Building a Better Future: Sustainability and DEI Are a Pair





Dr. Felix KaboPh.D., M.Arch., M.Sc.
Research Director



Eric Corey FreedRA, LFA, LEED Fellow, EcoDistricts AP
Sustainability Director

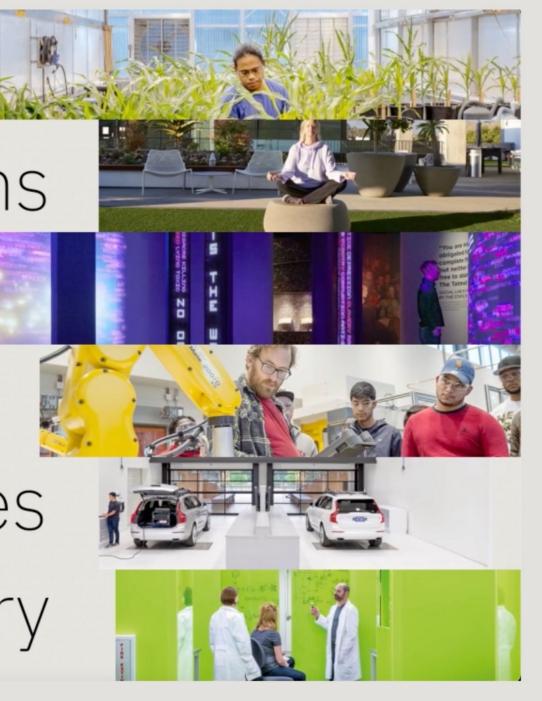


Sharla Toller
JD
Diversity, Equity and Inclusion Director





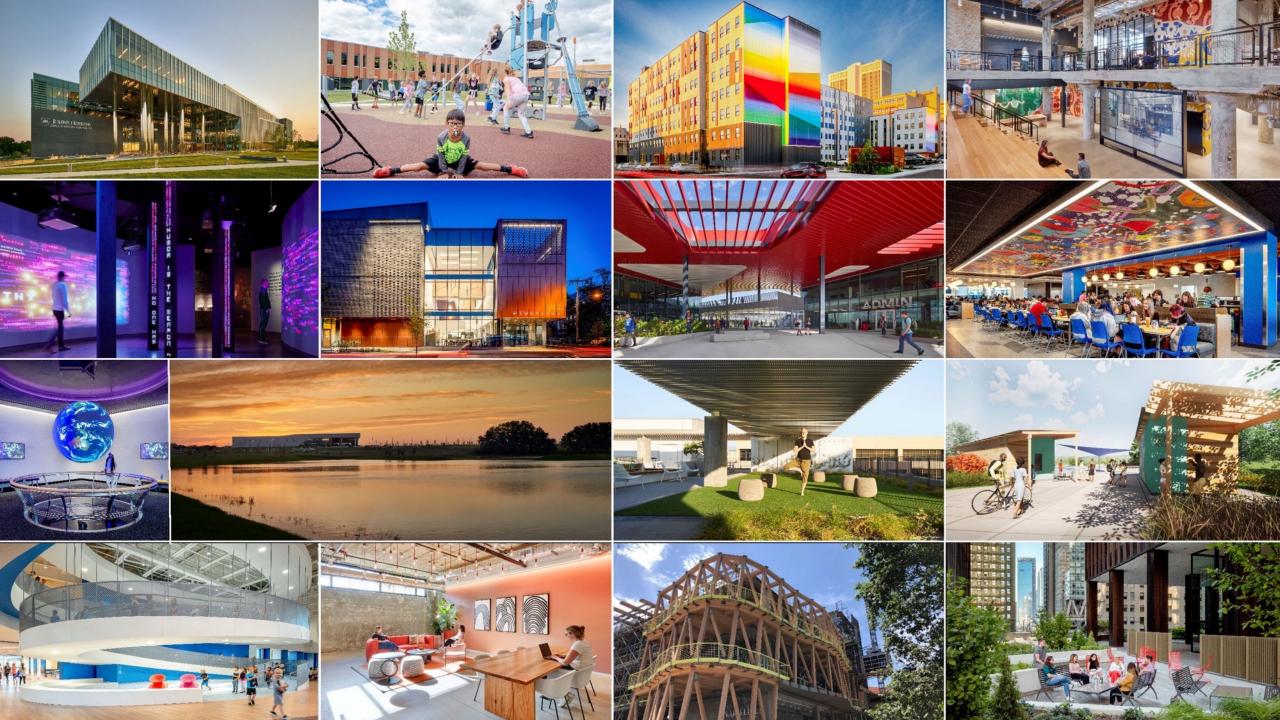
- → Planet 2100
- → Healthier Humans
- → Equity Now
- → The Big Rethink
- → Future Economies
- → Chasing Discovery

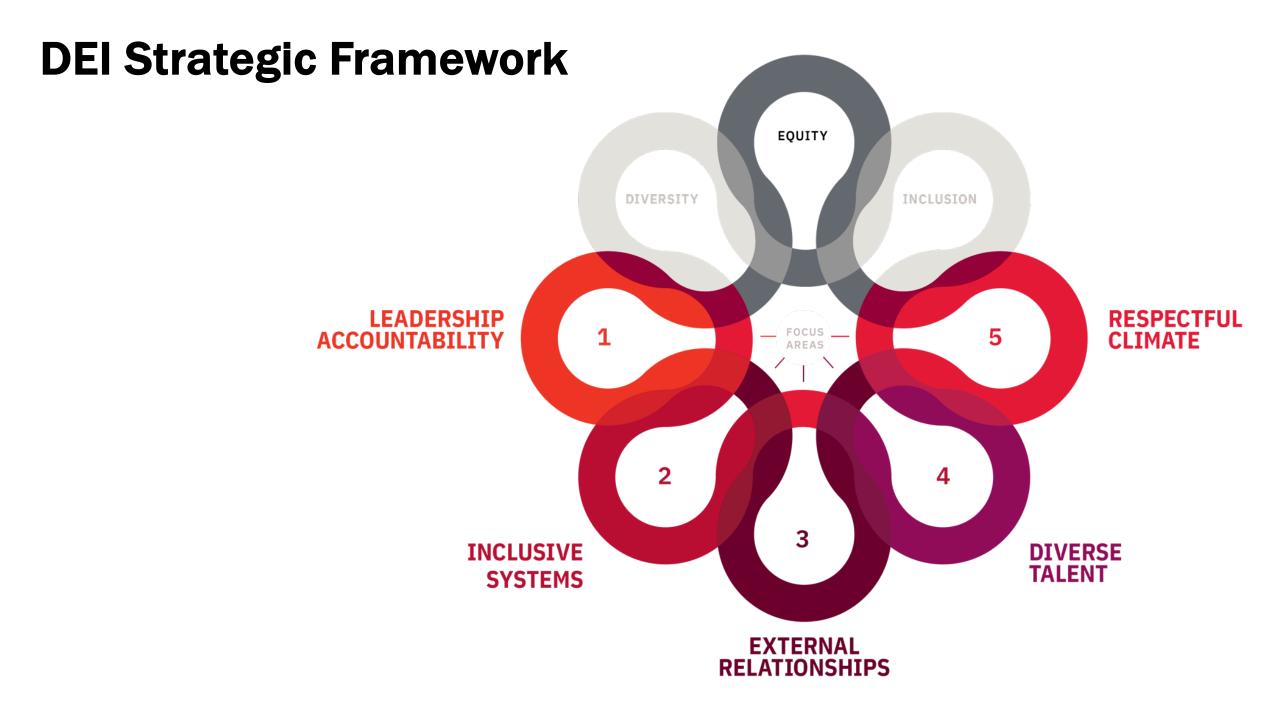


(1)

Planet 2100













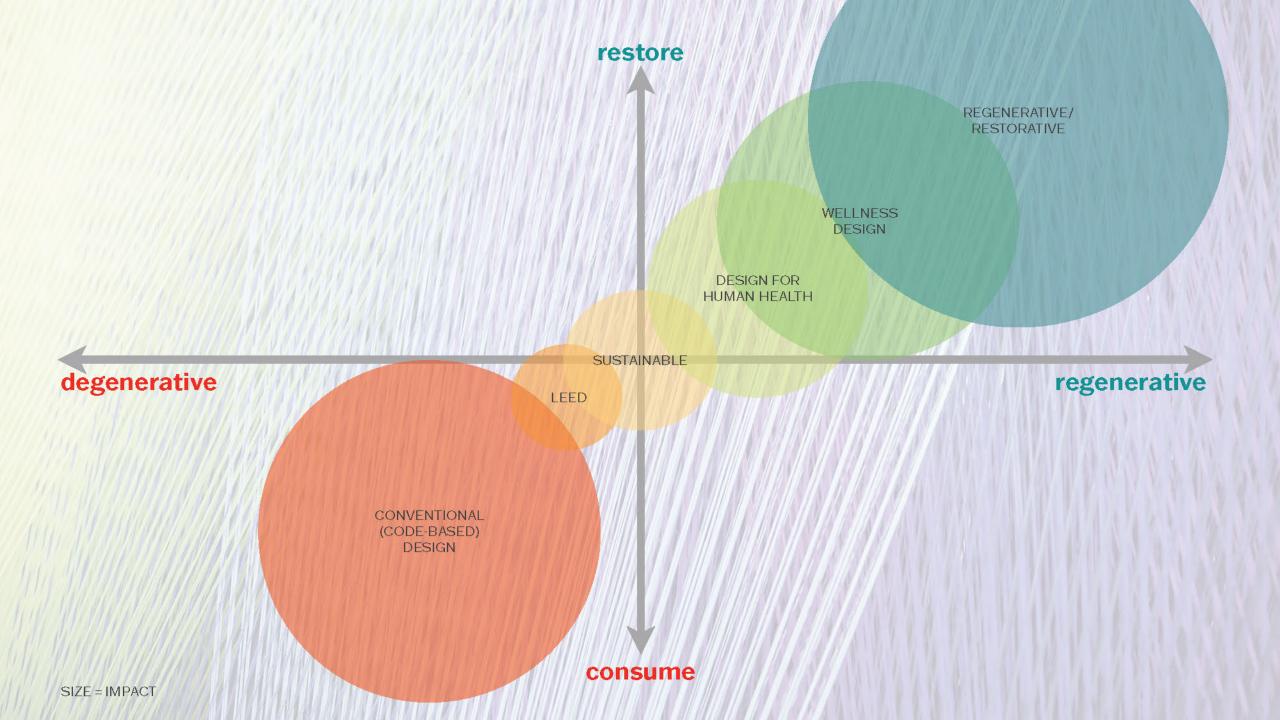


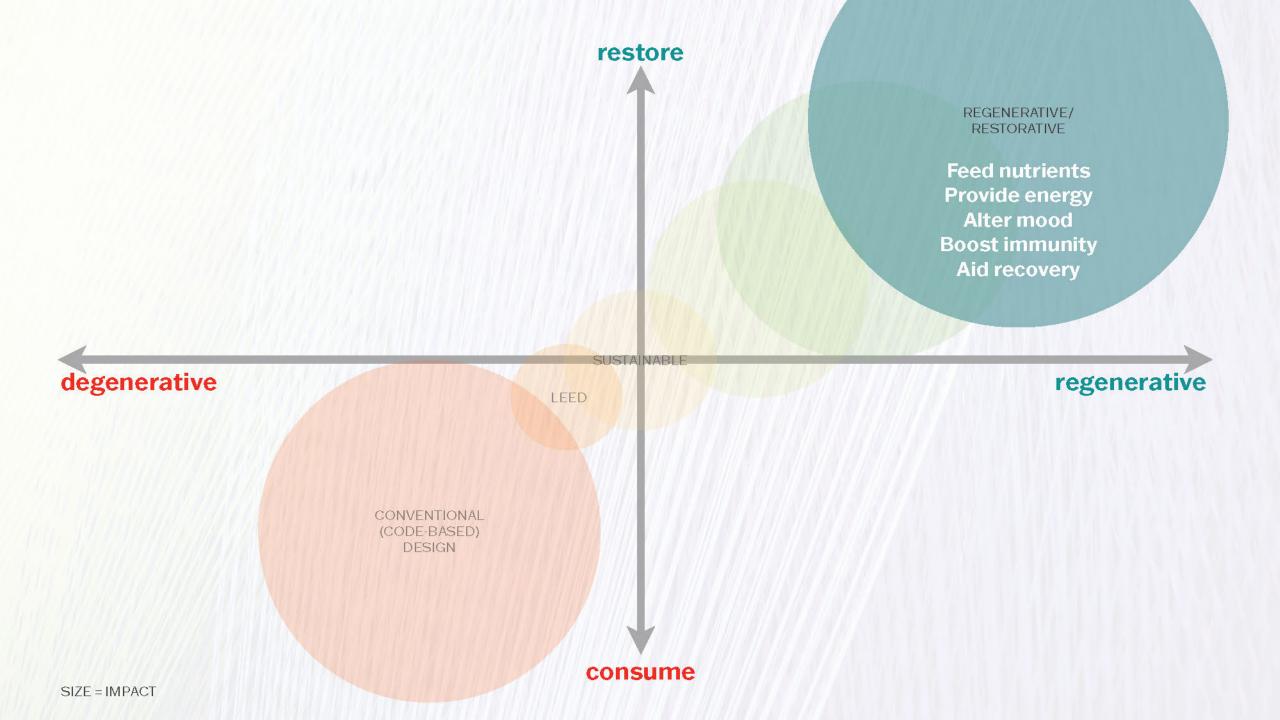


















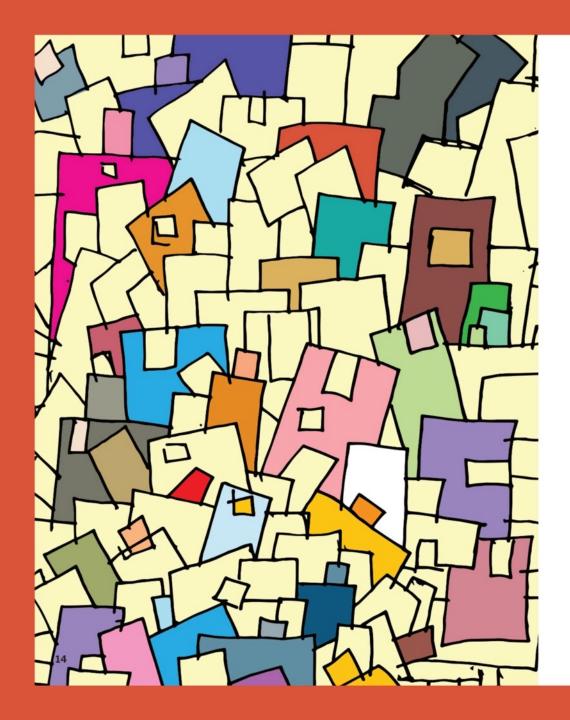




The Inclusive Design Issue Design Museum Magazine



Design Museum Everywhere produces a biannual magazine centered on design impact. Recent issues include *Design In Government, The We Design Issue,* and *Common Space.*



DESIGN FOR EVERYONE

Where to Begin?

BY JENNIFER C. SCHMIDT

We, as architects and designers, have the power to influence the public experience of the built environment. As professionals licensed by our jurisdictions with the aim of maintaining health, safety, and welfare, it is our duty to create spaces that everyone can access and enjoy. Accessible design is an ancestor of the current trend for wellness design and should be the foundation

8 Ways to Design for Disabled Joy







Equal Entry



More Chairs, Everywhere



The Space Between



Clear Navigation



Balance Sensory Inputs



Dynamic Design



The Digital Bridge

1. Better (and More)

Bathrooms. You never know when you'll need a restroom! It's easier to go out when you can expect a comfortable bathroom experience. Bathroom needs go beyond using the toilet. Look for spacious stalls, adult-sized changing tables, and thoughtfully located grab bars.

2. Equal Entry. Secondary access doesn't feel good – let's make sure we can all get in the front door fairly, and move through the building or space without issue. Stairs and elevators should be near each other, and ramps can replace stairs.

3. More Chairs, Everywhere.

Some of us need to rest more often than others, and providing a variety of inclusive seating types goes a long way. Look for different heights and widths of chairs, with and without arms.

4. The Space Between. The way we arrange furniture can help or hinder movement and access. The ADA doesn't cover furniture unless it's built into the building. As you move through a space or building, think about whether two wheelchair users could

comfortably pass each other in corridors.

5. Clear Navigation. There are lots of ways to make space easier to comprehend and move through, starting with accessible signage and including creative ways to add multisensory cues to a layout.

6. Balance Sensory Inputs.

We all process sensory inputs differently, and some of us don't use vision or hearing. By applying thoughtfulness to finish colors, textures, and materials, as well as sound and lighting, we can support all of our sensory needs.

7. Dynamic Design. We don't always need the same things – so malleability and options go a long way. Providing a variety of space types supports varying needs, especially for neurodivergent folks who need retreat. Providing furniture that adjusts, or control over a room, increases agency.

8. Digital Bridge. Sometimes the preferred way to access a space is remotely. We can also make space more accessible by simply letting people know what to expect before they arrive!



26 27



ACCESSIBILITY & INCLUSION IN

BY ANNE RIGGS



HOUSING DESIGN

In the United States, "accessible" has become a legally defined term denoting compliance with minimum required standards for programs, places, and products to be usable by people with disabilities. These standards include federal civil rights legislation such as the well-known Americans with Disabilities Act of 1990 (ADA) and the 1968 Fair Housing Act, as well as various state and local building codes. The ADA and related laws have been critical in guaranteeing basic civil rights for people with disabilities. While compliance with these minimum standards does ensure a valuable baseline of access, the reality is that it does not result in truly usable and enjoyable environments.



iFp Emerging Innovators celebrating the latest installation, "2 Blocks," in the heart of Cambridge's innovation district, Kendall Square.

INNOVATORS FOR PURPOSE

Where Inclusion, Design, & Youth Empowerment Converge

BY MICHAEL K. DAWSON & DONNA DAWSON

Michael

Growing up in an under-resourced neighborhood without many mentors to help uncover my potential, my vision of the future was exceedingly limited. However, during my junior year of high school, a transformative moment occurred. A guidance counselor, not even my own, tapped me on the shoulder, recommending an afterschool program. This encounter shattered my

44 45



What we found...

Design for disabled joy is just one aspect of inclusive urban design. We can do much more to make buildings and outdoor spaces welcoming to everyone!

Here are some of the inclusive design features we found in the Eliot neighborhood near One North, a Holst building project.













5. Vibrating Crosswalk signal

ROLLABLE SPACES





Want to learn more about Design for Disabled Joy and other inclusive design strategies?
Scan this QR code!





Design Museum Everywhere

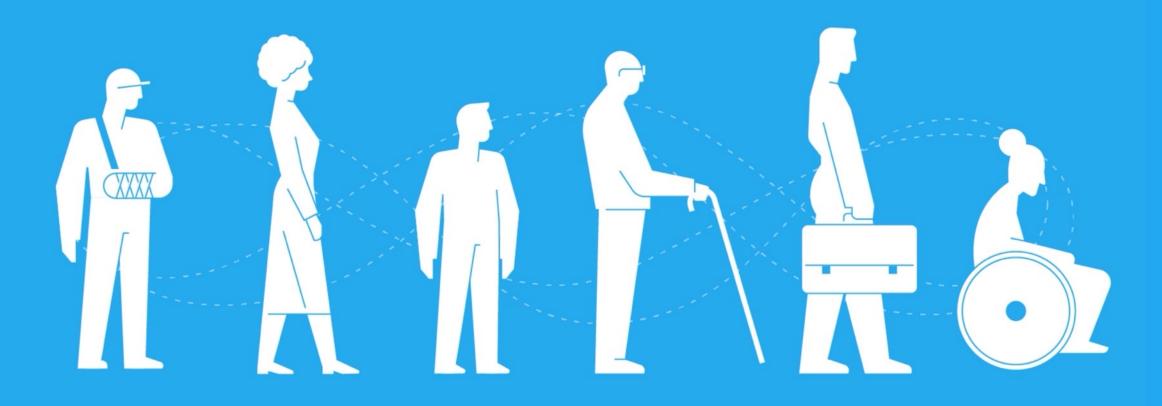


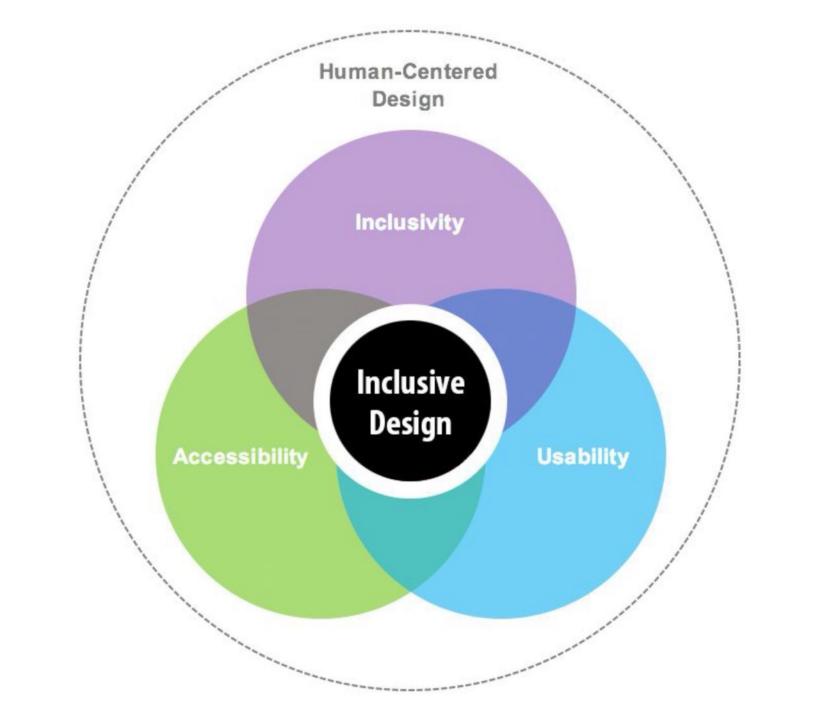












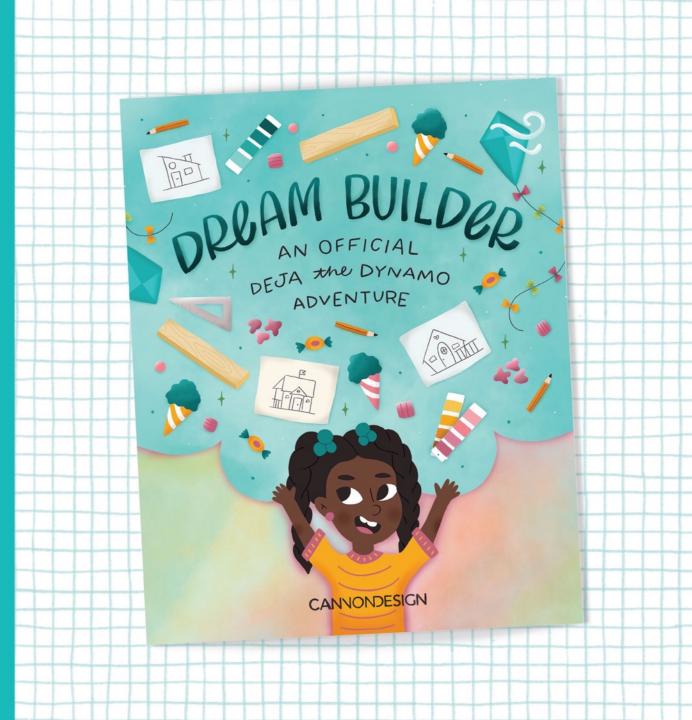


Source: Forrester Research, Inc. Unauthorized reproduction, citation, or distribution prohibited.

An original children's book authored, illustrated and published by CannonDesign.

Dream Builder – An Official Deja the Dynamo Adventure is an energizing story of design exploration, teamwork and persistence. It inspires young readers to allow their creativity to soar as they learn about architecture, science and beyond.

The book encourages children from all backgrounds to exercise design thinking and believe in their own ability to make their dreams come true.

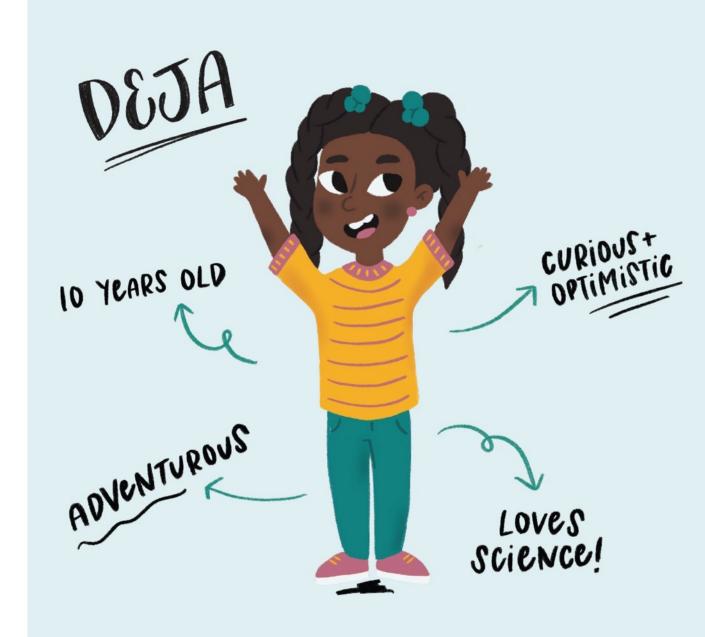


Overview

Deja the Dynamo is a young girl who uses design thinking to explore the world and solve challenges. In her first book, she attends Summer Science Camp where she and her friends work together to create the building of their dreams.

TARGET READING LEVEL

1st to 3rd Grade

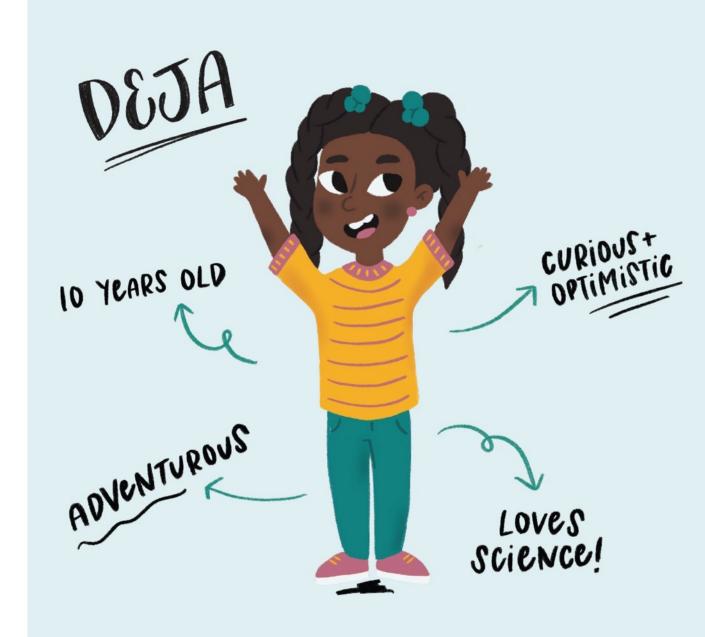


Overview

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TARGET READING LEVEL

1st to 3rd Grade



Diversity

As a design firm, we believe it's our responsibility to help create more equitable pathways to success for underrepresented communities. One way we can do that is helping diverse children visualize themselves and their potential impact in the design industry.

Deja and her friends are diverse, and her mother is an architect.

Deja's world reflects the diversity in people, interests and skills we're striving to mirror in our firm and the broader profession.



Creativity

The strongest solutions are often born from creative thinking. Deja and her friends allow their imagination to soar as they rely on the magical powers of the Dream Machine to bring their creativity to life.

The story takes readers on a fast-paced ride of creative thinking that encourages future innovators to dream big.





Persistence

"Making great buildings takes time, and we have all week to get it right," says Ms. Rosie.

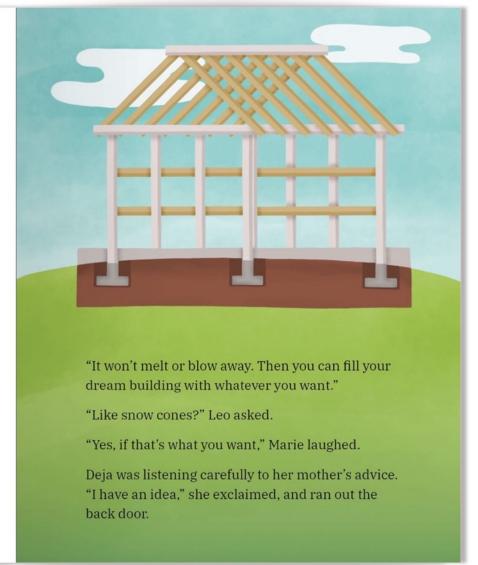
As the trio embarks on a journey of trial and error to learn about what it takes to build a sturdy building, they remain focused and optimistic on their quest for success.

"Bubble gum is delicious, but not very sturdy," Marie explained. "Look around our house, what do you think it's made of?"

Deja didn't hesitate, "Wood."

"That's a great start," added Marie. "Add in some steel and concrete and you'll have a building that's stable and secure."





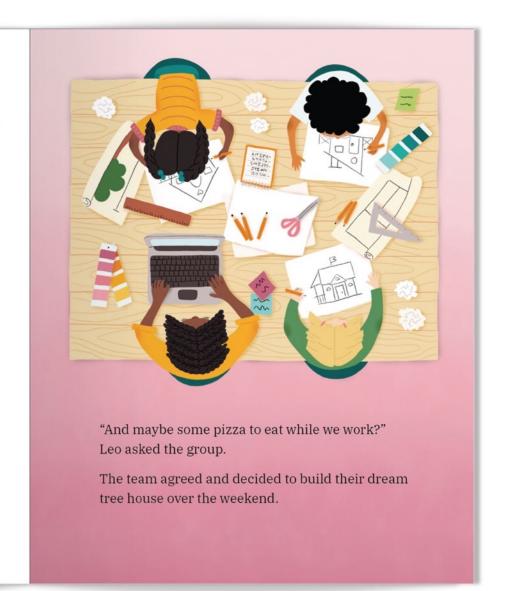
Design Thinking

As Deja and her friends work to create their dream building they are empowered to use design thinking at multiple points in the exciting journey.

This book introduces and exercises design thinking to stretch young readers' imagination.

The friends spent the rest of the evening brainstorming. They sketched out what they wanted the tree house to look like. They measured the tree in the backyard with Deja's parents. They thought about all the materials they'd need.





Teamwork

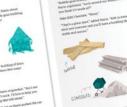
Deja, Leo and Annie are excited to experience Summer Science Camp and a new adventure TOGETHER.

Throughout the story, they learn from each other's ideas and work together to problem solve. In the end, they fuse their individual ideas into a successful team project.











































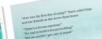




















El Busesito Preschools

CLIENT NAME:

Valley Settlement

PROJECT LOCATION:

Glenwood Springs, CO

SIZE:

< 30,000 SF

COMPLETION DATE (for "Built" submissions):

9/01/2024

MARKET(S):

Education and Civic Markets

SERVICE(S):

Planning, Casework Design, Interior Design, Environmental Graphics



Our Design Response

Valley Settlement is specifically looking to get two new Busesitos on the road for Fall 2024. We visited these buses during our observation trip and measured them fully.

We have provided two specific layouts for these two new buses based on their specific dimensions. And we've created a design playbook that can help Valley Settlement make decisions for all buses moving forward.

The following pages highlight zoning diagrams, axons, and custom casework that our team designed to help Valley Settlement bring better student and teacher experiences to life

Valley Settlement is implementing these changes for the new buses that will hit the road this fall.

Moving forward, we are also working to redesign the exterior wraps on the buses and plan to go back and photograph the new buses in Fall of 2024.



Multi-Functional Casework





As in existing the existing designs, the worksurfaces act as a



Removable sink top panel provides handwashing station. When panel is in place area doubles as a work surface

Pens/Glue/Scissors

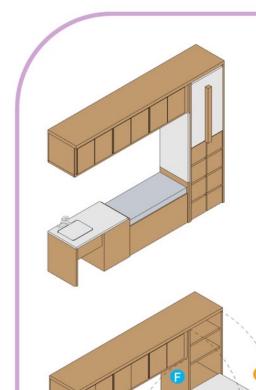
Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light

Paper Storage

Worksurface table can fold down. Allowing the space to serve as a prep area. When needed. This us utilized on more than one area.

Sensory Play Infrastructure

Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light



A Child Height Storage

Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light

B Handwashing Station

Removable sink top panel provides handwashing station. When panel is in place area doubles as a work surface

Bench / Storage

Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light

Folding Work Surface

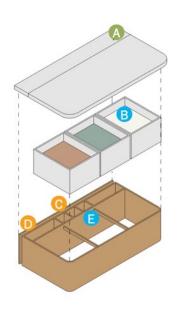
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Child Height Storage

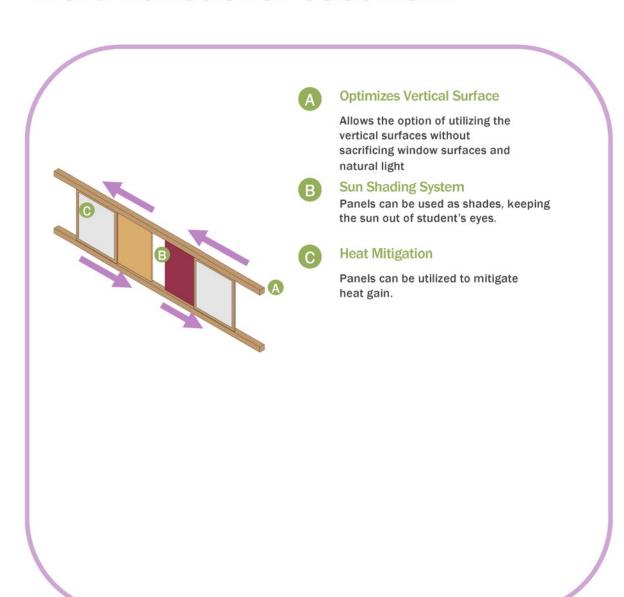
Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light

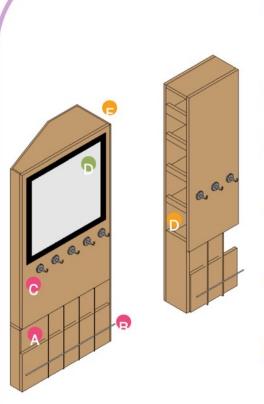
Privacy Curtain

Integrate Curtain or shades allowing for a space for a child to for privacy.



Multi-Functional Casework





A Backpack Cubby

Backpacks are within students reach but tucked away reducing distraction and "visual clutter" for children during teach/learn time.

B Shoe Storage

Shoes are stored off the floor in a designated spot.

Winter Clothing Storage

Child-safe hooks are at child's reach for hanging winter clothes to dry during class time.

Magnetic Whiteboard

Whiteboard can be utilized for writing during teach/learn activities, but also can be utilized as vertical storage for

Miscellaneous Storage

Allows the option of utilizing the vertical surfaces without sacrificing window surfaces and natural light

Cleaning Storage

Access from the other side. Tall Storage for vacuum and other cleaning supplies.

Museum of Tolerance Los Angeles Claudia and Nelson Peltz Social Lab

CLIENT NAME:

Simon Wiesenthal Center

PROJECT LOCATION:

Los Angeles, CA

SIZE:

10,000 sf

COMPLETION DATE (for "Built" submissions):

06/15/2021

MARKET(S):

Community & Civic

SERVICE(S):

Architecture, Interior Design



















Baltimore City Recreation + Parks – Outdoor Neighborhood Pools

CLIENT NAME:

Baltimore City Recreation & Parks

PROJECT LOCATION:

Baltimore, Maryland

SIZE:

Buildings – approx. 850 SF, Sites – SF vary

COMPLETION DATE (for "Built" submissions):

N/A

MARKET(S):

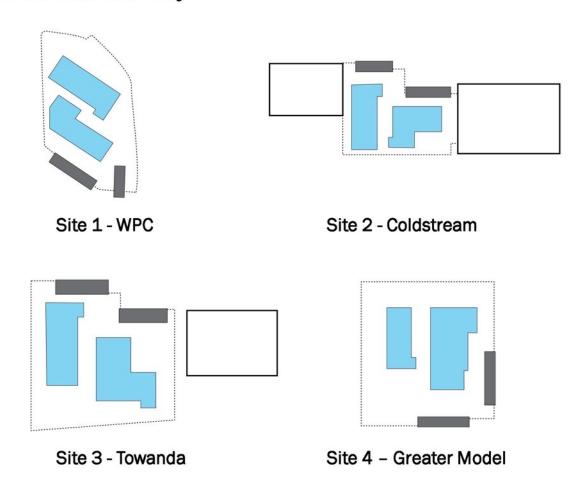
Community/Civic

SERVICE(S):

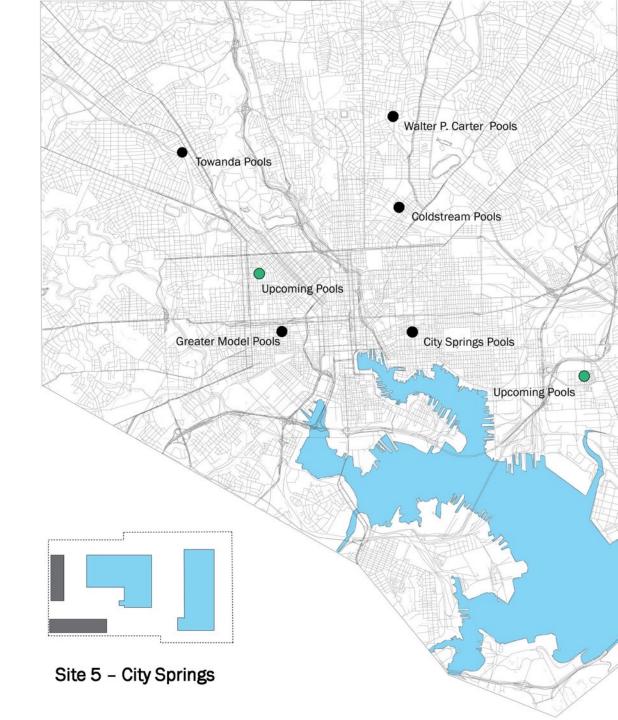
Architecture



A Plan for the City



Five (of more than 10+) sites have been designed to-date: one in construction, two in permitting, and two in design documentation. The Client Ask: to create a "kit of parts" that provides multigenerational aquatic opportunities, that can be adapted across any of the City's sites, and that meets their budget. The intent is to create a network of "equal" facilities that will ensure no one in the City of Baltimore is more than a walk away from a pool facility where they can learn to swim, recreate, and/or exercise.











Sensory Spaces Playbook: Edison Park Elementary School

CLIENT NAME:

Edison Park Elementary School

PROJECT LOCATION:

Chicago, IL

SIZE:

850 GSF

COMPLETION DATE (for "Built" submissions):

n/a

MARKET(S):

Open Hand Studio

SERVICE(S):

Planning, Design

SENSORY MODES

TOUCH		SOUND		SIGHT		SMELL	
PROVIDES INFORMATION ABOUT THE ENVIRONMENT & OBJECT QUALITIES (TOUCH, PRESSURE, TEXTURE, HARD, SOFT)		PROVIDES INFORMATION ABOUT SOUNDS IN THE ENVIRONMENT (LOUD, SOFT, HIGH, LOW)		PROVIDES INFORMATION ABOUT OBJECTS & PERSONS		PROVIDES INFORMATION ABOUT DIFFERENT TYPES OF SMELL (MUSTY, FLOWERY, PUNGENT)	
ACTIVE	SENSORY BOXES PLAYDOUGH VIBRATING CUSHIONS FIDGETS TEXTURE BOARDS	ACTIVE	SPEAKERS OVER-EAR HEADPHONES	ACTIVE	GLITTER BOTTLE FLASHLIGHT GLOW STICK	ACTIVE	HAND CREAM / LOTION
CALMING	STRESS BALLS PILLOWS & BLANKETS	CALMING	EAR DEFENDERS	CALMING	LAVA LAMP / BUBBLE TUBE STRING LIGHTS	CALMING	CUSHION LAVENDER OIL
VESTIBULAR		PROPRIOCEPTIVE		INTEROCEPTION		OTHER	
PROVIDES INFORMATION ABOUT WHERE OUR BODY IS IN SPACE AND SPEED AND DIRECTION OF MOVEMENT		PROVIDES INFORMATION ABOUT WHERE A CERTAIN BODY PART IS AND HOW IT IS MOVING		PROVIDES INFORMATION ABOUT HOW OUR BODY IS FEELING (HUNGRY, TIRED, ANXIOUS, SCARED)			
ACTIVE	THERAPY BALLS SPACE HOPPER TRAMPETTE	ACTIVE	TUNNEL BALLOONS	ACTIVE	FIDGETS YOGA MAT	ACTIVE	ORAL MOTOR RESOURCES
	STEPPING STONES BALANCE BOARD		CORE STRENGTH MOVEMENT RESISTANCE BANDS		SOFT & FIRM PUTTY MOVEMENT RESISTANCE BANDS		

VIGNETTES >> RELAX

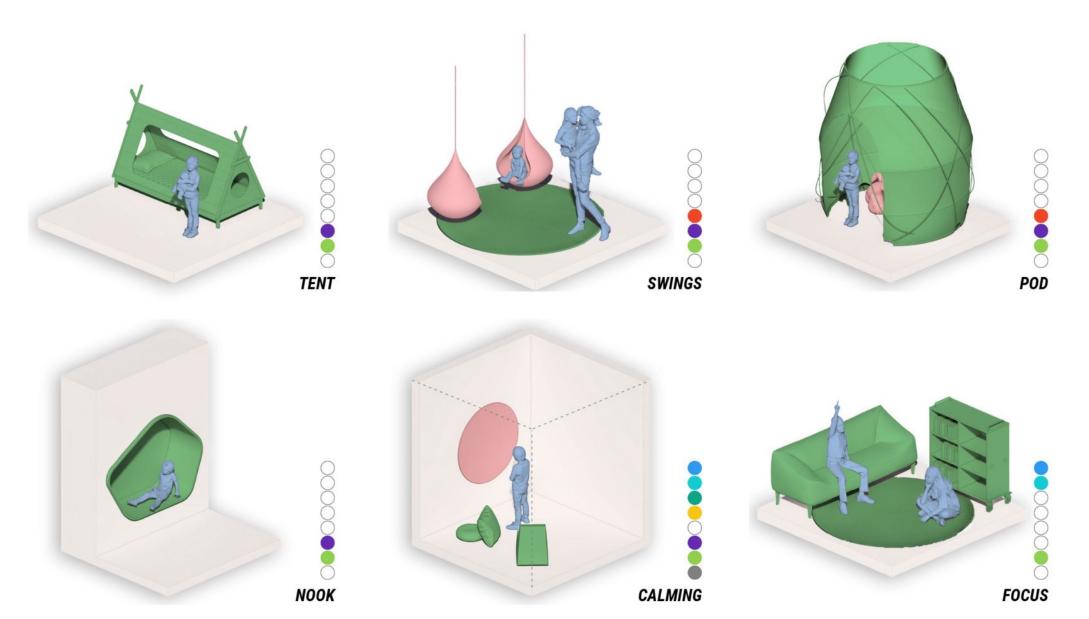


SOUND SIGHT SMELL

VESTIBULAR

OTHER

PROPRIOCEPTIVE INTEROCEPTION



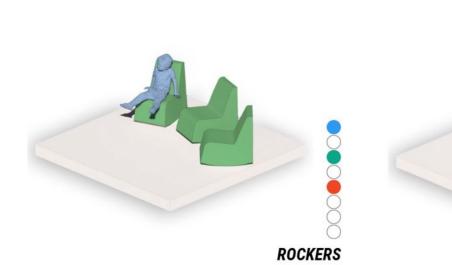
VIGNETTES >> FOCUS

STEPS





MEET

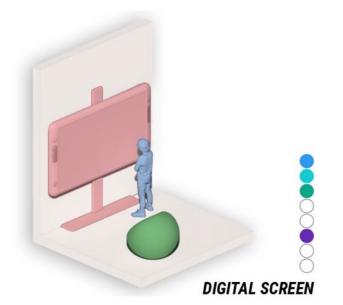


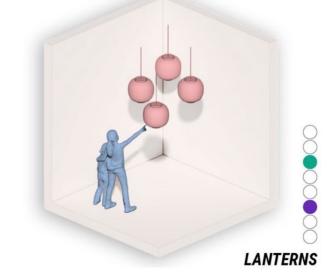


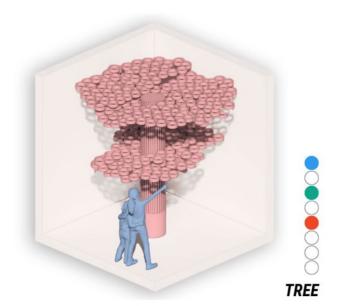
VIGNETTES >> INTERACT



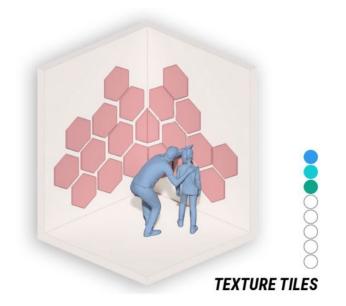


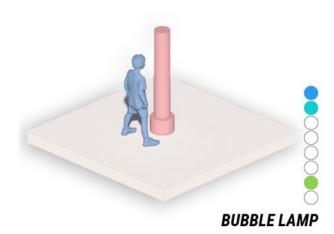






INTERACTIVE ART

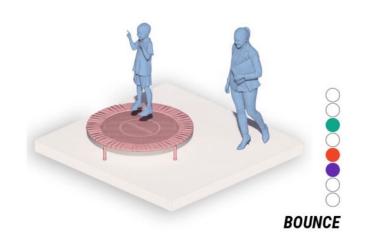


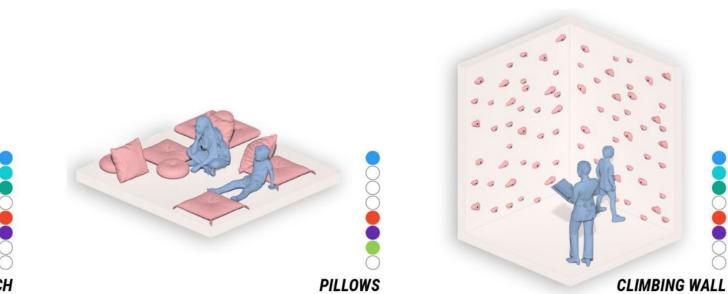


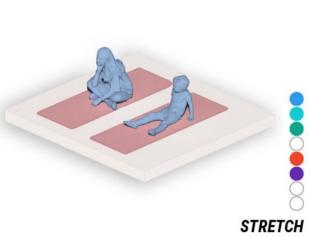
VIGNETTES >> MOVEMENT



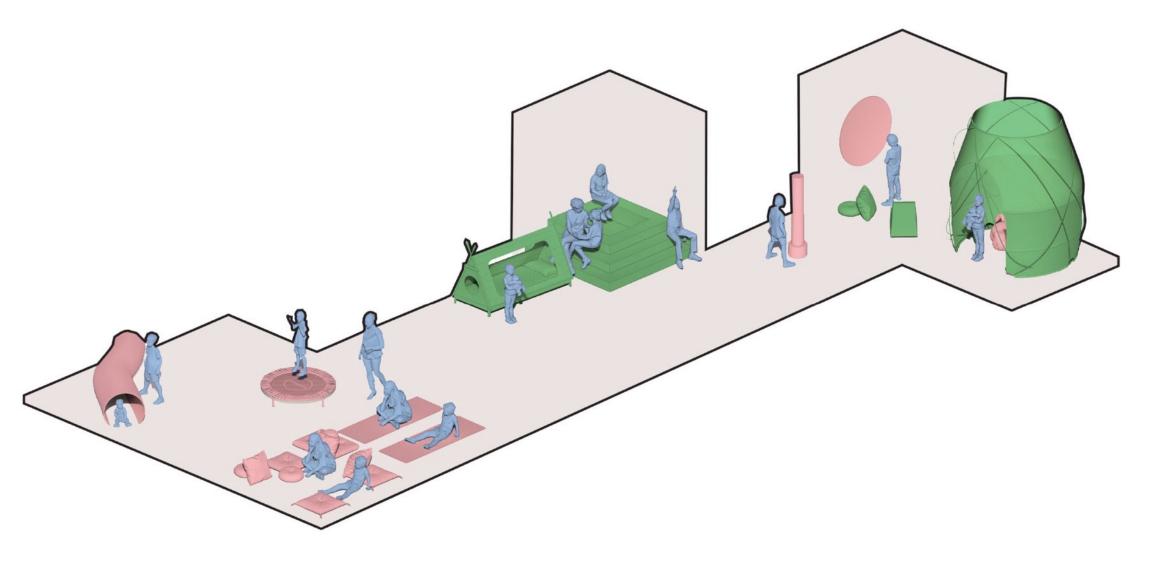
TUNNEL







MOVEMENT



ACTIVE -

CALMING







Ehrman Crest Elementary & Middle School

CLIENT NAME:

Seneca Valley School District

PROJECT LOCATION:

2070 Ehrman Road, Cranberry Township, Pennsylvania

SIZE:

190,000 Gross SF, Site 150 Acres

COMPLETION DATE (for "Built" submissions):

2022

MARKET(S):

Education

SERVICE(S):

Architecture, Interior Design

DESIGN/PROJECT LEADER(S):

Mike Corb, Troy Hoggard, Jeremy Dwyer

TEAM MEMBERS:

Ekta Wali

Anne Fullenkamp, Childrens Museum of Pittsburgh

Prompt: Can an elementary school be as engaging as a children's museum?

When a school bus approaches a children's museum, it shakes with anticipation and energy. How can we make students that excited about school?

We teamed up with the Children's Museum of Pittsburgh to create a new hybrid school that teaches Bravery, Community and Curiosity.



Site & Massing Strategies

Nature + Access = Bravery



both floors, all day long

Group learning not corridors



Building as Permanent exhibit



Sun Dial Wall: Use the building to teach key ideas









Kindergarten Windows

This 'heart' also frames the Dining, Media Lab and Gym, forming a. Town Square

Community Heart

Ramp in the morning as students assemble for the day



Kindergarten





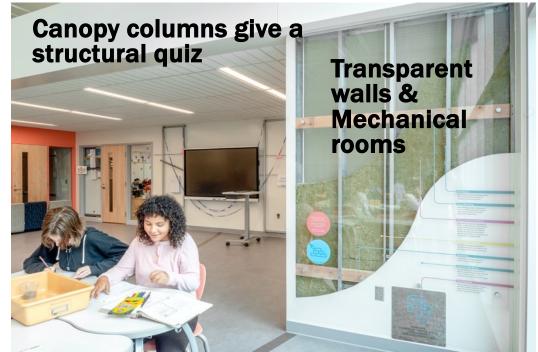


















A new hybrid school & museum to return the joy of 'in-person' learning, and expand what is expected of our youngest communities.



Future School

Ehrman Crest Elementary/Middle School



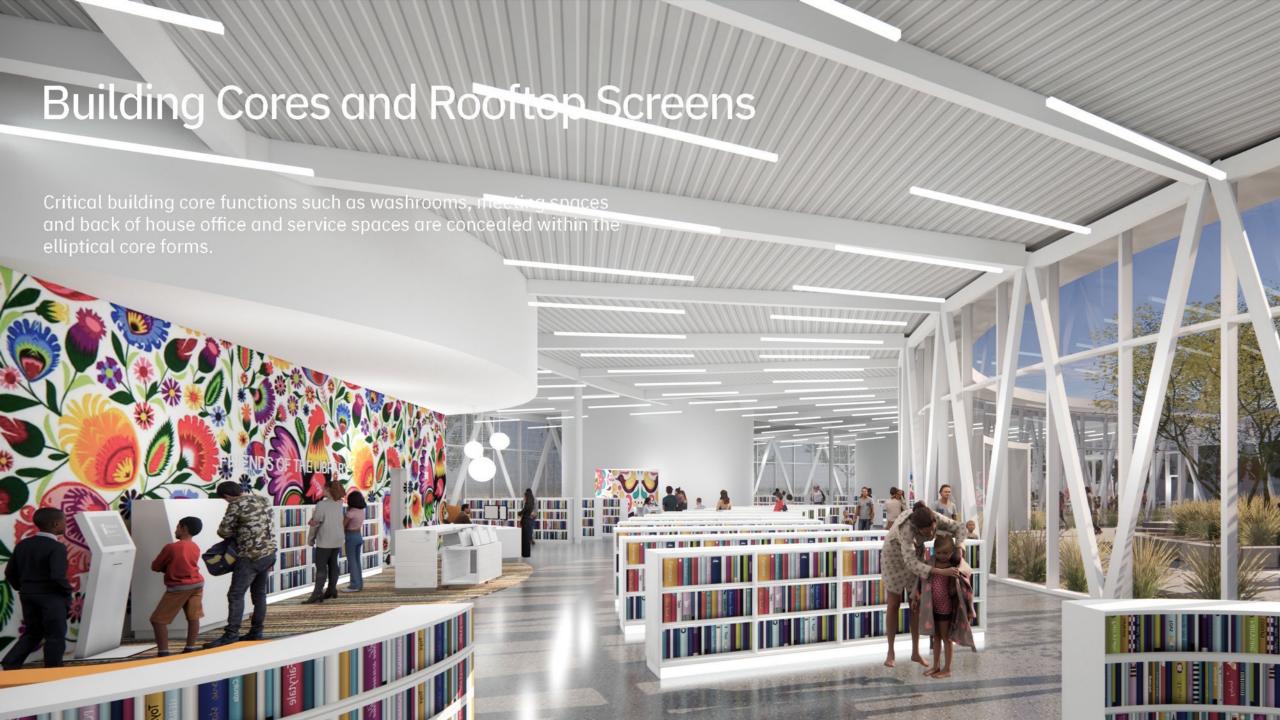
SPC Jesus S.Duran Eastside Library

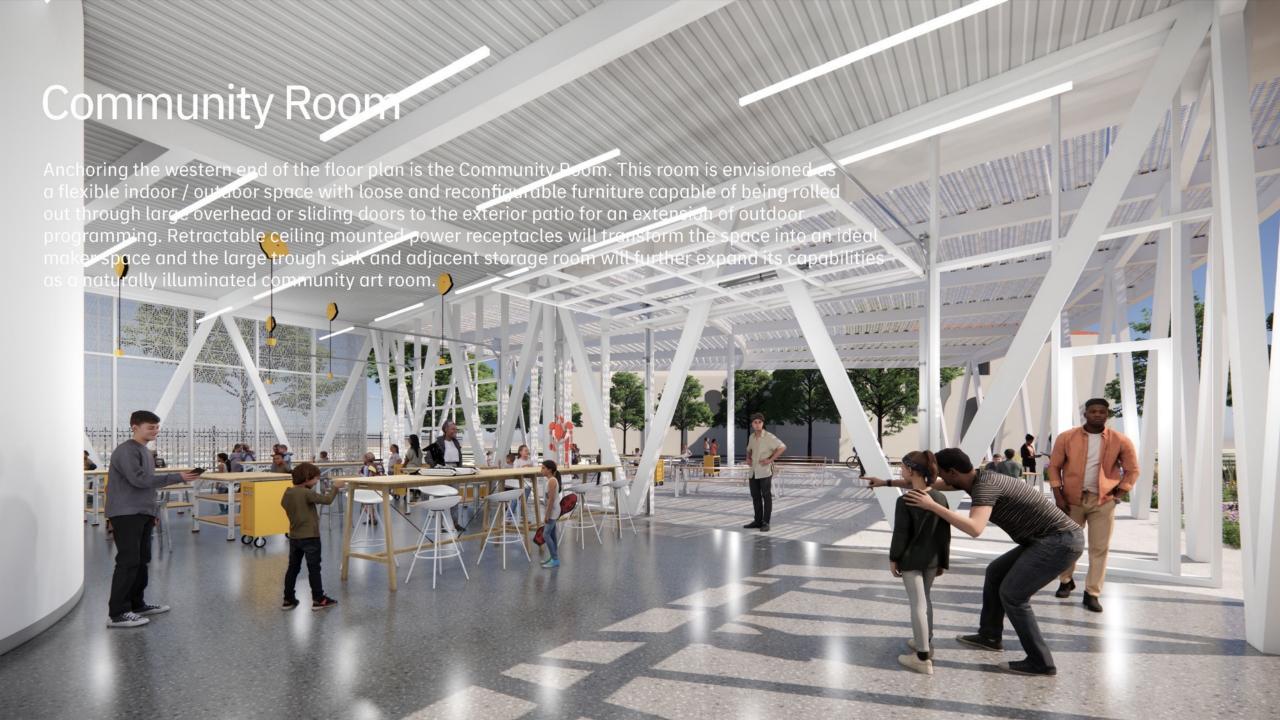
CLIENT NAME: City of Riverside PROJECT LOCATION: River, CA SIZE: 15,200 SF **COMPLETION DATE (for "Built" submissions):** Unbuilt MARKET(S): Civic SERVICE(S):

Architecture, Interior Design









Kirkland Ranch Academy of Innovation

CLIENT NAME:

Pasco County Schools

PROJECT LOCATION:

Wesley Chapel, FL

SIZE:

180,000 GSF

COMPLETION DATE (for "Built" submissions):

08/01/2022

MARKET(S):

Education / K-12

SERVICE(S):

Architecture, Interiors













Edward J. Ray Hall

CLIENT NAME:

Oregon State University-Cascades

PROJECT LOCATION

Bend, OR

SIZE

50,000 SF

COMPLETION DATE (for "Built" submissions):

September 2021

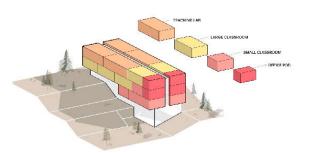
MARKET(S)

Higher Education, Laboratory/Research

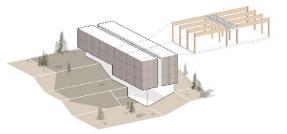
SERVICE(S)

Concept Design, Design Documentation, Construction Administration, Site and Infrastructure + Building

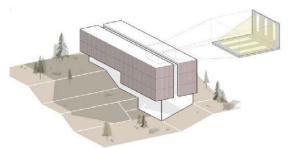




CREATE A PROTOTYPE TO OPTIMIZE FLEXIBILITY AND ADAPTIBILITY



OPTIMIZE MASS TIMBER

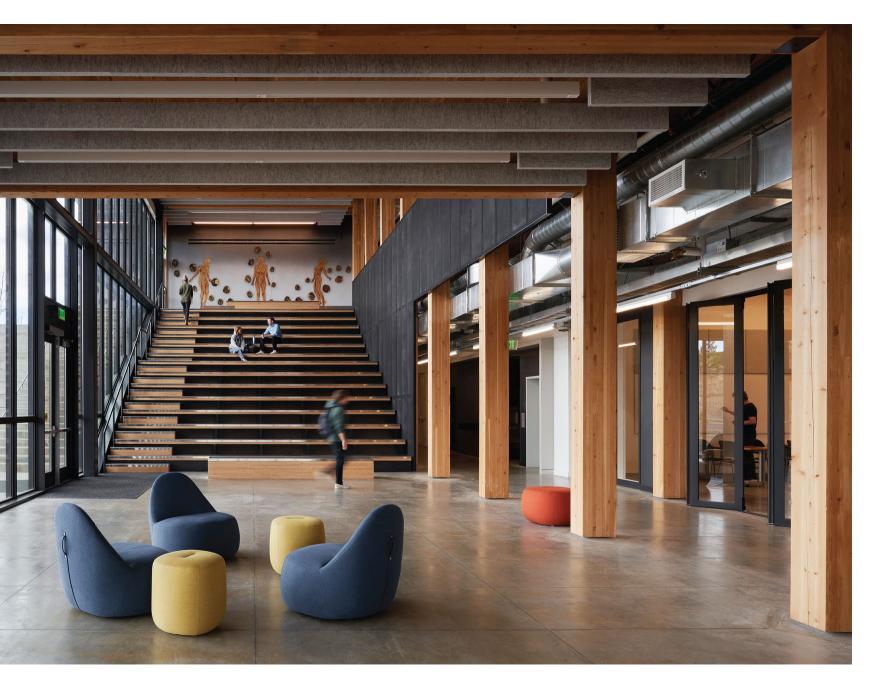


MAXIMIZE DAYLIGHT



NET ZERÓ



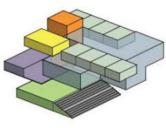




SMART CORE



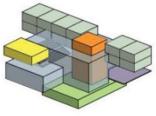
LEARNING SPACES

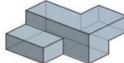


QUIET INTROSPECTION / OFFICE SPACES

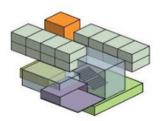


CREATIVE EXPLORATION / MAKER SPACES





SOCIAL HUB / COLLABORATION



GROUND PLANE

















Western Michigan University Student Center + Dining Facility

CLIENT NAME:

Western Michigan University

PROJECT LOCATION:

Kalamazoo, Michigan

SIZE:

164,000 SF

COMPLETION DATE (for "Built" submissions):

06/30/2023

MARKET(S):

Higher Education

SERVICE(S):

Architecture, Interior Design, Planning, Structural Engineering, Environmental Graphics



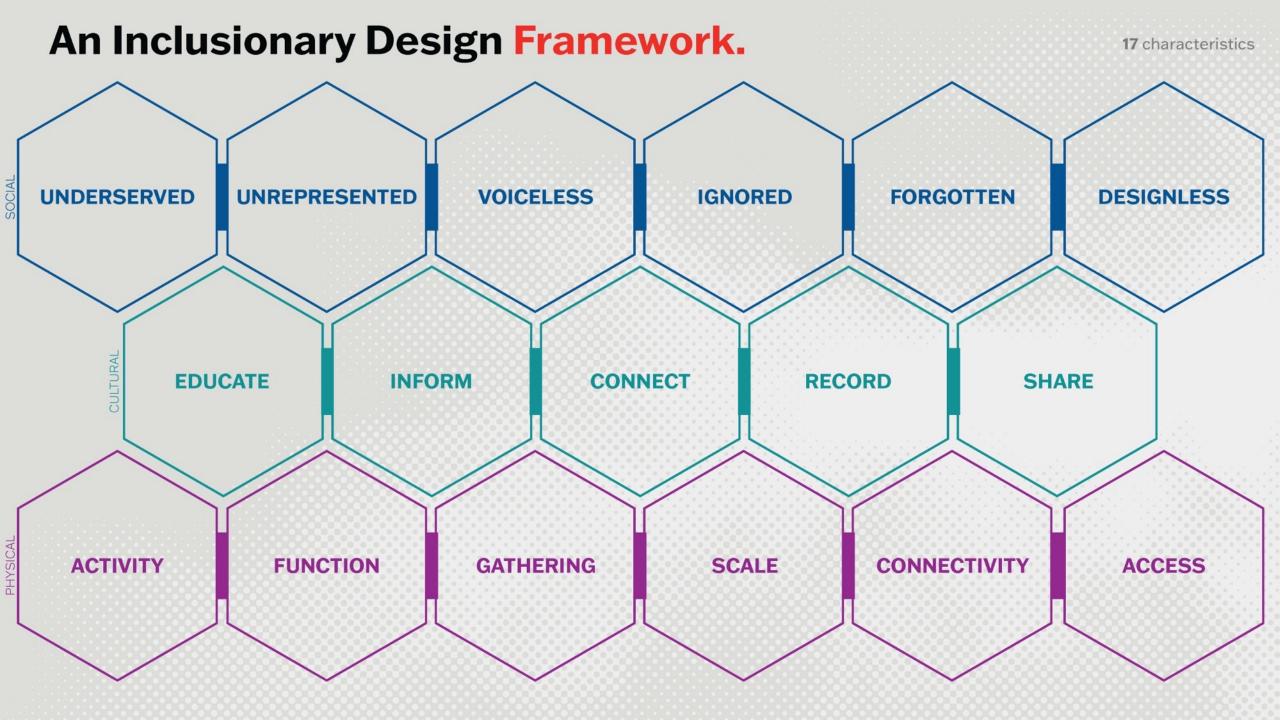










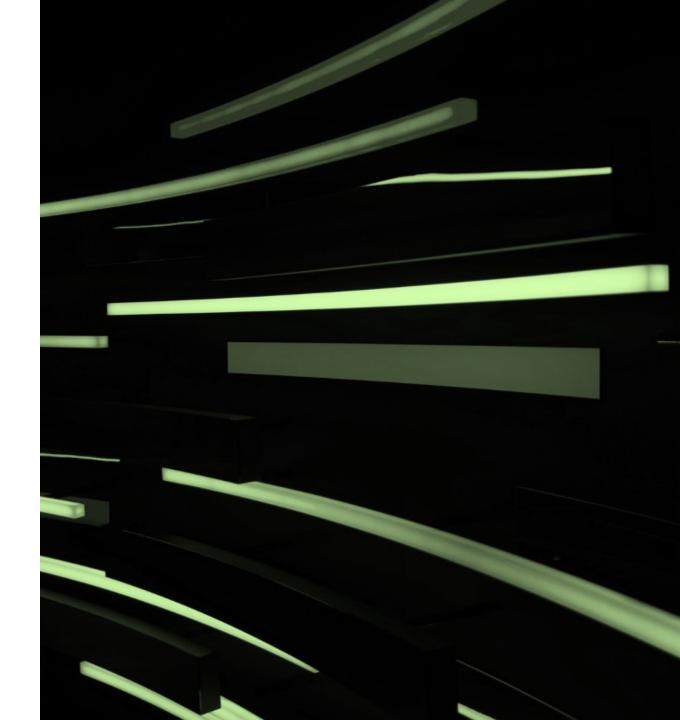


Cannon Design Research

"Research and the Built Environment:

A Holistic Look at Sustainability and DEI"

April 11, 2024

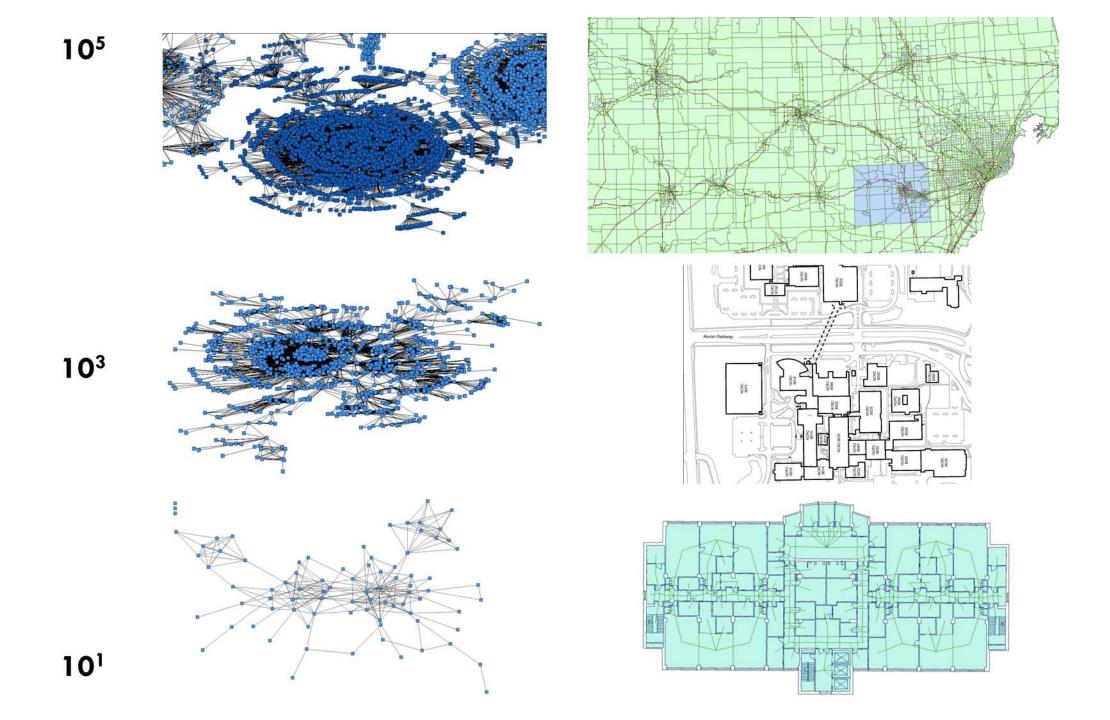




INCLUSIVE ENVIRONMENTS ARE MORE SUSTAINABLE

This is because of...
Place attachment
Social capital



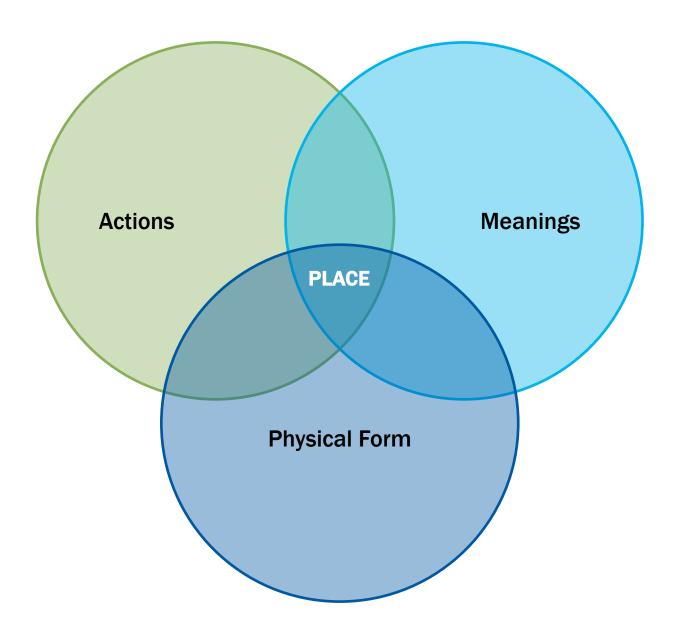


Inclusive environments are more sustainable because of

PLACE ATTACHMENT SOCIAL CAPITAL

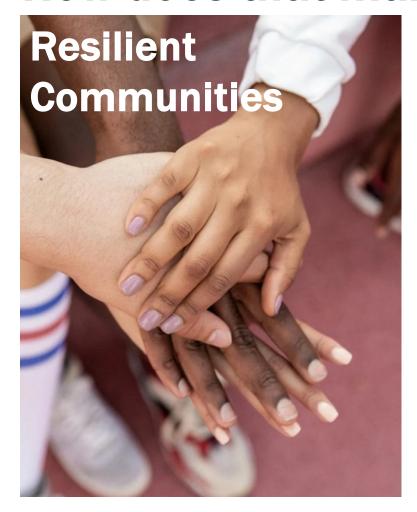
PLACE ATTACHMENT

The emotional & cognitive bonds people form with their surroundings, including the meanings, memories, & feelings associated with a specific place.

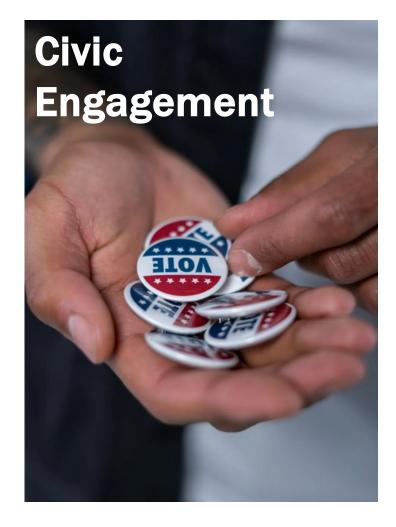


When people feel connected to a place, they are more likely to engage with it, care for it, and contribute positively to its well-being.

How does that manifest itself?







Inclusive environments are more sustainable because of

PLACE ATTACHMENT SOCIAL CAPITAL

SOCIAL CAPITAL

In a specific community is a resource or function of the networks of relationships among people who live and work there, enabling that community to function effectively. It encompasses several key aspects such as collective efficacy, trust, and social engagement. When social capital is strong, a community can effectively channel its human energy to address challenges, enhance well-being, and create a sense of shared purpose.

	COGNITION/TRUST	SOCIAL BEHAVIOR
INFORMAL	Trust in one's neighbors (sense of community)	Mutual assistance and information sharing among neighbors ("neighboring behavior")
FORMALLY ORGANIZED	Trust in the efficacy of organized collective action (empowerment)	Formal participation in community organizations (civic participation)

Graphic adapted from "Neighborhood Sense of Community and Social Capital: A Multi-Level Analysis," Perkins & Long, 2002

Four dimensions of social capital (Perkins & Long, 2002)

ASPECTS OF SOCIAL CAPITAL IN COMMUNITIES

TRUST & SOCIAL ENGAGEMENT

Bonding – common social backgrounds
Bridging – different social backgrounds
Linking – organizations and systems

COLLECTIVE EFFICACY

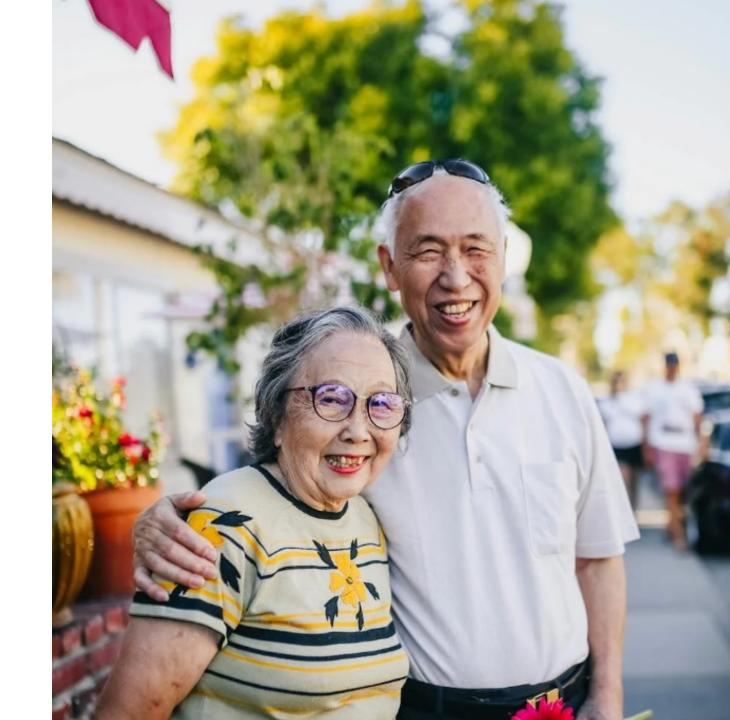
People believe they can make a difference



SOCIAL CAPITAL & SUSTAINABILITY

Social capital plays a significant role in fostering sustainable communities by how it shapes community resilience and proenvironmental behaviors. Potential mechanisms:

- Norms around pro-environmental behaviors e.g., recycling, energy conservation, sustainable consumption, etc.
- Participation & engagement in community events and environmental initiatives
- Trust in others & institutions



HOW DOES DIVERSITY RELATE TO PLACE ATTACHMENT & SOCIAL CAPITAL FORMATION?



BARRIERS TO INCLUSION

SYSTEMIC DISCRIMINATION	Segregation Exclusionary practices
CULTURE & LANGUAGE	Signage/wayfinding "Acceptable" use of space
SAFETY CONCERNS	Actual crime Perceived crime
ECONOMIC DISPARITIES	Housing Access Gentrification
HEALTH DISPARITIES	Environmental justice Limited green space Poor infrastructure
REPRESENTATION	Visible diversity Stereotypes
IDEOLOGIES, ROLES, & VALUES	Political Gendered



What's next

FUTURE RESEARCH TRANSLATION

EXAMINE LINKS FROM INCLUSIVE DESIGN,

PLACE ATTACHMENT, & SOCIAL CAPITAL

SOCIAL ASPECTS OF SUSTAINABILITY

Is inclusive design of the built environment related to higher social capital & sustainability?

Rogers, S. H., et al. (2013) Social Capital and Walkability as Social Aspects of Sustainability. Sustainability 5, 3473-3483 DOI: 10.3390/su5083473

Carmen, E., et al. (2022). "Building community resilience in a context of climate change: The role of social capital." Ambio 51(6): 1371-1387.

DESIGN PROCESSES

Are high CQ built environments correlated with stronger place attachment & sustainability?

Razem, M. (2020). "Place Attachment and Sustainable Communities." Architecture_MPS 17.





What's next

FUTURE RESEARCH TRANSLATION

Residents upset with greedy elites burned Teotihuacan

https://www.ancientorigins.net/news-historyarchaeology/residents-upsetgreedy-elites-burned-teotihuacan-002789



USING RESEARCH TO INFORM DESIGNING FOR







