

Designing for Health Equity: Advancing the Public Repository to Engage Community & Enhance Design Equity (PRECEDE) Tool

RESEARCH TEAM:

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EXECUTIVE SUMMARY

RESEARCH SUMMARY

Health disparities have widened in the U.S. for decades, but the COVID-19 pandemic brought these inequities into sharper focus, exposing how closely correlated environmental factors and preexisting health conditions are to quality of life. Interior designers, architects, and urban planners are responsible for creating the spaces in which people spend 90% of their time, and the choices they make directly impact people's well-being.

The Public Repository to Engage Community and Enhance Design Equity (PRECEDE) is an open-source dashboard that makes it easier for architects

and designers to access health, socioeconomic, and environmental data to improve design outcomes. The tool centralizes demographic, environmental, and health data from across the U.S. into a geospatial database, making it easier for designers to acquire insights that will empower them to create a healthier built environment. The tool presents public health data by state, county, or census tract, so designers can see at-a-glance which demographic factors, exposures, and outcomes are most relevant to the location of their project. PRECEDE synthesizes these public databases, highlights the most pressing health equity concerns, and offers actionable design guidance and strategies to create bespoke design solutions that promote occupant and community wellness.

By leveraging access to several public health databases, such as the U.S. Centers for Disease Control (CDC PLACES), the Environmental Protection Agency (EPA EJ Screen), the U.S. Census Bureau, and others, PRECEDE enables design professionals to better understand site-specific health considerations. The streamlined access to critical health data, educational resources, and design strategies that PRECEDE offers can facilitate community engagement and create a healthier built environment.

PRECEDE's "Learn," "Explore," and "Act" pages work together to educate designers on the health significance of each indicator, visualize health data (to show prevalence across a geographic area), and identify potential design strategies. The "Learn" section educates users about the significance of each indicator, which include demographic factors (e.g., unemployed population or population over 65), exposures (e.g., proximity to wildfires, food insecurity or access to green space) and outcomes (e.g., prevalence of physical inactivity or cancer). The "Explore" section helps identify the health data for a specific site through geospatial mapping. The "Act" section helps teams respond to that data by aligning design strategies with specific health concerns.

Ultimately, PRECEDE reduces the time it takes to uncover critical public health metrics early in the design process, informing an effective design response that benefits occupants through a holistic and tailored approach.

KEY FINDINGS

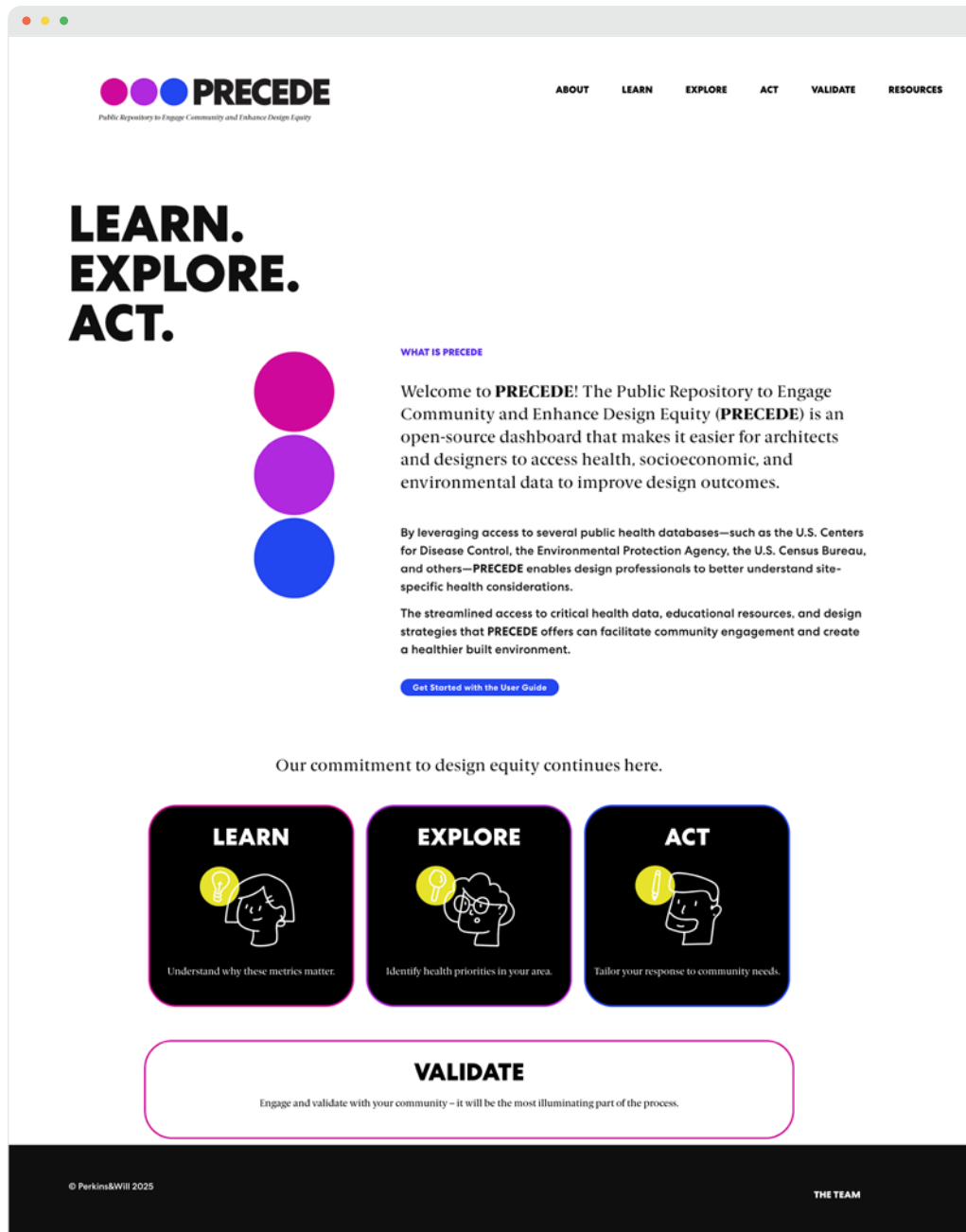
1. There exists a significant need to link health equity to design strategy. An open-access dashboard enables design professionals across the U.S. to use the tool and deepen their design discussions on health and equity.
2. A successful tool should be simultaneously technically sound, based in rigorous research, and joyful to use. The PRECEDE Learn dashboard makes evidence-based design strategies accessible and engaging for design students, emerging professionals, and seasoned practitioners alike.
3. Ensuring community engagement and validation are critical to the success of PRECEDE. The Engagement and Validation Guide in our Resources section is designed as a companion to ensure the equitable, community-engaged implementation of PRECEDE recommendations

IMPLICATIONS

- The tool will assist design teams in identifying key environmental, socioeconomic and health concerns during the Discovery phase of a project, allowing prioritization of strategies to address those concerns.
- The tool is scalable, allowing public health metrics to be applied to projects ranging in size from single-family residential to urban planning.
- The tool is the only public health database created specifically for designers, aligning metrics with design strategies that will help teams interpret data and act on it.

ONLINE TOOL

[PRECEDE – Public Repository to Engage Community and Enhance Design Equity –](#)
[A tool for the earliest phases of a healthy design process.](#)



DISSEMINATION

Cordell, D. (2023, June 20-23). *The role of regional health assessments in building design* [Conference session]. Environmental Design Research Association (EDRA), Mexico City, MX.

Cordell, D., Helstern, A., & Tandon, D. (2023, August 13-15). *Designing for health equity: Advancing the PRECEDE tool* [Conference session]. ASID Gather, Los Angeles, CA, USA.

Eitland, E. & Marshall, T. (2023, October 11-15). *Early design public health and well-being assessment* [Conference session]. NOMA, Portland, OR, USA.

Cordell, D. & Helstern, A. (2024, June 10-12). *Designing for Health Equity: The PRECEDE tool* [Virtual conference session]. NeoCon, Chicago, IL, USA.

Helstern, A. & Eitland, E. (2024, June 27). *Enhancing public health through design: An open-source tool* [Webinar]. Illinois Green Alliance, Chicago, IL, USA.

RESEARCH BIO

Erika Eitland, MPH, ScD

Erika is the Co-Director of Human Experience Research at Perkins&Will where she focuses on the public health impact of K-12 schools, affordable housing and urban planning. Erika is the co-founder and co-host of the Inhabit podcast, a show focused on the power of design. She received a doctorate from the Harvard Chan School of Public Health in Environmental Health. She has presented her research internationally at the World Bank, U.S. Health Resources and Services Administration, American Society of Interior Design and U.S. Green Building Council. Erika advises on national policy for the U.S. EPA as a member of Children's Health Protection Advisory Committee. She holds a Master of Public Health from Columbia University.

David Cordell, FASID, LEED AP, WELL AP

David is an associate principal at Perkins&Will. With over 20 years of experience as project designer and technical coordinator on ground-breaking projects, Cordell brings a particular focus on interior environments and their interaction with occupant health and wellness and sustainability. Cordell's experience includes a variety of corporate, nonprofit, healthcare, and science and technology projects for clients of various sizes. For more than ten years he

has been the sustainability leader for the interiors practice in Perkins&Will's Washington, D.C. studio. Cordell has worked on numerous LEED projects, several of which earned Platinum certification, including ASID's headquarters, the first project in the world to also earn Platinum certification under the WELL Building Standard. Cordell chairs the National ASID Committee on Climate, Health and Equity, and speaks regularly on topics related to healthy interior environments, diversity and inclusion & sustainability.

Amina Helstern, LEED AP, Fitwel Ambassador, LFA

Amina is a Senior Regenerative Design Advisor and Associate Principal in Perkins&Will's Chicago studio. She trained as an architect and believes the places we design must creatively address inclusion, well-being, resilience, and sustainability. Her diverse portfolio includes corporate interiors, residential, mixed-use, K-12 education, branded environments, sports & recreation, and affordable housing. Amina has been leading Living Design in the Chicago studio since 2012 and is a member of the firmwide Living Design Leadership Council. She is actively involved with Perkins&Will's research ecosystem including Material Performance, Human Experience, and the Housing Affordability Task Force which released "Healthy Affordable Housing: The Toolkit," a nearly 150-page resource that can help improve the health and well-being of residents through holistic design strategies.

Tyrone Marshall, AIA, NOMA, Assoc. ASHRAE, LEED AP BD+C

Tyrone is an accomplished designer with 20 years in the field, specializing in architectural research and computational design. At Perkins&Will, Tyrone leads teams towards high-performing, innovative architectural solutions. His areas of expertise include daylighting, natural ventilation, energy efficiency, lifecycle costing, carbon footprint reduction, and community-driven design. He holds an MS in High-Performance Buildings from Georgia Tech and a Bachelor of Architecture from the College of Arts in San Francisco. Beyond work, Tyrone pursues his passion for painting and photography.

Eunice Wong, RPP, MCIP, LEED ND

Eunice is an Associate Urban Designer and Registered Professional Planner in the Toronto/Ottawa studio of Perkins&Will. Eunice is motivated by the intersection of city planning and design, specifically in the opportunities for placemaking and the advancement

of equity in communities. Their work spans strategic policy planning to built-form testing and streetscape design, with a focused interest in both social and physical resilience. They believe that good design should be empowering and represent a 'people-first' philosophy. This is further deepened by their prior experiences in community planning, development review, and transportation planning in municipalities across Ontario. Eunice is also a planning instructor at Toronto Metropolitan University, a member of the studio's Justice Equity Diversity and Inclusion (JEDI) Committee, the Innovation Incubator champion for the Ontario studio, & co-host of the Inhabit Podcast, a show about community-powered design.

Jonathan Yedahm Lee

Jonathan is currently a PhD student at Boston University, School of Public Health. Prior to Boston University, Jonathan completed a dual-degree Masters degree in Public Health and Urban Planning at Harvard University. Jonathan is broadly interested in investigating the design of the built environment through a public health lens, particularly in relation to climate change and health equity. Specific research interests include how transportation systems, land use decisions, and urban design impacts health and how to use public health as a catalyst for change.

Devika Tandon, AIA, NCARB, LEED GA, EcoDistricts AP, WELL AP

Devika is a project designer in the Perkins&Will Los Angeles studio. She is a licensed architect and holds a Bachelor of Architecture from Iowa State University and a Masters of Urban Design from UCLA. Devika's design sensibility has developed from her international upbringing. Exposure to diverse cultures has informed her values on creating context specific solutions. She focuses on creating innovative and forward-thinking sustainable solutions for users, as well as the community. Her passion for holistic wellbeing is a fundamental value she brings into the design of all spaces focusing on the impact on the human experience. At Perkins&Will Los Angeles, Devika collaborates with design leadership in the development and implementation of design and strategic planning. She has implemented tools for client and stakeholder engagement to aid in the visualization of prioritized decision making for a more successful project. Devika has worked on a diverse portfolio of project types, including higher education,

mixed-use, commercial, residential, affordable housing, healthcare, as well as cultural civic projects.

Yoji Toriumi

Yoji is an urban analyst and Fulbright scholar with a background in data engineering, serving as the Data Engineer on the PRECEDE study at Perkins&Will. He is currently a Master in Urban Planning candidate at Harvard Graduate School of Design, studying urban and spatial analytics methods, including remote sensing, data science, and machine learning.

Julio Brenes

Julio is a Technical Coordinator and Illustrator at Perkins&Will. He has extensive experience in architectural design and project coordination from Australia to Costa Rica. His architecture experience ranges from residential, cultural, transport, urban and mixed-use projects. He has also ventured into the furniture design realm and for the last couple of years, he has immersed himself in Arts and Illustration working in commissioned works and publications. No distinction is made between the line he draws for Architecture and Illustration; the same line is part of the Design Realm and the end of the line is problem-solving. Inspiration comes from Illustrators and Architects from around the world, particularly those in Japan for their meticulous craft and vivid re-interpretation of tradition.

Kate Harson, MS

Kate Harson recently completed a Master of Science in Environmental Health at the Harvard T.H. Chan School of Public Health and has over seven years of experience in the environmental industry where she worked as a geologist and human health risk assessor. During Kate's graduate degree, she researched the environmental quality of K-12 schools by quantifying flood risks, distance and density of industrial facilities and major roadways, distance to emergency medical facilities, surrounding greenness, and neighborhood walkability for all public schools in Massachusetts. Her master's research examined how the socioeconomic makeup of a school population predicts environmental quality, shedding light on the environmental risks that disproportionately affect schools within vulnerable communities. Through her professional experience and academic research, Kate developed a deep understanding of environmental science & passion for environmental justice.