



Consequential Design for the 21st Century

Valerie Fletcher, IHCD Executive Director
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Institute for Human Centered Design

Institute for Human Centered Design

An international education and design non-profit dedicated to enhancing the experiences of people of all ages, abilities and cultures through excellence in design.



www.HumanCenteredDesign.org

Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody.



Jane Jacobs

The Death & Life of Great American Cities

Design powerfully and profoundly influences everyone and our sense of confidence, comfort, and control.

2 core beliefs...

Variation in ability is ordinary, not special, and affects most of us for at least part of our lives.

What IHCD does to meet that mission. . .

in the US and globally

- ◆ **Education & Training** on Accessibility and Universal Design
- ◆ **Technical Assistance**
- ◆ **Consulting on Accessibility and Inclusive Design** (physical + digital)
- ◆ **Design Services** (physical + digital)
- ◆ **Research** - Contextual Inquiry with “User/Experts” in-situ

User/Experts

What is a user/expert?



- ◆ A **Primary user/expert** is a person who has developed expertise by means of their lived experience in dealing with the challenges of the environment due to a physical, sensory or brain-based functional limitation.
- ◆ A **secondary user/expert** is a friend, spouse, family member, service provider, therapist, teacher, or anyone who has extensive experience sharing life with primary user/experts and pays close attention to the interface with their environments.



Contextual inquiry occurs *in-situ*. ...

User/experts do whatever anyone else does in a particular environment while both engaging in dialogue but also being documenting.



Document. Document. Document.

(Photos, videos, notes, journals, etcetera. . .)

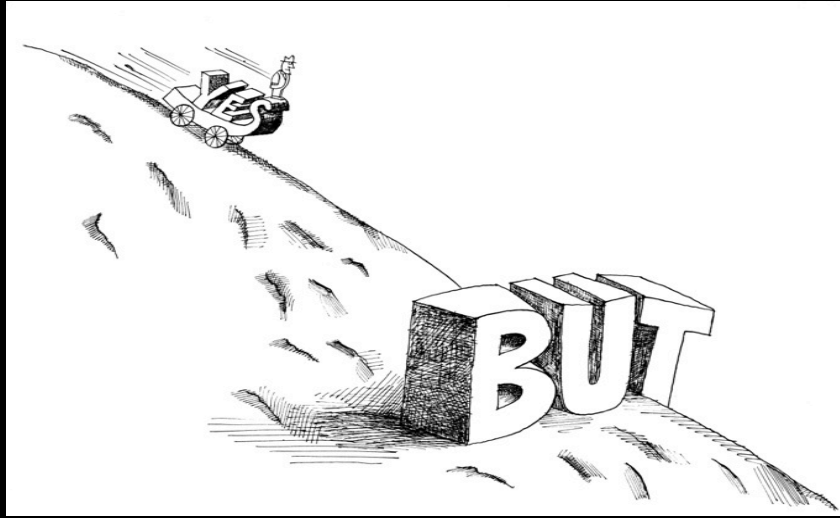


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The floor of
universal/inclusive design:
key issues from accessibility



Accessibility laws and codes recognize that design is a civil and human right for people with disabilities.



But, today two unintended consequences prevail:

- An assumption that there is a sharp line between 'us' and 'them'
- "Just tell me what I have to do" is adequate

Making the Case for Inclusive Design



20th Century Impetus Environmental Sustainability

Profound *NEGATIVE*
impact of long-term
inattention. . .



20th Century Impetus Social Sustainability

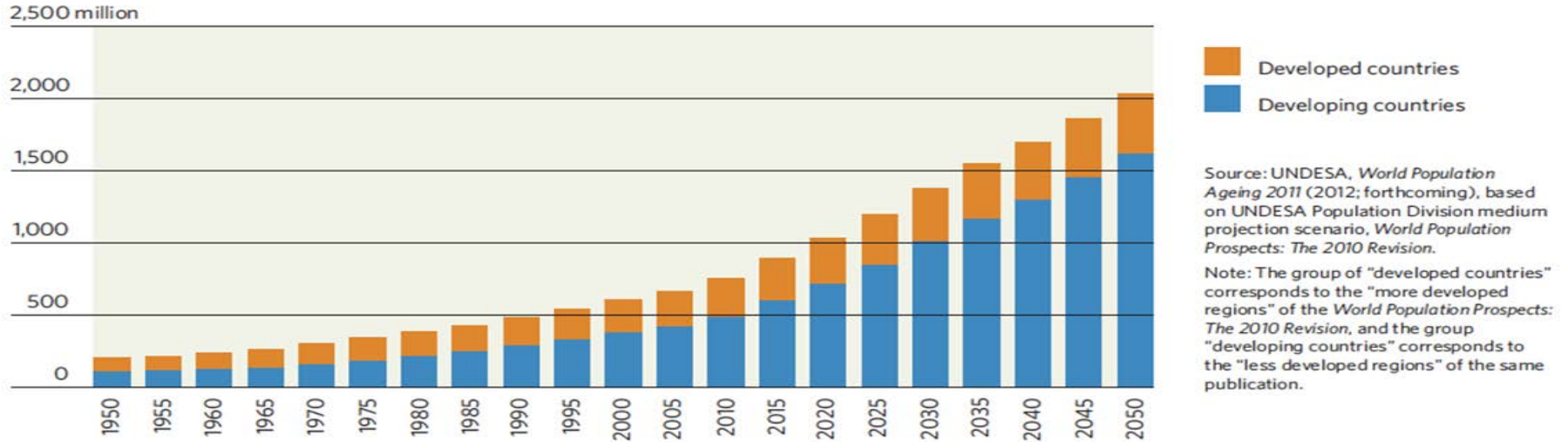
Profound *POSITIVE*
impact of human
behavior. . .

We live longer and
survive more - across
the globe



Global Aging #1 Catalyst

Number of people aged 60 or over:
World, developed and developing countries, 1950-2050



Source: UNDESA & HelpAge International
New York & London 2012



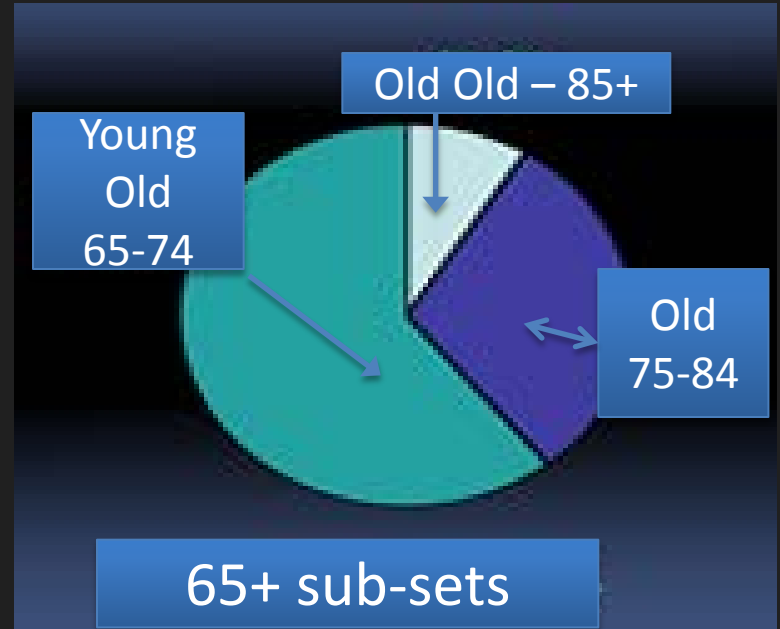
In the US, 10,000 baby boomers turn 65 every day until 2031. . .

Distinct sub-sets with different life experiences among people 65+ (US)

The "Young Old" 65-74

The "Old" 74-84

The "Oldest-Old" 85+

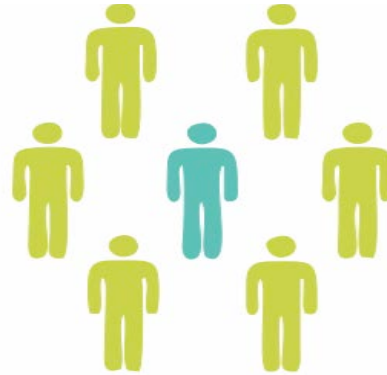


Disability - #2 Catalyst

WORLD REPORT ON DISABILITY



2016



one in seven people on the
planet have a disability

80% of them live in the
developing world



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A rising tide of brain- based conditions

Autism Spectrum Disorder

1 in 68 children has been identified with ASD (CDC)

Anxiety Disorders

40M US adults per year 18 and older

Alzheimer's Disease

5.4 M now

13.8 M by 2020



3 broad categories of functional limitation:

Physical

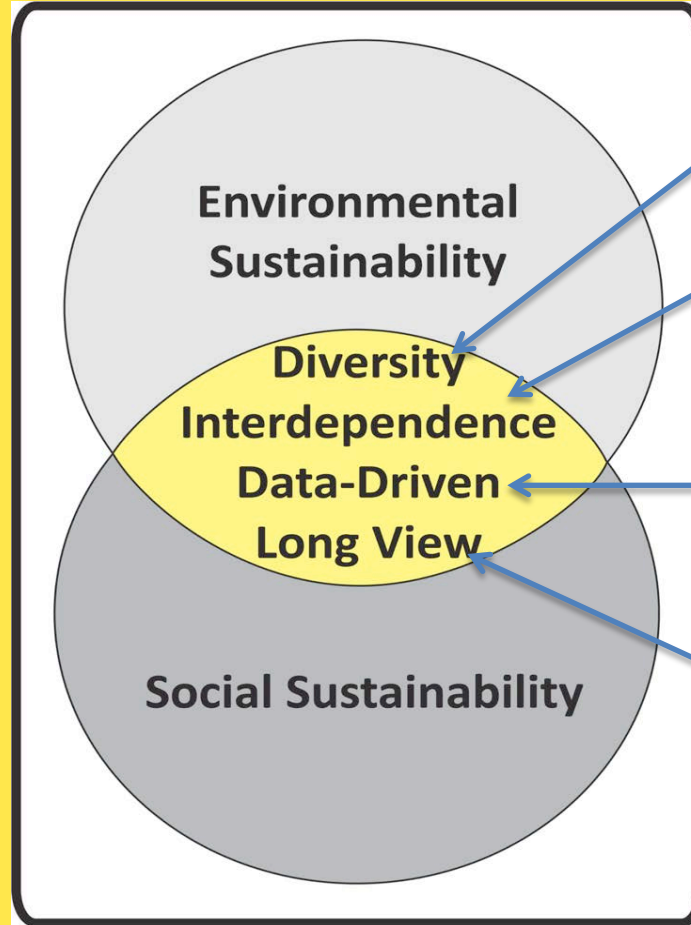
Mobility
Dexterity
Strength
Stamina

Sensory

Sight
Hearing
Speech
Touch

Brain-based

Learning
Developmental
Mental health
Cognitive
Brain injury
Substance Abuse



Ability, age, culture

**Collective good
fortune – numbers
argue for integration,
not special solutions**

**Data about people's
experience of what
works**

**Investment today is an
investment in the
future**

Universal Design - A response to a changed demographic reality

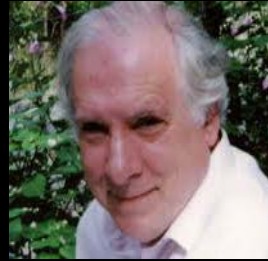


Two architects who had polio illuminated a new way to think about designing for people



Ron Mace, FAIA - **US**

Stressed the need to be clear about the difference between accessibility and universal design. Accessibility focuses on people with disabilities. UD anticipates human diversity and offers solutions at the general level.
1998



Selwyn Goldsmith - **UK**

Critiqued accessibility as “top-down” provisions for people with disabilities. He argued for a shift to a “bottom-up” way of thinking that *reframes normal* as anticipating diversity of ability.
2000



***universal design...
inclusive design...
design-for-all?***

...a framework for the design of places, things, information, communication and policy that focuses on the user, on the widest range of people operating in the widest range of situations without special or separate design...

***Human centered design
(of everything)
with everyone in mind***

Principles of Universal Design

Using the Principles of Universal Design one can better understand how good, thoughtful, design can affect all of us.

[Developed by a group of US designers and design educators from five organizations in 1997. Principles are copyrighted to the Center for Universal Design, School of Design, State University of North Carolina at Raleigh. The Principles are in use internationally.]

1. Equitable Use
2. Flexibility in Use
3. Simple, Intuitive Use
4. Perceptible Information
5. Tolerance for Error
6. Low Physical Effort
7. Size and Space for Approach & Use



UNIVERSAL DESIGN INDIA PRINCIPLES ©

Co-authors: Abir Mullick, Anjee Agarwal, Balaram S., Debkumar Chakrabarti, Gaurav Raheja, Haimanti Banerjee, Rachna Khare, Ravi Shankar and Shivani Gupta (In alphabetical order)

National Institute of Design, Ahmedabad



Disclaimer

1. The UDI principles are stand alone universal design ideologies that focus in Indianness and inclusivity as they relate to age, gender, disability, caste, class, religion, poverty and urban/rural background.

2. UDI principles neither make any connection nor build on the 7 Universal Design Principles. They recognize the overarching importance 7 Principles in the field of universal design.

	Principles	Description	Guidelines
1	Equitable/ Saman	The design is fair and non-discriminating to diverse users in Indian context	<ul style="list-style-type: none">• Avoid prejudices against people of all ages, gender, disability, sizes, caste, class and religion.• Consider different capabilities of users and build in many levels of engagement.• Provide choices in access and use thru flexibility and customization.• Allow personalization through inclusion of adjustable and adaptable options.• Provide equality in challenge, opportunity and energy requirement.
2	Usable/ Sahaj	The design is operable by all users in Indian context	<ul style="list-style-type: none">• Provide independence, comfort, safety and support during use.• Facilitate access, operation and convenience by diverse users.• Include adaptations for those experiencing difficulty in use.• Provide clarity in use, operation and maintenance to minimize instruction and avoid confusion and error.• Adopt simple means to overcome complex operation.• Follow cultural norms to address user expectations.• Offer multi-sensory feedback to point in the right direction.• Build in intuitive operation and innate understanding of problem.• Allow easy adaptation to facilitate use by people with diverse abilities.• Prevent costly mistakes and untended consequence from misuse.
3	Cultural / Sanskritik	The design respects the cultural past and the changing present assist all users in Indian context	<ul style="list-style-type: none">• Maintain social and traditional qualities in design.• Include Indian idioms to make historic and social connection.• Present in many languages for inclusive comprehension.• For all castes and society levels.• Respond to local context and conditions.• Employ appropriate technology to match user expectations.
4	Economy/ Sasta	The design respects affordability and cost considerations for diverse users in Indian context	<ul style="list-style-type: none">• Ensure affordability, durability and maintainability.• Use local materials for energy savings and cost effectiveness.• Focus on low unit cost through wide distribution.• Adopt modular approach to offer choice in features and price range.
5	Aesthetics/ Sundar	The design employs aesthetic to promote social integration among users in Indian context	<ul style="list-style-type: none">• Employ aesthetic to enhance universal appeal and use.• Allow personalizing aesthetics through flexibility, adaptability and modularity of colour, form, texture and interaction.• Employ appearance to inform use and safety.• Bridge wide range of meaning and comprehension gaps.

Global policies responsive to new
patterns & and the role of design



Redefined Disability in 2001 . . .

- ❖ Functional limitation as a *universal* human experience
- ❖ *Equalized* mental and physical reasons for limitations
- ❖ Defined disability as a *contextual* variable:
Functional limitation becomes disabling based upon the intersection of person and environments
 - ✓ *Physical*
 - ✓ *Communication*
 - ✓ *Information*
 - ✓ *Policy*
 - ✓ *Social/Attitudinal*



World Health Organization

Redefined Disability in 2001 . . . In the ICF and . . .

Recommended Universal Design as the most promising framework for identifying the “facilitators” that would go beyond barrier removal and accessibility to minimize disability and support independence and full community integration.



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[Adaptive Environments]



United Nations
Programme on Ageing

*towards a society
for all ages* 

Madrid International Plan of Action on Ageing (2002)

Priority Direction III:

Ensuring enabling and supporting environments



UN Convention on the Human Rights of People with Disabilities (CRPD) 2006



158 nations signed
137 nations ratified

- Respect
- Non-Discrimination
- Participation
- Universal design
- Equality



A few illustrations. . .

Across the spectrum of environments



A society that gives toilets their due is a society that values life.

Junko Kobayashi, Japan's #1 toilet designer



Subway Station



Children's toilet room - mall



2012 Olympics: impetus to inclusive multi-family housing. . .

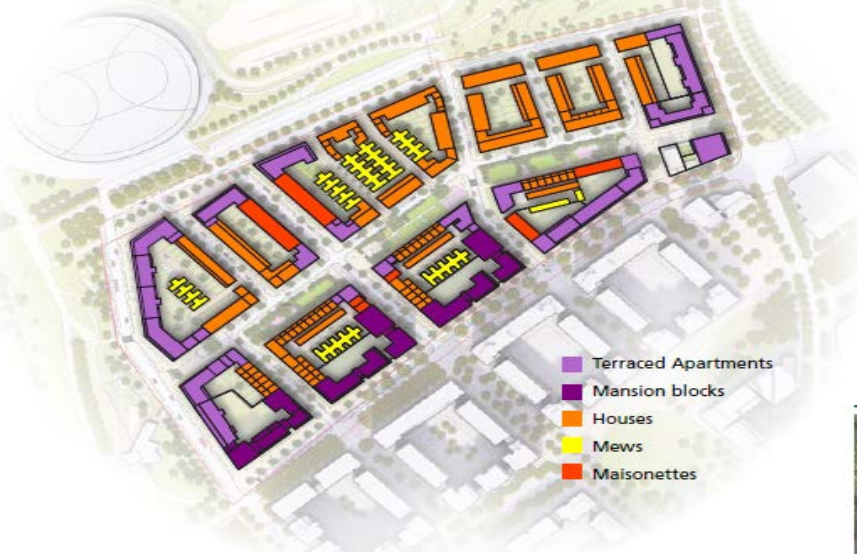


- ◆ A new beginning for East London
- ◆ More than 6000 people will move into the 2818 homes that make up the Olympic Village.
- ◆ 100% universal design
- ◆ 10% wheelchair accessible homes across all housing types



London Lifetime Neighborhoods – A place to live for all of life

Five Principal Housing Types



Chobham Manor – 850 homes

PRP

Courtesy: **Manisha Patel**
Director, PRP Architects

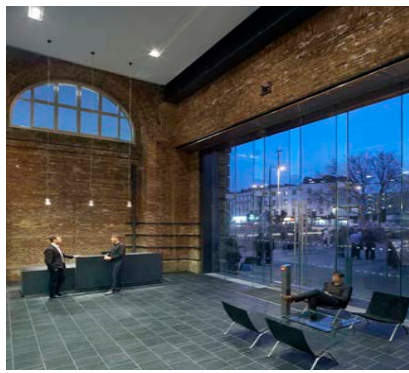


London's South Bank



JOHN McASLAN + PARTNERS

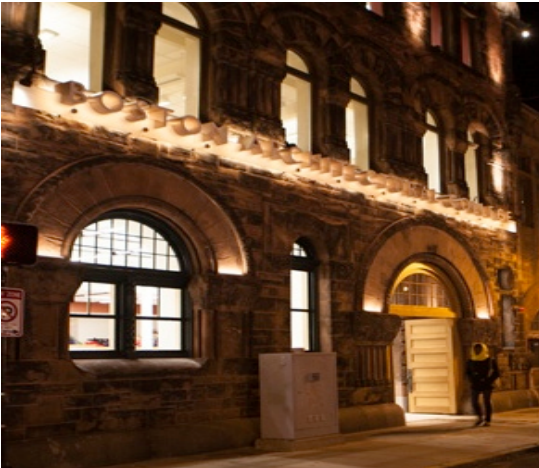
Kings Cross Station, London



The Western Concourse - Europe's largest single span station structure and the heart of the development – reconnects this much-loved Victorian terminus to its context. Acoustics good enough for music!



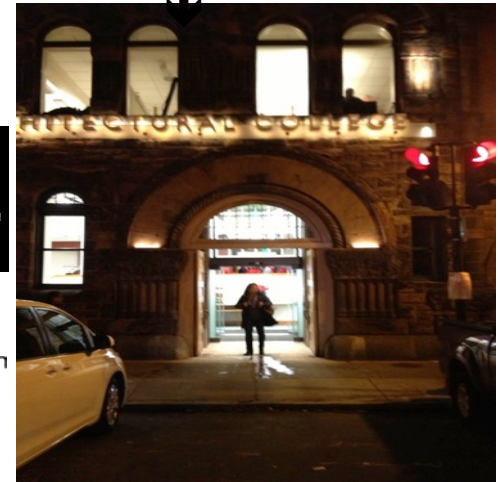
Balancing historic preservation, 'green' and inclusive



IHCD design project



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Adaptive Reuse in Toronto



Quadrangle 

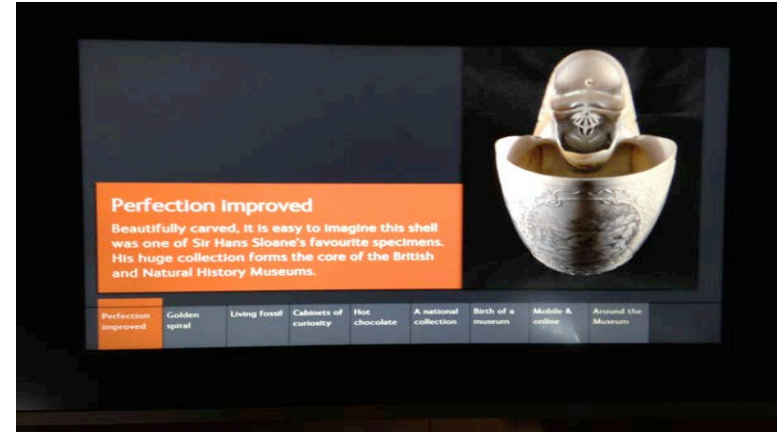


From
To
Via Inclusive
Design 2016





Treasures Gallery



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CHÂTEAU
DES DUCS DE
BRETAGNE
MUSÉE
D'HISTOIRE
DE NANTES



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Tao Payoh Sensory Garden

(former car park!)



Designer: Yoshisuke Miyake, SEN, Inc.



Singapore – Casa Clementi – Winner Gold UD Mark 2013



10 blocks ranging from 20 to 40 stories
2,234 units

Key Features

- Extensive tenant participation
- Pedestrian network connects all
- “Tree-top Walk”
- UD in all public spaces, accessible and elder-friendly integrated throughout
- Block massing design provides a sense of spaciousness and good way-finding.



Avenue Paulista, Sao Paulo



↑
Campaign to
eliminate
one-step
entrances



←
Locally designed
and built pre-fab,
low-cost curb cuts



Nantes, France



Historic City
Hall swapped
stairs for an
elevator in
the tower



Bordeaux Light Rail - 3 lines, 89 stations



Winthrop/Williamson Home



IHCD-designed home integrates physical & smart home features for a man with ALS + his family

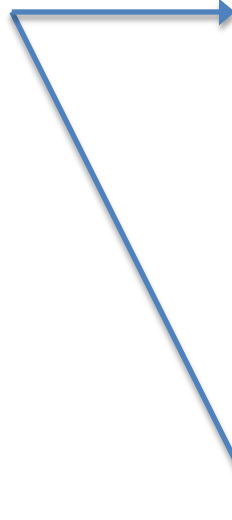


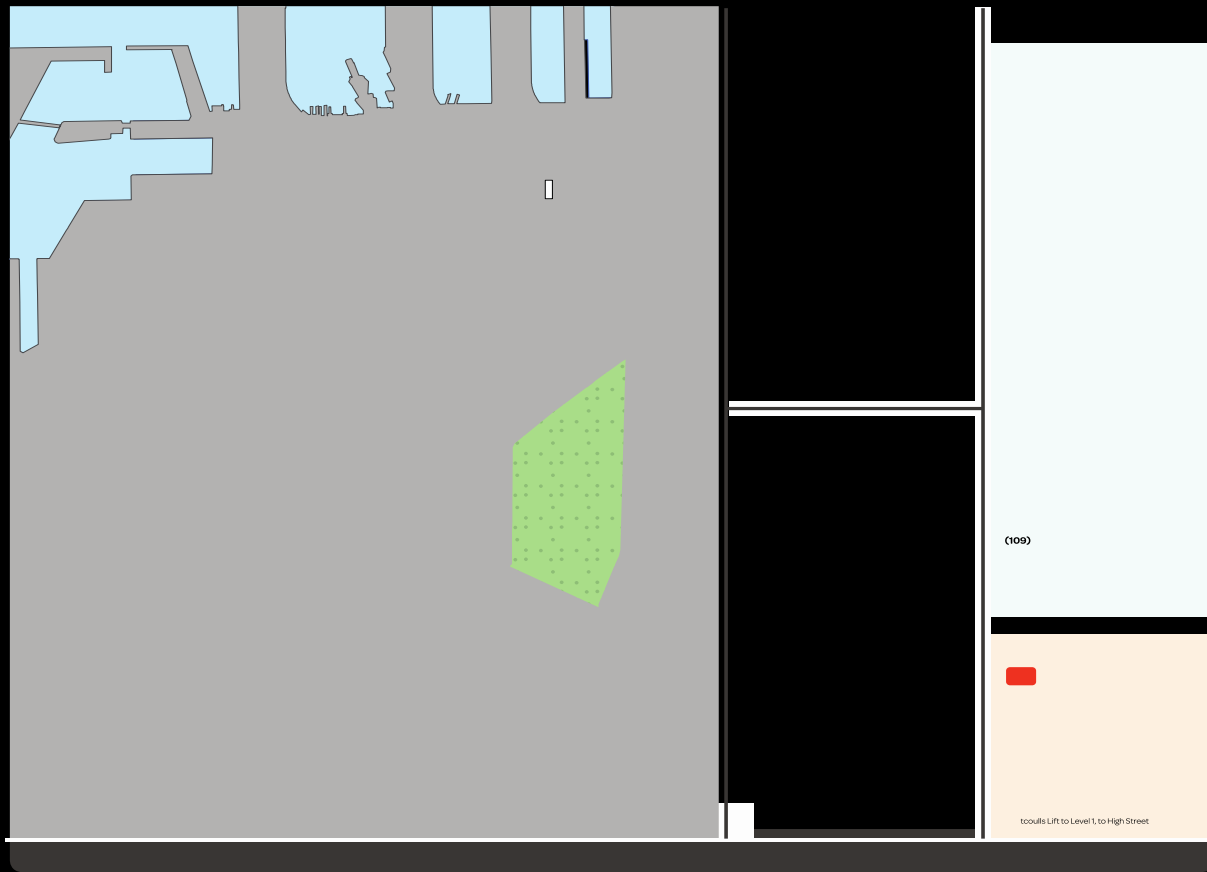
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accessibility



Inclusive Design



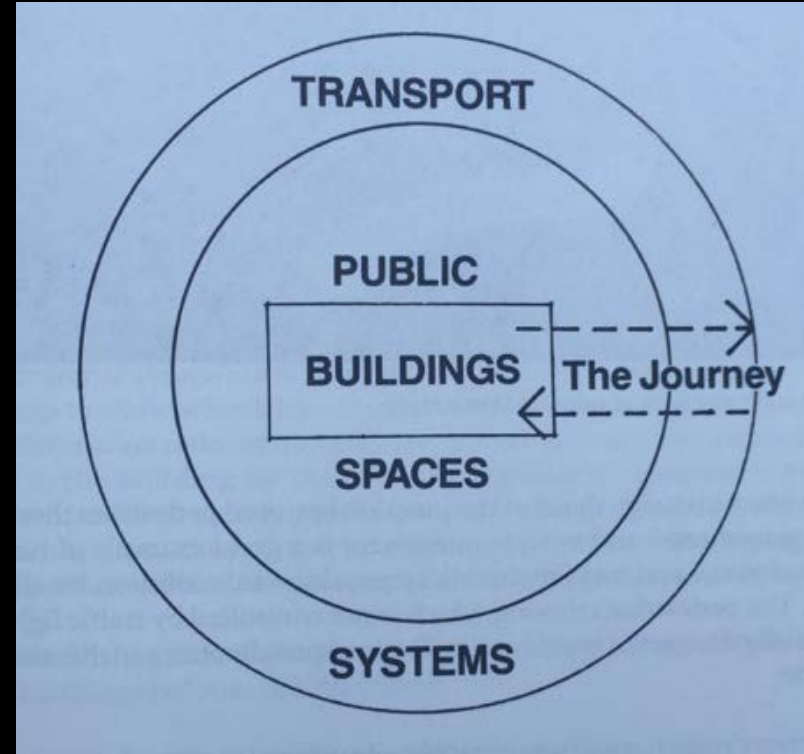
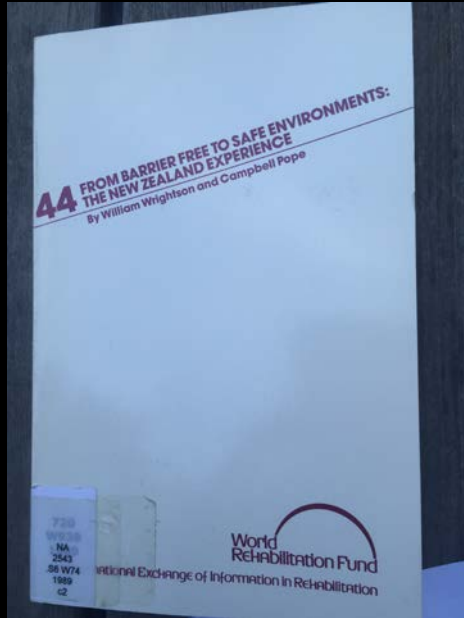


Great example of
an information
environment!

Strategies . . .



Theoretical path of travel plan to
evaluate the effectiveness of the built
environment



1989 Book from the IHCD library

Plan Review – a vehicle for building capacity among architects and designers



IHCD's Design Review Method

Compliance (with minimums of mandated laws and standards.

Improved Usability - this is beyond requirements but builds from elements that are in accessibility standards (e.g., 70% contrast rather than just finish & contrast, expanded turning radii, making a ramp condition into an inclined walkway).

Universal/Inclusive Design - elements that do not start from the standards and that create 'facilitators' or enhanced experience and that informed by a mix of user data, precedent and research (e.g., adding benches in outdoor environments, lighting to enhance circadian rhythm + optimize performance, acoustics, wayfinding).



Where do we go from here?

Impediments. . .

Making the Business Case

Build awareness and appetite among the clients and the public. Attitudes toward disability and aging remain fixed in too many places as being about care-giving, doing the right thing instead of understanding that this is design responsive to the human condition in the 21st century.



Change Design Education

Universal Design is about designing,
about imaginative engagement in creative
solutions. Universal Design needs to be
integrated into the core curriculum for all
design disciplines and into a choice of
studio courses.



Impediments. . .

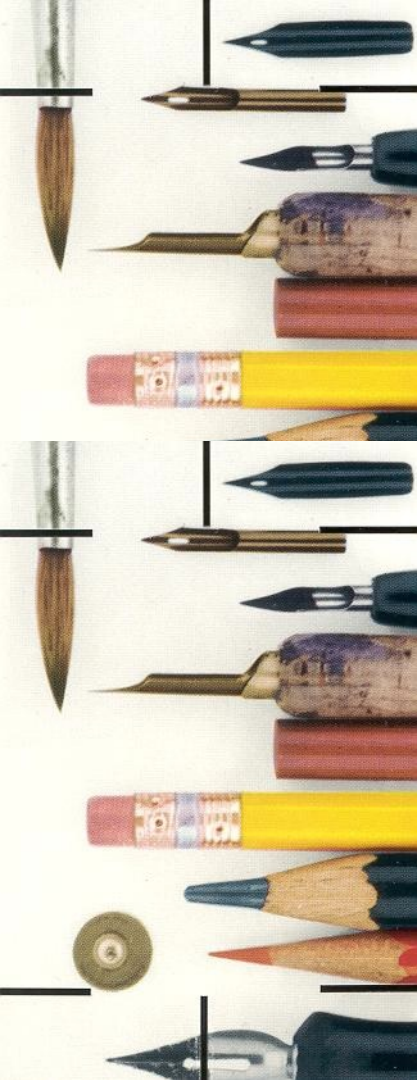
Infiltrate

Design Thinking to promote design that makes a difference where it matters.

User Experience Design + User Interface Design

Well Standards

Active Living by Design



Impediments. . .

Design Research

Precedents, models and case studies are valuable but inadequate alone. We need to stimulate research that can inform the design process. To do so, it will be necessary to engage a much larger and more diverse group of user/experts than anyone is using today.



Thank you!
Questions?