PILOT RESEARCH PROJECT I
Toronto Community Housing Corporation
&
OCAD University
Launch of Research Project I:
Inclusive Wayfinding in the Social Housing Context

“Our goal is to build a foundation of research that will be critical in meeting the requirements of the AODA legislation, and will help lead new innovation to meet Ontario’s goal to become a fully accessible society”

-President Sara Diamond

OCAD U Partners with TCHC Spring 2010
Two Key Objectives

- Enhancement of TCHC approaches and strategies for implementation of inclusive design to meet the diverse needs of its community while addressing new legislative requirements.

- Enrichment of OCAD U student experience in participatory methods within applied design research related to the range of accessibility issues in the social housing context.
Goals of Pilot Project I

- Researchers undertake a variety of research methods in a collaborative framework using common spaces at Moss Park Towers as a study base.
- Capture environmental and occupant data for residents and other users of diverse abilities with a focus on wayfinding and its inherent ambient experiences.
- Develop a series of inclusive design strategies for implementing enhanced wayfinding and navigation at Moss Park.
- Lay the groundwork for further phases of research, testing and preliminary design eventually leading to Guidelines and Best Practices for TCHC use in further stages of planning and design development.
Toronto Community Housing Corporation
Ms. Elizabeth Jassem-Manager Universal Accessibility
Moss Park resident’s association and facilities managers

Accessibility Implementation Committee, TCHC
Members from TCHC Communities across Toronto
representing a diverse range of abilities and experiences
in activism in social housing contexts

Committee Advisors
Senior members of TCHC Administration and it’s
Partners including:
Ontario Federation for Cerebral Palsy
Balance for Blind Adults
Community Access Facilitators

Research Team-TCHC
Project Director
Doreen Balabanoff, A/Dean Faculty of Design

Prime Investigator
Cheryl Giraudy, Associate Dean Faculty of Design

Research Assistants (RA)
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Research Team-OCAD U
Inclusive Design Research Centre, OCAD University
Professor Jutta Treviranus, Director & Founder ATRC
Dr. Jorge Silva, Adaptive Technologies Resource Centre

Orfield Research Laboratories, Minneapolis Minnesota, USA
Architectural Research Group
Steve Orfield, President
Wes Chapman
Mike Role

Research Advisors
Research Approaches included:

- **Engaging in Innovative Practices** which address the wide range of accessibility needs of residents within dense urban and low-income contexts

- **Welcoming AIC participants** and advisors to OCAD U to engage, observe and work with researchers in an academic environment

- **Broadening data and information capture** to include surrounding/adjacent contexts such as streetscapes, transit routes and commercial facilities outside of the Moss Park Tower complex

- **Creating a Sharepoint research site** to work collaboratively in real-time with participants and advisors, and build data base for inclusive design precedents, readings and links
A Starting Point

- Demographics in developing world show longer life expectancies, reduced or moderate birth rates leading to increased population of older adults

- Advances in medical science between two World Wars and other conflicts have contributed to a large population of veterans with disabilities integrating into communities

- Independent living or assisted community living for both the aged and the disabled is a normative approach and human rights issue for all countries. “Life Span” or “Trans-generational design”

Changing Demographics

Source: The Inclusive Design Toolkit, UK
A Shift in Thinking:

- The view that people are disabled by physical impediments, is replaced with the concept that people are ‘disabled’ by environments that do not take into account full range of human capabilities.

- A realization that many of the environmental changes that were implemented to accommodate persons with disabilities actually benefit the greater population.

- Understanding that inclusive design is a more dynamic and iterative process than current practices may engage with.

“[Inclusive Design] is the design of mainstream products and environments that are accessible to, and usable by, as many people as reasonably possible without the need for special adaptation or specialized design” – British Standards Institute 2005
Seven Principles:

- The design does not segregate users but is usable by everyone
- The design accommodates a wide range of abilities
- The design is easy to understand and use
- The design communicates necessary information accommodating different sensory abilities
- The design has tolerance for error
- The design can be used comfortably without fatigue
- Appropriate size and space provided for reach and manipulation, regardless of user’s body size, posture or mobility

“Inclusive Design Principles

“&bldquo;The principles relate as much to the design process as to the final product and equally to management, operation and information”

- Commission for Architecture & Built Environment (CABA)
Wayfinding

Kevin Lynch, planner, urban designer referenced “wayfinding” in his 1960 book “The Image of the City” Lynch observed how people perceive and understand spatial information as they navigate through cities. People form mental maps of cities with five key elements:

- **Paths** streets, sidewalks
- **Edges** walls, buildings
- **Districts** Large sections of city with distinguishable characteristics
- **Nodes** focal points, intersections
- **Landmark**: identifiable objects that serve as reference points

Photo source: MIT Press

Wayfinding Resources
Wayfinding in Architecture


- Expanded the definition and concepts of wayfinding for graphic communication including signage, colour, tactile and auditory cues, as well as form to navigate the built environment
Engaging Moss Park in Research Project

- Moss Park selected because of the density and rich diversity of cultures, age groups and abilities, with a strong, engaged and concerned resident population
- Will undergo a major revitalization in the coming decade and is part of a continuum of changes and developments in surrounding neighbourhoods including Cabbagetown, Corktown and the Garden District
- Moss Park offered a unique setting and opportunity to investigate wayfinding in urban context with city park, range in scale of housing and built form, diverse travel routes, pathways, transit and vehicular access and parking/and pedestrian interfaces, etc.

Research at Moss Park
Participatory Research at Moss Park

- OCAD U researchers join accessibility committee at 275 Shuter Street Moss Park to share their backgrounds, areas of interest, as well as learn of participant’s expectation, interests and suggestions for research collaboration

- 16 Week effort during Spring and Summer 2010, meeting with participants weekly at Moss Park and OCAD U campus
On-Site Observations

- Researchers spend several days documenting Moss Park facilities and engaging with residents and the AIC participants

Photo source: c.giraudy
Environmental & Building Performance Data

- Daylighting
- Lighting
- Acoustics
- Thermal Comfort
- Indoor Air Quality
Environmental & Building Performance Data

- Data capture at 246 Sackville, Regent Park
- TCHC buildings at Regent Park were used for comparison purposes and allow a benchmark with a newer high density facility
- Findings indicated that both facilities faced environmental challenges based on location, proximity to vehicular traffic, exhaust and noise

Research at Regent Park
Participants join researchers at OCAD University

- TCHC AIC participants join weekly working sessions and tactile and auditory juries to brainstorm, Skype with Orfield Laboratories and hear of updates with the research and findings

Photo source: c.giraudy

Research at OCAD U
Open House and Charette at Moss Park

- Researchers and Participants engage in series of route analysis, brainstorming session during day long session in the “Bubble Room”
- Building maintenance, security, facilities management and tenant representatives join in discussion about how well Moss Park towers serve residents
Pathways & Approaches to Moss Park

- **Pathway, Landmarks and Built Form**
  Observations made for surfaces, finishes, colours as well as markers, auditory and tactile cues for wayfinding around and through Moss Park grounds

- Participants share experience of using existing paths, routes to get through Moss Park buildings including experiences with entrances and service areas
**Interior Path Analysis**

- Participants and researchers navigate existing corridors, elevator lobbies as well as common rooms and service areas.

- Observations include the need for a variety of lighting conditions, auditory cues and comprehensive graphic communication strategies to engage and serve a range of user needs.
Night Route Analysis

- Night time observations were made between 6:00 pm and Midnight, however, researchers felt this needed more study in future phases of research work.
Visual Jury

- Visual Jury is a pre-cognitive method to capture user preferences employing bi-polar attribute scales to express conceptual opposites that can be used for ranking images of various situations.

- The test is well established in psychology and is considered to be a pre-verbal test of feelings and associations produced by the stimulus set.

- Orfield Laboratories tutored the Research Assistant on the methods for Visual Jurying, and are helping to develop Auditory and Tactile jurying processes.
Visual Jury Analysis

- On average, ranking for all visual samples, for those with a stated disability, ranked the visual samples lower on the semantics scale i.e. confusing, unsafe, awkward, anxious and difficult.

- Using a combined metric that represented the responses for unsafe, awkward, anxious and difficult, this relationship was very clear, and this may be a useful construct for having an “anxiety grouping” of semantics in future Visual Juries and research with TCHC participants.

- This jury suggests the need for a separate study to develop benchmarks for inclusion of disabled populations.
Hierarchy of Recurring Issues and Themes

- Safety of surrounding community and approaches to facilities
- Accessible Travel (Navigation & Transition between spaces)
- Signage (Orientation and Cues)
- Community Spaces (activities, engagement /connection to streetscape, pathways)
- Facilities (planning, architectural details and operations)
- Perception (Environment, Senses)
- Technology (Adaptive/Embedded, Digital)
Entry

Access to information and emergency services
Waiting area, both exterior and interior
Smooth ground surfaces
Traction on ground surface, non-slip ground materials (consider ease of maintenance)
Seasonal considerations (i.e. water and snow removability)
Signage/Notification system that announces with both auditory and visual feedback
Door handles that are easy to use, with Braille technology for location information
Inform, empower and welcome
Technology activated by the user (i.e. Digital signage)
Human presence vs. surveillance (reference to love park)
Well lit inviting entrance during evening
Access to emergency services
Transparency of surroundings
Clear paths to entry: accessible transition, [tolerance] multiple paths to entry from all approaches
At transition points: create accessible change in path, alternate access than stairs where applicable
Accessible opening: door with automatic technology, large enough for mobility device and service animal
Space in vestibule: allow room for two mobility devices to manoeuvre past each other, people to gather while waiting

Photo & Image source: Research Team
OCAD U

Mapping Emerging Themes
Design Precedents matched to Emerging Themes

- Accessible and Safe Travel (Navigation & Transition to and from, and between spaces)
Design Precedents matched to Emerging Themes

- New or advanced materials for safe travel

Durable Paths
The Bera® Gravel Fix® has a honeycomb structure. Designed to provide a stable and strong base for application on footpaths, car parks and driveways.
Design Precedents matched to Emerging Themes

- Orientation, auditory, tactile and graphic communication

Seattle Public Library
Signage in flooring, glow in the dark lettering

International Precedents
Design Precedents matched to Emerging Themes

- Orientation, communication clarity of navigation

Office for Metropolitan Architecture (OMA) Use of large numbers for identification, incorporation of seating, treatment of flooring tactile paths within this.
Design Precedents matched to Emerging Themes

- Community engagement and connection
- Creative, dynamic events, installations that help identify neighbourhoods and social spaces

Artist Willi Dorner, *Bodies in Urban Spaces* dance/performance troupe Inaugural performance at the 2008 Live Arts Fringe Festival, Love Park, Philadelphia USA

International Precedents
Design Precedents matched to Emerging Themes

- Assistive & adaptive technologies to enhance physical, sensory and cognitive abilities for persons with disabilities......and help participants function independently in otherwise inaccessible environments
Design Precedents matched to Emerging Themes

- Community space and engagement, materials, and products with embedded technologies

**Helen Hamlyn Centre**, London—Coloured memory foam for as part of checkerboard inlaid with pressure activated sound tiles

**Ambient Glow Technology**, non-toxic photo luminescent aggregate

**Glow in Dark Lettering**, various

**Karcher Designs**, Germany—Stainless steel lever handles with Braille
Design Schematics - Key Wayfinding Themes

- Transit Shelters - weather conditions must be considered and provide cool/fresh air in the summer, and warmth in the winter. Doors could feature automatic openers and sensory lighting system may promote safety for nighttime Wheel-trans appointments.

- The images shown are illustrations of a shelter for multiple mobility devices and users requiring seating.
Design Schematics- Key Wayfinding Themes

- Concepts for clear graphic communication that also serve to save travel in case of emergencies including use of photo luminescence, high contrast, colour, texture, tactile and auditory cues, building in both accessibility and redundancy where needed.
Design Schematics - Key Wayfinding Themes

- Concepts for wayfinding using garden and landscape elements that propose sensory cues such as flower beds, motion activated lights and sounds, air movement, etc.

- Design strategies improving wayfinding through pathways, entrances, with new surface materials and building finishes that support accessible and mobile devices and needs of various users.
Design Schematics - Key Wayfinding Themes

- Community spaces which allow for a multiplicity of activities at the interior and exterior of housing facilities assist in overall wayfinding, safety and resident engagement.

- Colour is one way to introduce identification and animation to common spaces

Preliminary Design Schematics

Image source: Research Team OCAD U
Report of Pilot Project I Underway

- 1,500 files created and housed at an online project site

- Orfield Laboratories have been completed the Environmental and Perceptual data analysis, identifying new key areas related to ‘wayfinding and anxiety’ in housing complexes to consider for further research

- New Tactile and Auditory jury methods to capture user’s preferences are being developed

- Engagement with AIC members, Advisors, and Researchers over a 16 week project timeframe has yielded key emerging and recurring themes as well as preliminary design strategies & approaches for improving wayfinding in common areas

- Discussions underway to engage in Pilot Project II to test and assess 1-2 of the proposed design strategies in TCHC facilities

Progress of the Work