Inclusive Building Performance: A New Design Paradigm

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Abstract

Inclusive Design is a process for creating more functional environments and products that address the needs of as many people as possible, regardless of age or ability (Design Council, 2008). As demands for social justice continue to rise around the world, Inclusive Design is emerging as a strategy in popular building performance rating systems including the WELL Building Standard, LEED, the Living Building Challenge, and Enterprise Green Communities. While this is a step in the right direction, Inclusive Design is often framed as an optional pathway within initiatives that primarily focus on sustainability, health, and efficiency. This paper explores repositioning Inclusive Design as a standalone building performance initiative and proposes a roadmap for realizing this vision. A new paradigm for design called Inclusive Building Performance is introduced, which promotes inclusion as a central tenet, thereby challenging the standard practice of measuring building performance by functionality to include aspects of qualitative human experiences. Key benefits of adopting Inclusive Building Performance are shared including the potential to drive equity in the built environment and support the achievement of the United Nation's Sustainable Development Goals (SDGs).

Keywords

Inclusive design · Building performance · Accessible design · Universal design

57.1 Introduction

The concept of building performance emerged in the late twentieth century, transforming the discipline of architecture. No longer are buildings simply about structural integrity. Today, architecture practitioners exert an enormous amount of effort to ensure buildings make a positive impact on people, communities, and the planet. Global building rating systems are common roadmaps for implementing building performance in practice (WGBC n.d.), most often by

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outlining core and optional design strategies that collectively offer a pathway for achieving high levels of sustainability, health, and efficiency. Inclusive Design is emerging for the first time in recent history as a strategy in popular building rating systems. This shift is monumental as Inclusive Design and related efforts, such as Universal Design, have historically struggled to reach mainstream status.

Given increasing demands for social justice, equity, and inclusion that are similarly reflected in the United Nation's Sustainable Development Goals (SDGs), there is an opportunity to reposition Inclusive Design as a standalone building performance initiative. This paper introduces a new paradigm for design called Inclusive Building Performance as a pathway for realizing this vision. This paper also seeks to expand upon dominant approaches to measuring building performance based on functionality and energy usage (Deru and Torcellini 2005) to additionally include aspects of qualitative human experiences. Critical audiences for this work include scholars, practitioners, policymakers, students, and others interested in advancing inclusive environments and shaping the future of building performance.

57.2 Background

The disciplines of Accessible Design, Universal Design, and Inclusive Design are historically intertwined and often conflated. To bring clarity to these like-minded efforts, overviews of Accessible Design, Universal Design, and Inclusive Design are offered below, primarily from a U.S. perspective.

57.2.1 Accessible Design

The Disability Rights Movement of the 1960s and 70s sought to eliminate systemic discriminatory practices, policies, and attitudes that had been facing people with disabilities throughout history. Much like Civil Rights activists advocating for racial and gender equality, Disability Rights activists were also fighting for equality including, among other freedoms, the right to equal access and use of the built environment (Barnartt and Scotch 2001), otherwise known as Accessible Design. While the passage of the Americans with Disabilities Act (ADA) in 1990 and other federal laws aimed to support disability inclusion represented considerable progress, the promulgated design requirements merely promoted a baseline level of accessibility (U.S. Access Board n.d.). The trend toward minimum accessibility levels continues to be reflected in more recent legislation (DOJ 2010). Although in practice "ADA Compliance" has become synonymous with disability inclusion, existing accessible design requirements have only scratched the surface when it comes to creating truly inclusive environments for people with disabilities.

57.2.2 Universal Design

Founded by architect Ronald Mace, Universal Design was originally defined as "design that's usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Mace 1985). Having gained prominence in the 1990s after the passage of the ADA, Universal Design encouraged inclusion beyond federal accessibility requirements. Put differently, "accessible design is not always universal…but [universal design] is always accessible" (Story 1998). The principles of Universal Design advocate for crosscutting solutions for people with physical, cognitive, and sensory disabilities and aging populations that simultaneously support as many additional users as possible (Mace et al. 1997). More recently updated frameworks are emerging that position Universal Design as a process for addressing greater aspects of social justice, equity, and inclusion in the built environment across gender, culture, LGBTQ + identity, among other individual and intersectional identities (Daniels and Geiger 2010; Sandhu 2011; Steinfeld and Maisel 2012). Despite this gradually increasing interest in Universal Design as a tool for advancing

social justice, the discipline remains largely understood in architectural practice as an approach to enhance environments for people with disabilities (O Shea et al. 2018).

57.2.3 Inclusive Design

Inclusive Design is a process for designing more functional environments and products to "address the needs of the widest possible audience, irrespective of age or ability" (Design Council 2008). The movement originated in the UK with the intent of creating more usable, aesthetically pleasing, and innovative environments, products, and services for people with disabilities that work for as many users as possible (Coleman 1994; Persson et al. 2015). Today Inclusive Design can be described as "a holistic approach…to designing for human diversity—in regards to age, gender, race, religion, personality, and other factors…" (Maisel et al. 2017). Unlike Universal Design, extensions of Inclusive Design aimed at advancing social justice for a broad range of users have been adopted by academia and the architecture industry (Azzouz and Catterall 2021; Berliner et al. 2022). Moreover, organizations that were once focused on Universal Design as a panacea for social justice are making the concerted switch, citing Inclusive Design as a more holistic approach to advancing diversity, equity, and inclusion in the built environment (IHCD n.d.; SWA n.d.). This burgeoning interest in Inclusive Design begets the opportunity to explore repositioning the discipline and thereby the goal of inclusion as a critical component of building performance.

57.3 Defining Parameters for Accessible, Universal, and Inclusive Design

Despite the variances in Accessible Design, Universal Design, and Inclusive Design described above, there is little industry consensus around the exact divergences between these disciplines which often share similar goals (Persson et al. 2014). The connections between Accessible Design and Universal Design, for example, are so pervasive that the two terms are often used interchangeably and without disclaimer. It has further been argued that ambiguous understandings of Accessible Design, Universal Design, and Inclusive Design are harmful to the growth and development of these disciplines (Lanteigne et al. 2022). Recognizing the evident and historical fluidity between Accessible Design, Universal Design, and Inclusive Design is a necessary practice when building knowledge around any one of these disciplines.

Clarity can be gained on the differences between Accessible Design, Universal Design, and Inclusive Design by exploring the intent, application, and reach of each discipline. Accessible Design is largely understood as a compliance-based approach for enhancing environments for people with physical disabilities (Story 1998); thus, addressing a somewhat limited population. Universal Design advocates for increased levels of accessibility beyond the requirements of federal laws and building codes with the aim of primarily addressing those with wide-ranging disabilities and aging populations (Salmen 2011). Like Universal Design, Inclusive Design promotes disability inclusion as a central goal (Design Council 2008); however, over time Inclusive Design has evolved to also include more targeted approaches that better respond to the real and diverse needs of building users. For example, Inclusive Design has been explored as an approach for supporting the Black experience in space (Berliner et al. 2022) and for advancing welcoming environments for LGBTQ + people (Azzouz and Catterall 2021). Today Inclusive Design can be perceived to encompass both universal strategies that benefit most users and targeted strategies that address the needs and priorities of traditionally marginalized groups.

Given these descriptors, the three design disciplines can be collectively viewed as nested efforts: Accessible Design at the core with the narrowest reach, followed by Universal Design with an increased level of application, culminating with Inclusive Design as having the broadest reach and application (Fig. 57.1). While

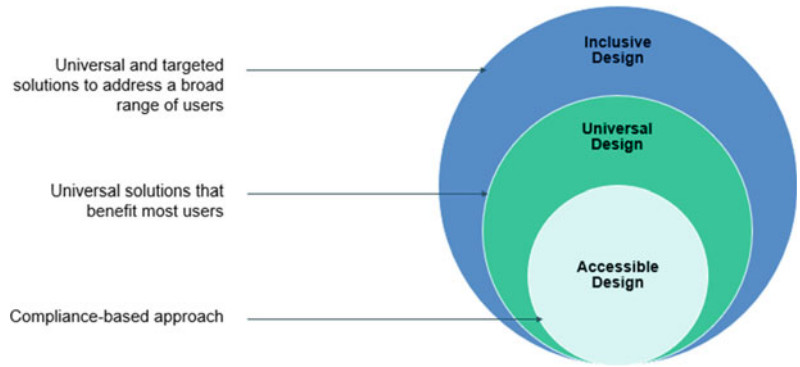

Fig. 57.1 A conceptual diagram defining parameters for Accessible Design, Universal Design, and Inclusive Design by intent, application, and reach of each discipline. *Source* Authors

significant industry buy-in is still needed around these proposed defining parameters, a unified approach would benefit researchers, practitioners, and educators focused on growing these disciplines.

57.4 Building Performance and Inclusive Design

Building performance evaluation can be defined as "a systematic and rigorous approach encompassing a number of activities including research, measurement, comparison, evaluation, and feedback that take place through every phase of a building's lifecycle including: planning, briefing/programming, design, construction, occupancy and recycling" (Mallory-Hill et al. 2012). Metrics for building performance typically focus on functional and objective aspects of buildings, such as energy and water consumption, building use, thermal comfort, indoor air quality, etc. (De Wilde 2018). Both Inclusive Design and Universal Design are emerging in several popular building rating systems including the WELL Building Standard, LEED, the Living Building Challenge, and Enterprise Green Communities. In line with the proposed conceptual diagram (Fig. 57.1), the Universal Design standards outlined in building rating systems are connected with accessibility efforts aimed to increase inclusion for people with disabilities (Enterprise 2020; ILFI 2019; IWBI n.d.); whereas the *Inclusive Design Pilot Credit* in LEEDv4 "prioritizes the experience and participation of building users by considering the full range of ability, age, gender, language, cultural understanding, and other characteristics of human diversity in the context of place" (USGBC 2019).

The introduction of Inclusive Design in building rating systems is a step in the right direction; however, several challenges exist with this approach that must be addressed. First, Inclusive Design in this context is framed as a supporting, rather than a standalone, strategy for achieving building performance. This hierarchical positioning diminishes the importance of Inclusive Design as a discipline that is arguably robust enough to qualify alone as building performance. Second, assessment tools for measuring building performance are concertedly focused on capturing quantitative metrics of building usage and functionality[1] rather than qualitative data such as human experiences, feelings, and emotions which are likely outcomes for Inclusive Design and related efforts (O Shea et al. 2016). Put differently, existing building rating systems are not fundamentally designed to truly capture the effectiveness of Inclusive Design. Third, Inclusive Design standards within building rating systems remain as optional pathways in almost all cases, doing little to drive adoption rates of Inclusive Design or to elevate

[1] A review was conducted of the Universal Design and Inclusive Design standards outlined in WELLv2, LEED v4, Enterprise Green Communities, and the Living Building Challenge. Limited guidance was found for measuring outcomes of Inclusive Design within the context of building performance.

inclusion as a priority for building performance. Such an approach seems out of step with the increased calls for diversity, equity, and inclusion that are echoing across the architecture industry (Carruthers 2020; Day 2020). If unaddressed, these challenges will impede both the evolution of building performance toward greater social justice and the advancement of architecture as a discipline.

57.5 Inclusive Building Performance: A New Design Paradigm

There is an opportunity to reconceptualize building performance to address the above-mentioned challenges by centering on inclusion as an emerging pillar of architectural success. Introduced here as *Inclusive Building Performance*, this new paradigm elevates Inclusive Design as a central priority, bringing power to a discipline that has otherwise been seen as superfluous to high-performing buildings. Positioning Inclusive Design as building performance acknowledges the increasing demands for diversity, equity, and inclusion that are also reflected in the SDGs. Recognizing Inclusive Design as building performance further calls on the architecture discipline to expand upon dominant approaches for measuring success that are too often narrowly focused on quantitative metrics. Framed in this way, Inclusive Building Performance aims to encapsulate both quantitative and qualitative data, to be collected through emerging evaluation methods that assess the functionality and experiential outcomes users have within the built environment.

57.6 Benefits of Adopting Inclusive Building Performance

Inclusive Building Performance as a new paradigm for design has the potential to significantly impact the discipline of architecture. Most notably, Inclusive Building Performance could bring a greater equity lens to the high performance building arena by (1) prioritizing the design of environments for traditionally marginalized groups; (2) underscoring the significance of qualitative human experiences as critical building performance metrics; and (3) encouraging a truly integrated approach to building performance. Each of the potential benefits of adopting Inclusive Building Performance is discussed below.

57.6.1 Design Environments for Traditionally Marginalized Groups

Equity can be defined as the "just and fair inclusion into a society in which all can participate, prosper, and reach their full potential" (PolicyLink 2015). Following this definition, it could be surmised that to impact equity in the built environment, stakeholders must fundamentally address barriers that disparately impact how people experience buildings based on individual and intersectional identities. This need is emphasized by research that suggests that a range of physical and spatial barriers exist in the built environment that impacts marginalized populations based on race, gender, and LGBTQ + identity (Delany 2010; Doan 2015; Weisman 1992). Rooted in Inclusive Design, Inclusive Building Performance highlights the importance of considering the true diversity of building users in the design of the built environment in an effective and meaningful way. Such express consideration of marginalized groups in design is fervently needed in the building performance realm, given that under current building performance rating systems a project could achieve both a WELL and LEED Platinum Certification without ever having considered elements of Inclusive Design.[2] Inclusive Building Performance brings the argument to the forefront that a building cannot be high

[2] In WELLv2 and LEEDv4 the Universal Design and Inclusive Design standards are both optional pathways to certification. As such, project teams can achieve platinum-level certification under both rating systems without adopting the Universal Design or Inclusive Design standards.

performing unless it is firstly inclusive to our most vulnerable populations.

57.6.2 Measure Success Through Human Experiences

Building performance today is still a predominantly numbers-driven approach to understanding how a building functions across energy usage and other facets of day-to-day operations (De Wilde 2018). While metrics are important, the adoption of Inclusive Building Performance would call into action the development of more nuanced approaches for measuring success. Limited research exists that expressly explores qualitative measurements of Inclusive Design outcomes; however, literature suggests that experiencing barriers in the built environment may have psychological and emotional outcomes on building users. For example, in the article *The Lived Experience of Disability*, Toombs (1995) writes of maneuvering through her world in a wheelchair due to multiple sclerosis, citing experiencing feelings of shame, embarrassment, and disrespect. Similarly in the book *Design Justice: Community-Led Practices to Build the Worlds We Need,* Costanza-Chock (2020) provides a narrative account of their experience navigating an airport security system as a "non-binary, trans, femme-presenting person" (p.1) and their experiences of feeling shame, anger, and frustration. Inclusive Building Performance aims to prioritize aspects of human experiences of the built environment such as these as critical indicators of success. Doing so acknowledges that accolades of high performance should speak not only to building function and usage but also to qualitative outcomes of design that can have lasting psychological and emotional effects on occupants.

Assessing human experiences of the built environment is not a novel concept; however, many post-occupancy evaluation tools rely on objectivist frameworks for gathering data such as Likert scales, multiple choice questions, and rating scales (Artan et al. 2018). The introduction of qualitative data to inform Inclusive Building Performance is intended to support, not supplant, more commonly gathered quantitative metrics. To gather qualitative data, varying methodologies must be adopted including phenomenological, ethnographic, narrative, and case study inquiries. Methods used for qualitative data collection could include personal interviews, focus groups, and other tactics that result in thick and rich descriptions. As a result, qualitative data gleaned could address attitudes and emotions around belonging, inclusion, enjoyment, and spatial ownership that are currently not represented in typical building performance assessments. Inclusive Building Performance uniquely elevates the importance of both quantitative metrics and qualitative data to truly measure the impact of our built environments.

57.6.3 Encourage Truly Integrated Building Performance

Building performance initiatives are often communicated as single-issue guidance, as is evident by the innumerable building rating systems that focus on sustainability, health, or efficiency. With the core philosophy of inclusion, adopting Inclusive Building Performance could also encourage a more integrated approach to address all initiatives that support high-performing buildings. Past efforts have been made to synthesize building performance efforts, such as the Whole Building Design Guide, which promotes collective objectives, including accessibility, aesthetics, cost-effectiveness, functional/operational, historic preservation, productive, secure/safe, and sustainable (WBDG n.d.). Models like the Whole Building Design Guide, however, are simply a consolidation of existing design and evaluation methods that are still largely dependent upon quantitative metrics for evaluating success. Inclusive Building Performance differs by framing inclusion as a central ethos, encouraging a crosscutting exploration of a range of strategies that may enhance the performance of a building through an equity lens. For example, rather than focus singularly on creating a healthy building, an Inclusive Building

Performance approach would aim to integrate tenets of sustainability, health, and efficiency with a focus on enhancing human experiences of environments based on the true diversity of building occupants.

57.7 Discussion: A Roadmap for Adoption

Inclusive Building Performance as a new design paradigm is still under development by the authors of this paper and other collaborators; undoubtedly a roadmap is needed for realizing this vision. As a starting point, one could look to the history of past successful building performance initiatives related to sustainability, health, and efficiency. Following past precedent, a series of likely steps for formalizing Inclusive Building Performance could be posited. First, a consortium of industry experts could be established to serve in an advisory capacity. This advisory consortium should be an interdisciplinary set of individuals with diverse backgrounds who would be tasked with gaining industry buy-in, developing key definitions and design strategies, and identifying a unified approach to Inclusive Building Performance. Second, the potential to develop a global rating system could be explored that offers varying certification levels. Such a program would uniquely center on rating the design and programming of a project based on tenets of inclusion and equity as critical building performance goals confirmed by assessing a range of human experiences. Once the approach and evaluation methods are established, a third step could be to harness marketing, research, and development efforts to proliferate the adoption of Integrated Building Performance across industries and geographical areas. Further exploration could be conducted at this time on how Inclusive Building Performance supports the achievement of relevant SDGs, including good health and wellbeing, gender equality, reduced inequalities, and sustainable cities and communities, among others.

Based on the potential benefits discussed, the adoption of Inclusive Building Performance is poised to drive equity over time (Fig. 57.2). Applying such a holistic equity lens is an important shift, particularly as new building rating systems emerge to guide equity in the built environment, such as the WELL Health Equity Rating. Adopting Inclusive Building Performance negates the need for an added building rating system and instead brings an equity lens to all affiliated efforts. Currently, this proposed roadmap for realizing Inclusive Building Performance remains very high level; however, an ultimate strategy will likely be a research-driven, community-centered approach that integrates aspects of building performance through an

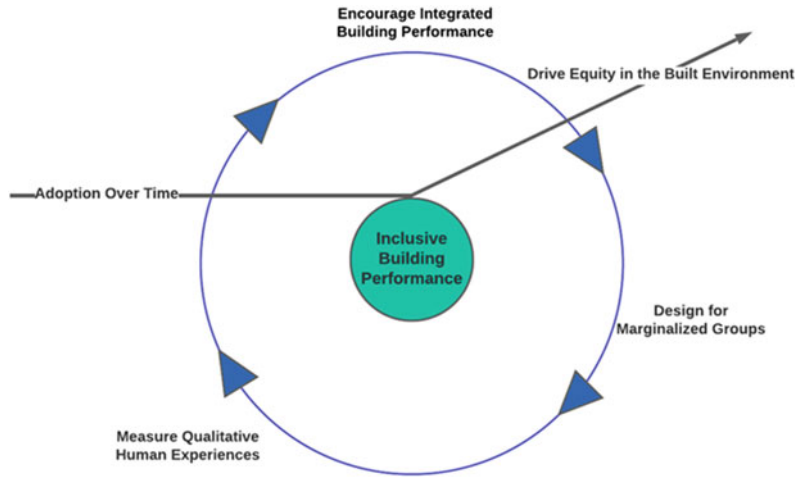

Fig. 57.2 Inclusive building performance equity model illustrates key benefits that would drive equity in the built environment over time. *Source* Authors

equity lens using a range of quantitative and qualitative methods focused on assessing building functionality and usage as well as human experiences.

57.8 Conclusion

The concepts of building performance and Inclusive Design have existed for decades. Distilling the objectives of each initiative reveals a unified goal to make buildings better for people, communities, and the planet. While historically Inclusive Design has not been considered a key pillar of building performance, this paper suggests the need for a paradigm shift that would instead elevate inclusion as a priority for high-performing buildings. Doing so would position Inclusive Design as a discipline that addresses the priorities of traditionally marginalized groups in the design of the built environment while integrating aspects of building performance including accessibility, sustainability, and health, among others. Today high-performing buildings are functional, usable, and efficient. By adopting Inclusive Building Performance, the buildings of tomorrow could also be environments where all feel welcome and supported to thrive.

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