.

Linton, Simi. 1998. *Claiming Disability: Knowledge and Identity*. New York: New York University Press.

Lusher, Ruth, and Ronald Mace. 1989. "Design for Physical and Mental Disabilities." In *Encyclopedia of Architecture: Design Engineering and Construction*, edited by Wilkes and Packard, 755. New York: John Wiley and Sons.

Mace, Ronald. 1994. "Design for Diversity: An Issue of Sustainability." Transcript of *Designing the Future: Toward Universal Design* Symposium, Boston, MA, November 17, 1–65. Elaine Ostroff Universal Design Papers, ca. 1960s–2015, Archives Center, National Museum of American History.

Mace, Ronald. 1985. "Universal Design: Barrier-Free Environments for Everyone." *Designers West* 33 (1): 147–152.

Mace, Ronald. 1980. Letter to Hale Zukas, September 9, Eric Dibner Papers, BANC MSS99/186c, Carton 1. Berkeley, CA: Bancroft Library, University of California.

Mace, Ronald. 1977. "Architectural Accessibility." Paper presented at the White House Conference on Handicapped Individuals, Washington, DC, May 23–27. *Awareness Papers*, vol. 1, 160–161.

McAdams, Daniel, and Vincent Kostovich. 2011. "A Framework and Representation for Universal Product Design." *International Journal of Design* 5 (1): 29–42.

McRuer, Robert. 2006. *Crip Theory: Cultural Signs of Disability and Queerness*. New York: New York University Press.

Mingus, Mia. 2010. "Changing the Framework: Disability Justice." *RESIST Newsletter*. http://www.resistinc.org/sites/default/files/NovDec10NL_sm.pdf.

Mitchell, David, and Sharon Snyder. 2006. *Cultural Locations of Disability*. Chicago, IL: University of Chicago Press.

Mullick, Abir, and Edward Steinfeld. 1997. "Universal Design: What It Is and What It Isn't." *Innovation* 16 (1): 14–24.

Nagi, Saad. 1991. "Disabilty Concepts Revisted." In *Disability in America: Toward a National Agenda for Prevention*, edited by

Andrew Pope and Andrew Tarlov, 309–327. Washington, DC: National Academy Press.

Nugent, Timothy. 1960. "Design of Buildings to Permit Their Use by the Physically Handicapped." In *New Building Research: Proceedings of the Conference of the Building Research Institute*, 51-66. Washington, DC: National Academy of Sciences.

Oliver, Michael. 1990. *The Politics of Disablement: A Sociological Approach*. Basingstoke: Palgrave Macmillan.

Padden, Carol, and Tom Humphries. 2005. *Inside Deaf Culture*. Cambridge, MA: Harvard University Press.

Pelka, Fred. 2012. *What Have We Done: An Oral History of the Disability Rights Movement*. Amherst, MA: University of Massachusetts Press.

Pell, Ed. 1990. "Universal Design: One in Eight Americans is over 65." *Kitchen and Bath Business*,September: 40-41.

Penner, Barbara. 2013. *Bathroom*. London: Reaktion Books.

Pill, Annie. 2015. "The Substantive Impact of Universal Design." *Daily Californian*, April 10. http://www.dailycal.org/2015/04/10/the-substantive-impact-of-universal-design.

Pullin, Graham. 2009. *Design Meets Disability*. Cambridge, MA: MIT Press.

Rehabilitation Services Administration. 1967. *Design for All Americans: A Report of the National Commission on Architectural Barriers to Rehabilitation of the Handicapped*. Washington, DC: Rehabilitation Services Administration.

Remich, Norman. 1992. "Universal Design." *Appliance Manufacturer*, July: 50–52.

Reno, Janet. 2000. "Enforcing the ADA." *Tenth Anniversary Status Report from the Department of Justice*, Washington, DC. http://www.ada.gov/pubs/10thrpt.htm#anchor40768.

Rusk, Howard, and Eugene Taylor. 1949. *New Hope for the Handicapped*. New York: Harper and Brothers.

Safdie, Josh, and Susan Szenasy. 2011. "Accessibility Watch: Q&A with Josh Safdie." *Metropolis Magazine*, February 4. http://www.metropolismag.com/Point-of-View/February-2011/Accessibility-Watch-Q-A-with-Josh-Safdie/.

Salmen, John. 1994. "The Differences between Accessibility and Universal Design." *Universal Design Newsletter* 1 (7): 2.

Samuels, Ellen. 2014. *Fantasies of Identification: Disability, Gender, and Race*. New York: New York University Press.

Schweik, Susan. 2009. *The Ugly Laws: Disability in Public*. New York: New York University Press.

Serlin, David. 2004. *Replaceable You: Engineering the Body in Postwar America*. Chicago, IL: University of Chicago Press.

Siebers, Tobin. 2008. *Disability Theory*. Ann Arbor, MI: University of Michigan Press.

Silvers, Anita. 1998. "Formal Justice." In *Disability, Difference, and Discrimination*, edited by Anita Silvers, David Wasserman, and Mary Mahowald, 13–146. Oxford: Rowman and Littlefield.

Sinclair, Jim. 2012. "Don't Mourn for Us." *Autonomy: The Critical Journal of Interdisciplinary Autism Studies* 1 (1): 1-4.

Story, Molly. 2011. "The Principles of Universal Design." In *Universal Design Handbook*, 2nd ed, edited by Wolfgang Preiser, and Korydon Smith, 4.1–4.12. New York: McGraw-Hill.

Story, Molly. 2001. "Principles of Universal Design. In *Universal Design Handbook*, 1st ed, edited by Wolfgang Preiser, and Elaine Ostroff, 10.1-10.8. New York: McGraw-Hill.

"The University Picture". 1962. *Toomey Gazette* 5 (1).

Union of Physically Impaired Against Segregation. 1972. "Policy Statement." http://disability-studies.leeds.ac.uk/files/library/UPIA-SUPIAS.pdf.

Van Cleve, John V., and Barry A. Crouch. 1989. *A Place of Their Own: Creating the Deaf Community in America*. Washington, DC: Gallaudet University Press.

Williamson, Bess. 2012a. "Electric Moms and Quad Drivers: People with Disabilities Buying, Making, and Using Technology in Postwar America." *American Studies* 52 (1): 5–30.

Williamson, Bess. 2012b. "Getting a Grip: Disability in American Industrial Design of the Late Twentieth Century." *Winterthur Portfolio* 46 (4): 213–236.

Yost, Edna, and Lillian Gilbreth. 1944. *Normal Lives for the Disabled*. New York: Macmillan.