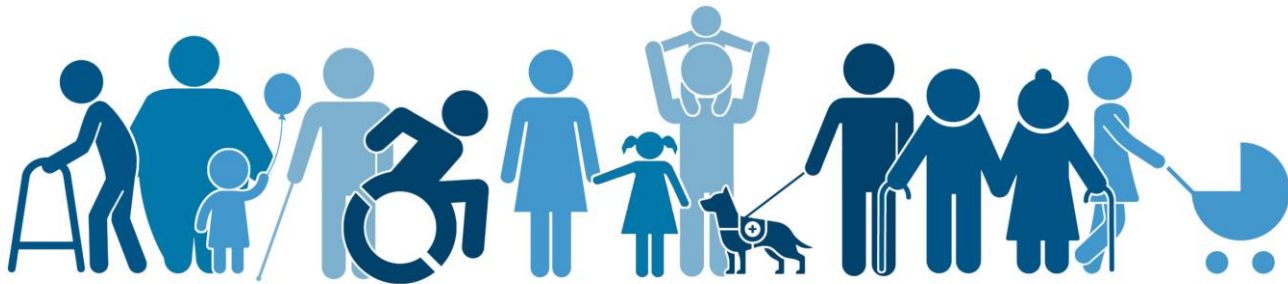


WEBINAR

SPACE PLANNING FOR ACCESSIBILITY



APRIL 25, 2024

INTRODUCTION

- **Andrew Chow**, *P.Eng., M.Eng., RHFAC Professional*
 - Leader of the Accessibility Practice at Roth IAMS
 - 10 years of accessibility audit experience
 - Responsible for creating methodology and approach for accessibility audits at Roth IAMS
 - Rick Hansen Foundation Accessibility Certified

- Supported by:
 - **Johnny Moore**, *NCBDC, CPBD, ACTCP*
 - Designer specialized in ADA and National Council Building Designer Certified
 - ADA Coordinator Trainer Certification Program (ACTCP) Co-Ordinator
 - **Michael Novick**, *RA, AIA*
 - Registered architect with decades of ADA experience
 - **Sanaul Sarker**, *B. Arch, RHFAC Professional*
 - Other experienced accessibility practitioners, some with RHF Certification



INTRODUCTION

■ Company Overview

- Over 100 full-time staff across Canada and the US
- Architects, Accessibility Practitioners, Engineers, Technologists, etc.
- Collaborative Procurement: In partnership with OECM and Canoe/Sourcwell

■ We Provide

- Integrated solutions
- Consistent & defensible data

Asset Management

- Asset Management Planning
- Capital Renewal Planning
- Asset Management Database Maintenance
- Asset Management Software
- Data Mining and Analytics

Asset Data Collection

- Facility Condition Assessments
- Energy Auditing and Consulting
- Asset Inventory and Tagging

Facilities Management

- Preventative Maintenance Planning
- Facilities Management Plans and Consulting
- Green Building Strategies, Policies and Procedures

Building Performance

- Building Performance Check-Up
- Commissioning
- Re/Retro-commissioning

AGENDA/OUTLINE

- **Overview of Disabilities**
 - Types
 - Demographics & Trends
- **Addressing Disabilities Through Space Planning**
 - Legislative Standards (Building codes, Acts of Legislation)
 - Design Guidelines by Organizations (CSA, Rick Hansen Foundation, etc.)
 - Path of Travel
 - Building Element Upgrades
- **Implementation of Accessibility Improvements**
 - General Approach
 - Multi-variable Prioritization





OVERVIEW OF DISABILITIES

OVERVIEW OF DISABILITIES



Image source: freepik
<https://www.impactguru.com/blog/International-Day-of-People-With-Disabilities-How-Can-I-Help->

- How many of us have a disability?



Image source: Raised Hands
<https://www.publicdomainpictures.net/en/view-image.php?image=450195&picture=raised-hands-clipart>

OVERVIEW OF DISABILITIES

- Oftentimes, we limit accessibility to wheelchair access only
- We emphasize on creating space for mobility



Image source: International Symbol of Access (ISA) and Modified ISA
https://en.wikipedia.org/wiki/International_Symbol_of_Access

VARIOUS DISABILITIES



Image source: <https://greatcareers.org/neurodiversity-in-the-workplace-and-international-day-of-persons-with-disabilities/>

- Other disabilities to consider:
 - Vision
 - Hearing
 - Pain-related
 - Neurological

We must understand the disabilities that need to be addressed before we can make plans for the space.

VARIOUS DISABILITIES



Some other “disabilities”

- Injury or illness
- Inconvenience



Most likely, we will be affected by a disability in our lifetime.

TYPICAL ACCESSIBILITY PLANNING

- We often think that accessibility needs are limited to:
 - Seniors
 - Specific groups or requests

- Space planning is focused on addressing the above groups

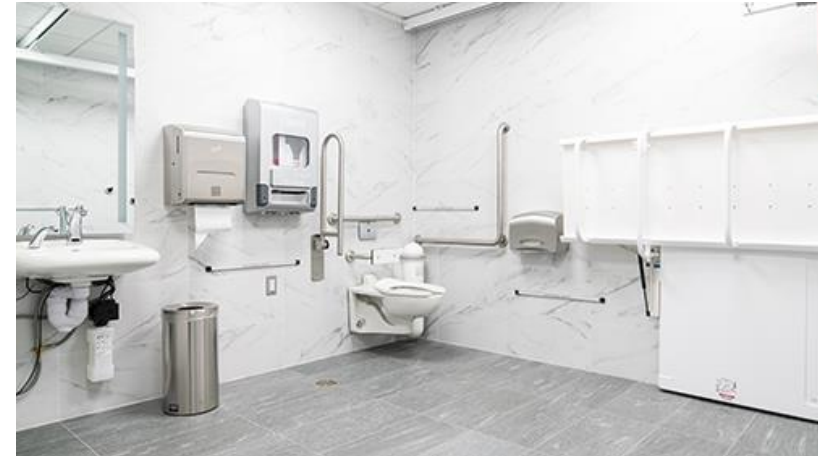


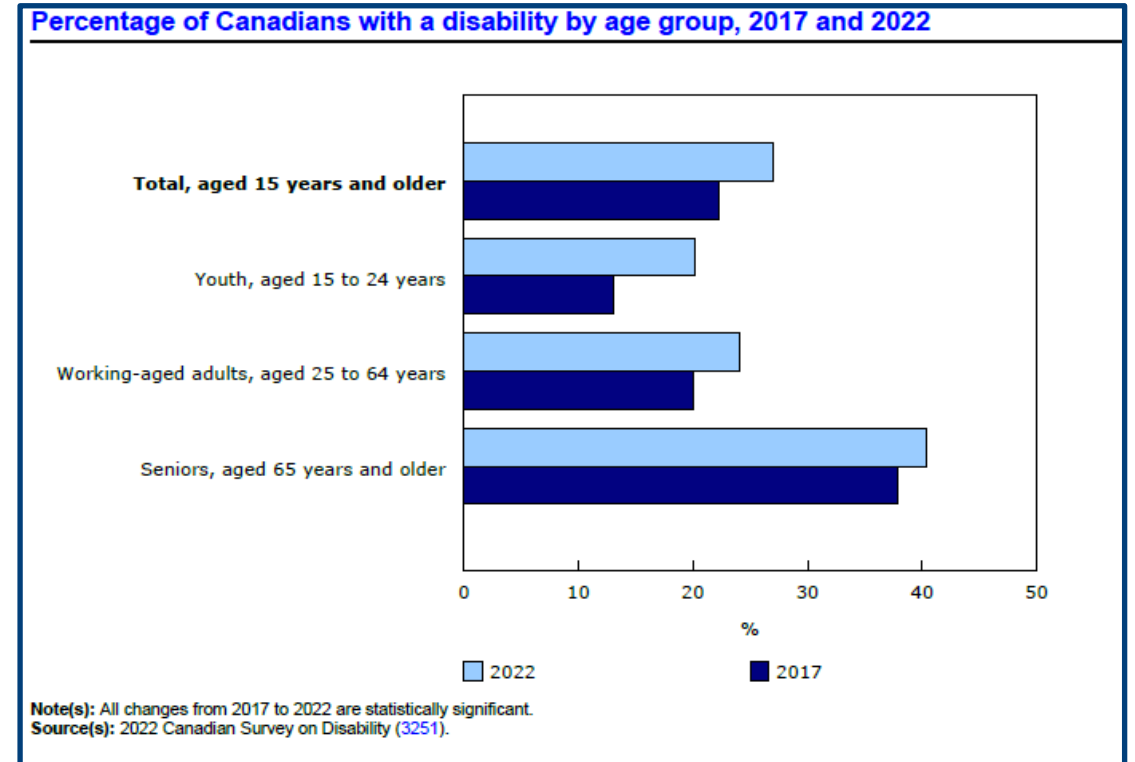
Image source: Hart House Universal Washroom
<https://harthouse.ca/blog/hart-house-thanks-utsu-for-universal-washroom>



Image source: Billable Services In THE HCS Program
https://togetherconsulting.com/event/icaps-lons-idrcs-hcs-txhtml-icf-2-3/?instance_id=2136

DEMOGRAPHICS

- According to Statistics Canada:
 - 27% of Canadians have a disability (Approx. 8.0 million)¹
 - Youth (aged 15-24 years) experience the largest increase in disability rate (from 2017 to 2022)

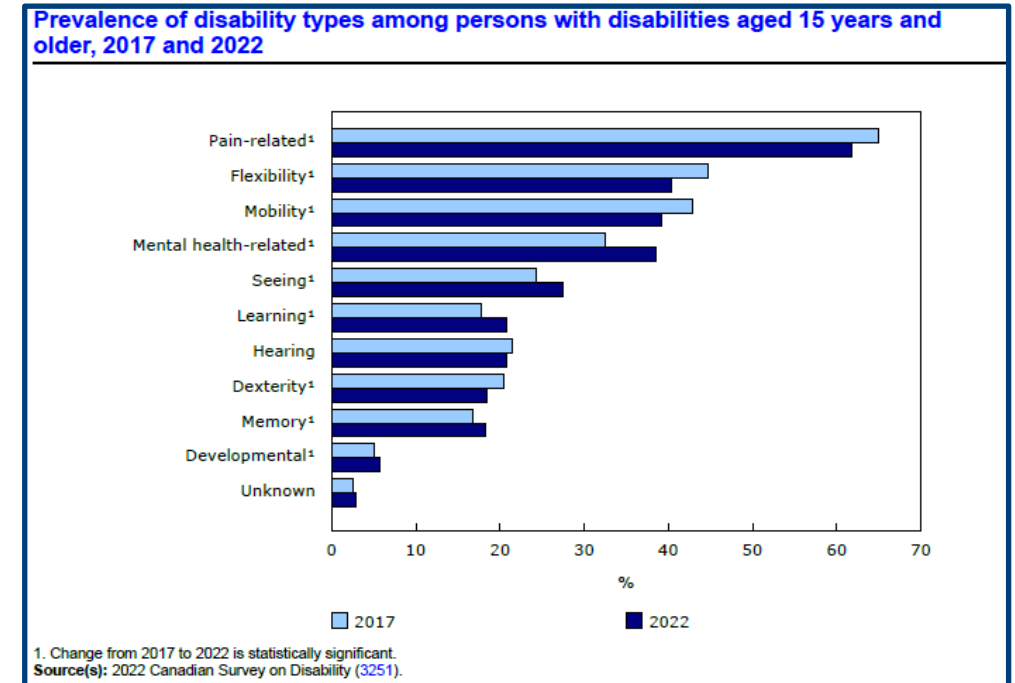


A significant part of the population and a wide range of ages face challenges from disability.

1. Statistics Canada. Persons with and without disabilities aged 15 years and over, by age group and gender
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310037401>

DEMOGRAPHICS

- According to Statistics Canada:
 - Most common disabilities by age group
 - **Youth:** Mental-health and learning
 - **Working-age:** Mental-health and pain-related
 - **Seniors:** Pain-related, mobility, and flexibility



We need a space to accommodate as many disabilities as possible.

Plan



SPACE PLANNING

TO ADDRESS ACCESSIBILITY NEEDS

OBJECTIVES

- Address a broad spectrum of disabilities if possible
 - Mobility is still an integral part of accessibility
- Unless the facility is for a specific age group, improve spaces for as many people as possible
- Meet legislative requirements
- Respond to human rights requests



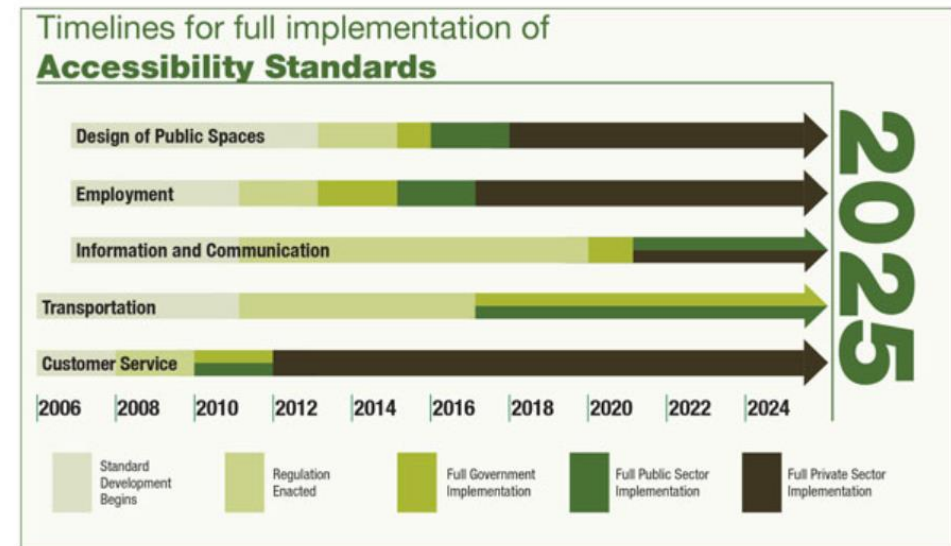
UNDERSTANDING LEGISLATIVE REQUIREMENTS

- Knowing the legislative requirements that apply in your jurisdiction is essential
- Refer to the building codes, barrier-free design standards, etc., that are applicable under the legislation (e.g. Accessibility for Ontarians with Disabilities Act, Americans with Disabilities Act, etc.)
- Before space planning, understand:
 - **When** improvements are required
 - **What** improvements are required
 - **How** improvements are to be made



WHEN ARE REQUIREMENTS TO BE MADE

- Major renovations are planned
- Addressing human rights request
- Meeting timelines established by legislation

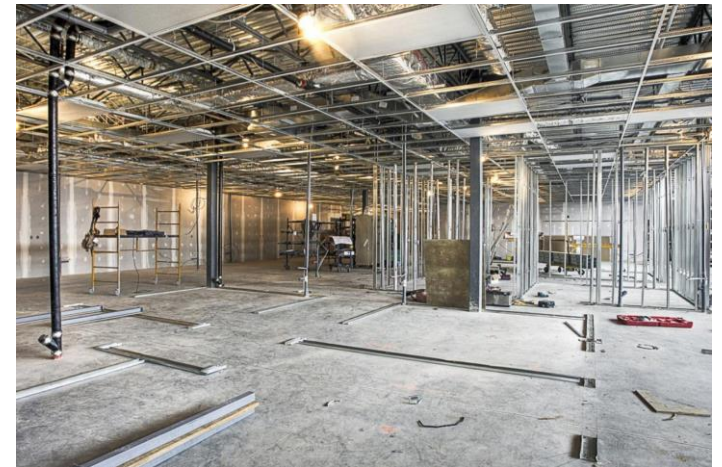


MAJOR RENOVATIONS

EXAMPLE: ONTARIO BUILDING CODE

The Act applies to Public Spaces (built environment):

- Buildings designed to meet 2015 OBC, unless extensive renovations are planned (please note that existing buildings do not have to meet the AODA).
- Where extensive renovations are planned. Part 11 of the OBC defines extensive renovations as or where:
 - The improvement of an existing suite area is >300 SM;
 - The installation of new interior wall/floor/ceiling assemblies is planned;
 - The suite area is located on the floor where the elevation difference between the exterior grade (ground level) and subject floor is <200 mm **OR** the floor provides access to vertical elevating device and the elevation difference between the exterior grade and the subject floor is <200 mm.



HUMAN RIGHTS

Although the requirements of building code is generally grandfathered...

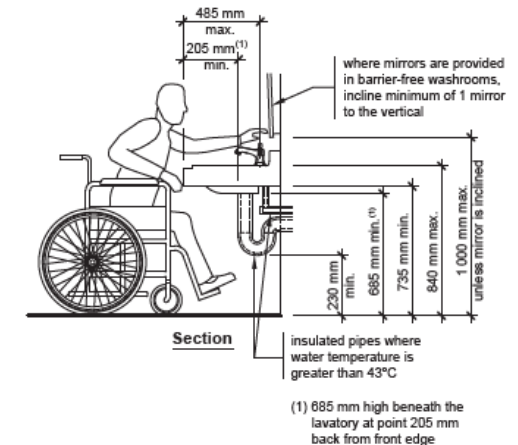
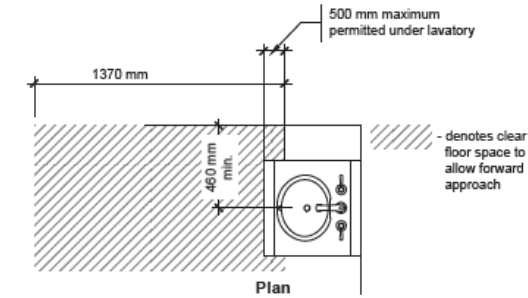
Under the Ontario Human Rights Code, and Ontario Human Rights Act, owners/employers have a duty to accommodate persons with disabilities.



**Ontario
Human Rights Commission**
**Commission ontarienne des
droits de la personne**

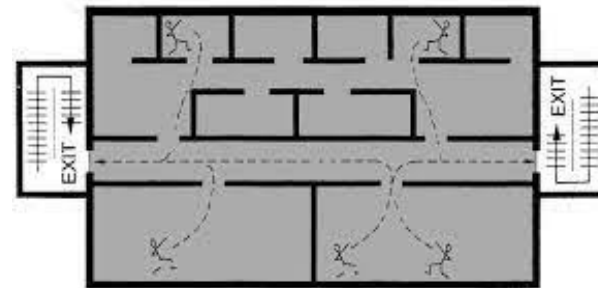
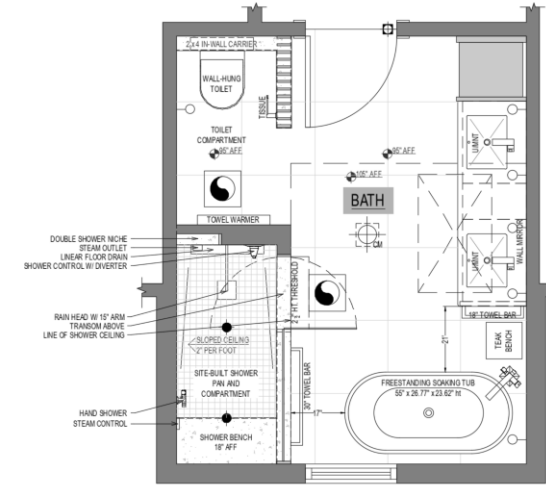
WHAT REQUIREMENTS ARE TO BE MADE & HOW

- Building codes and regulated design guidelines provide:
 - The building elements that need to be improved
 - The parameters or design specifications of the building elements
- Keep in mind – Following regulations is required
- Even when using design guidelines “better” than building code, ensure that building code requirements are met



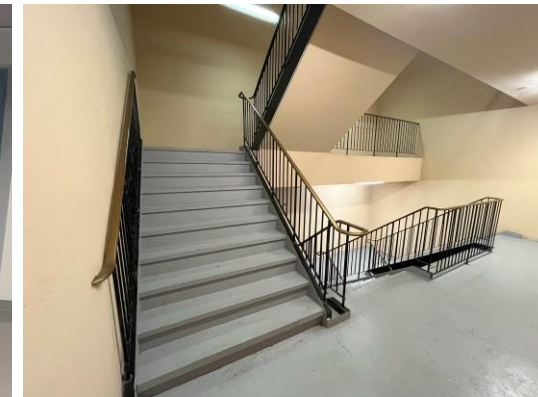
PATH OF TRAVEL

- Before planning and design for the space and making accessibility improvements, consider the path of travel to the space
- Imagine how a person is to:
 - Arrive at the building (e.g. parking lot, walkways, etc.)
 - Enter the building (i.e. public entrance doors)
 - Travel to the space (e.g. corridors, ramps, elevators, etc.)



HOW TO GET THERE?

- For example: if you can design a state-of-the-art universal washroom or restroom, but can you get there?
- Is the designated accessible space:
 - Only accessible through stairs?
 - Not equipped with power door operators at the entrance?
 - Etc...





SPACE PLANNING

BUILDING ELEMENTS TO UPGRADE

KEY PARAMETERS

Disabilities	Key Parameters
Mobility	Turning space, clear widths, knee space, slopes, elevation differences, etc.
Flexibility	Reach (heights of controls and shelves, etc.)
Dexterity	Operation devices - handles, buttons, handrails, etc.
Vision	Annunciation, colour contrast, tactile walking surface indicators, signage, etc.
Hearing	Assistive listening devices
Neurological	Patterns, designated spaces, etc.

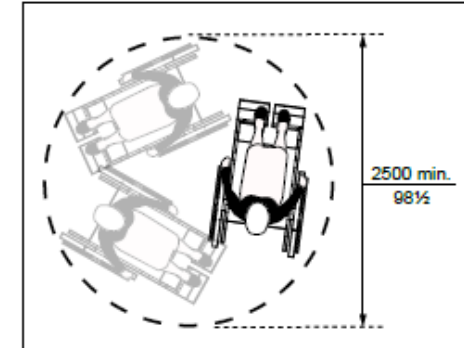


Figure ii: 360° Turning Space / Circle

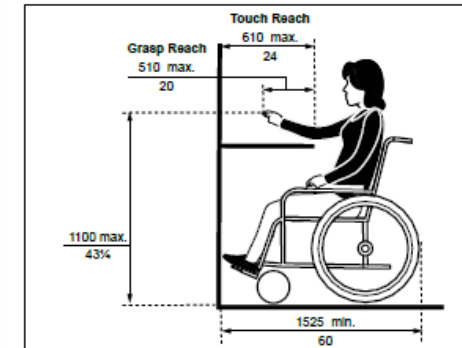
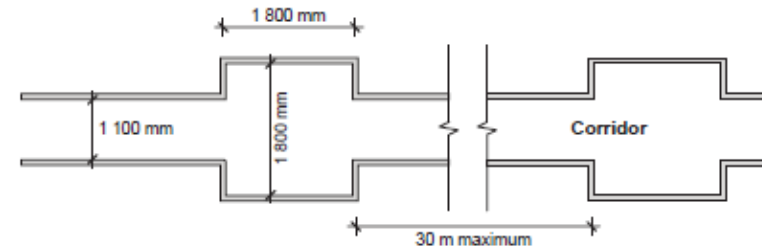


Figure ix: Forward Reach over an Obstruction - Section View



PATHS OF TRAVEL

- Remember: How will the person arrive at the designated accessible space?
- Provide space (clear width, turning space, areas of refuge, etc.)
- In the path, are there areas with:
 - Obstructions?
 - Low headroom?



3.8.1.3. Barrier-Free Path of Travel

Figure 2-8A A barrier-free path of travel shall not be less than 1 100 mm wide with spaces 1 800 mm x 1 800 mm spaced not more than 30 m apart.

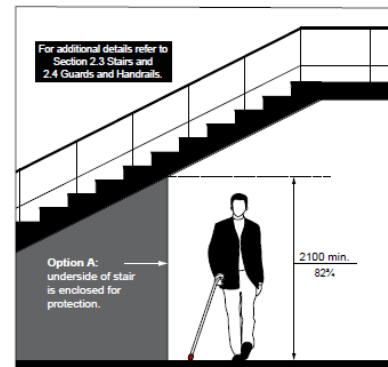


Figure 18a: Option A - Enclosed Protection Underneath Stairs

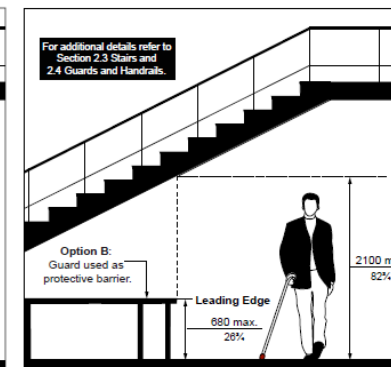
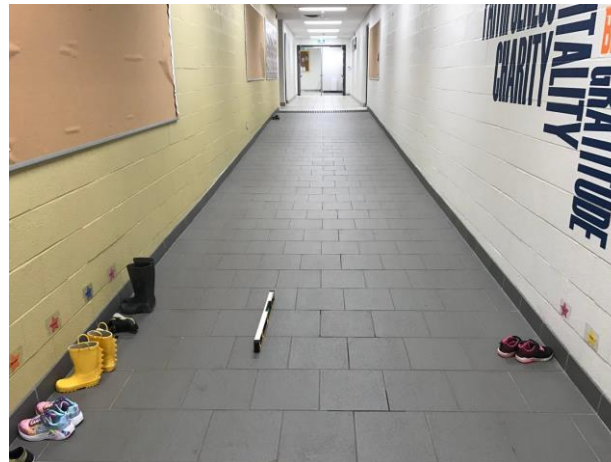


Figure 18b: Option B - Guard / Protective Barrier Protection Underneath Stairs



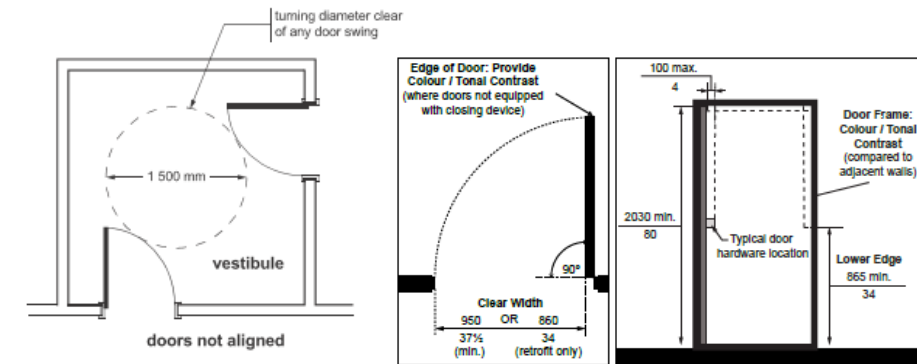
PATHS OF TRAVEL

- Travel between elevation differences
 - Elevators
 - Cab size
 - Controls
 - Navigation (signage, annunciation)
 - Ramps
 - Incline
 - Handrails & guards
 - Stairs
 - Tactile walking surface indicators
 - Handrails & guards
 - No open risers



PATHS OF TRAVEL

- Remember: How will the person enter the building and designated accessible space?
- Entrances
 - Clear and turning spaces
 - Clear width
 - Automatic door opening devices
 - Handles
 - Opaque strip for glass doors



PATHS OF TRAVEL

- Exterior elements also are part of the access route
- Provide travel from the parking lot or municipal sidewalk to the building
- Install wayfinding signage to provide direction
- Install safety measures (tactile walking surface indicators, guards, etc.)



No curb ramp



No marked crossing

MOBILITY

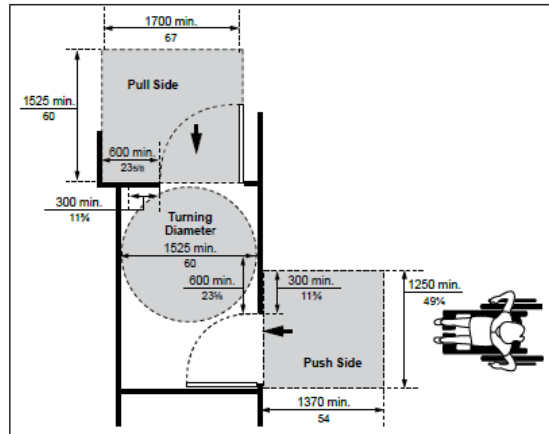


Figure 45b: Doors in Series Where Doors are not Aligned - Plan View

- Provide clear space for wheelchair maneuvering
- Provide clear space in front of elements (drinking fountain, doors, etc.)
- Clear widths for paths of travel

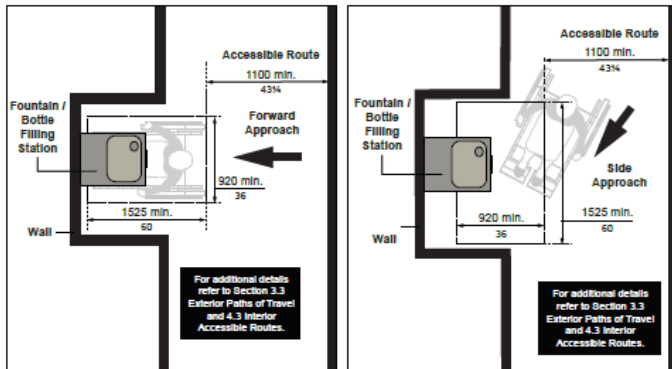


Figure 24: Clear Floor Space Requirements and Approach at Recessed Drinking Fountain / Bottle Filling Station - Plan View

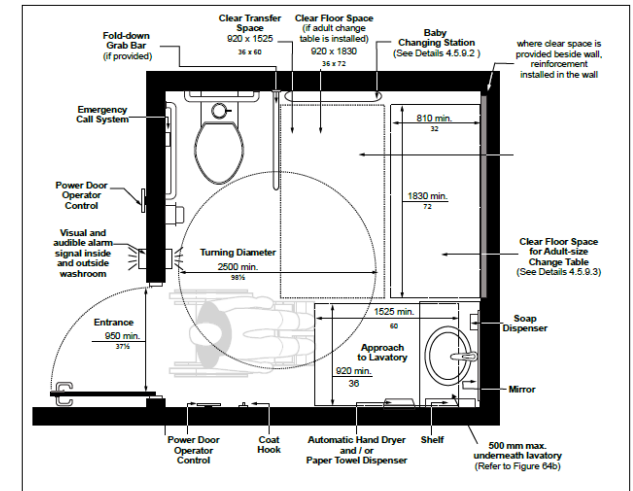


Figure 58: Example of Universal Washroom Layout and Typical Amenities (Conceptual - Layouts Can Vary)



FLEXIBILITY

- Provide amenities, devices, and controls:
 - At a height and distance reachable by a wheelchair user
 - Adequate clear and knee space for a wheelchair to approach

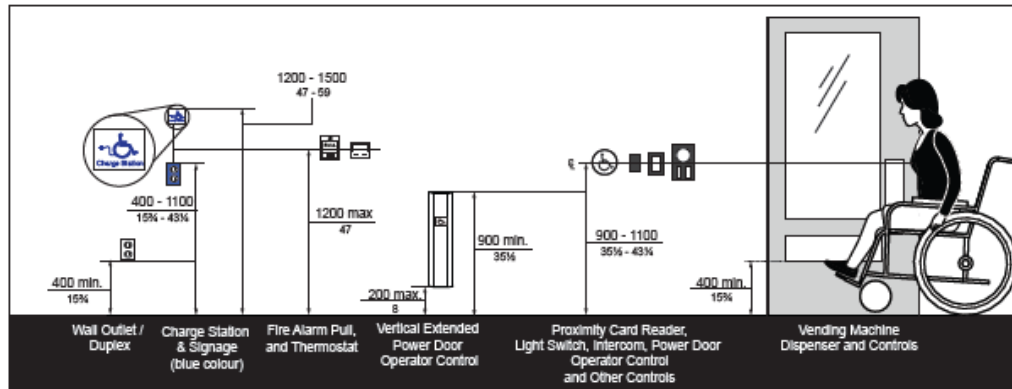
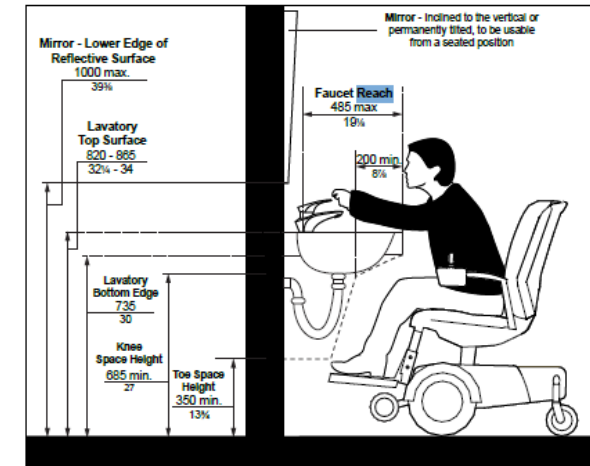


Figure 74: Control Mounting Heights - Elevation View

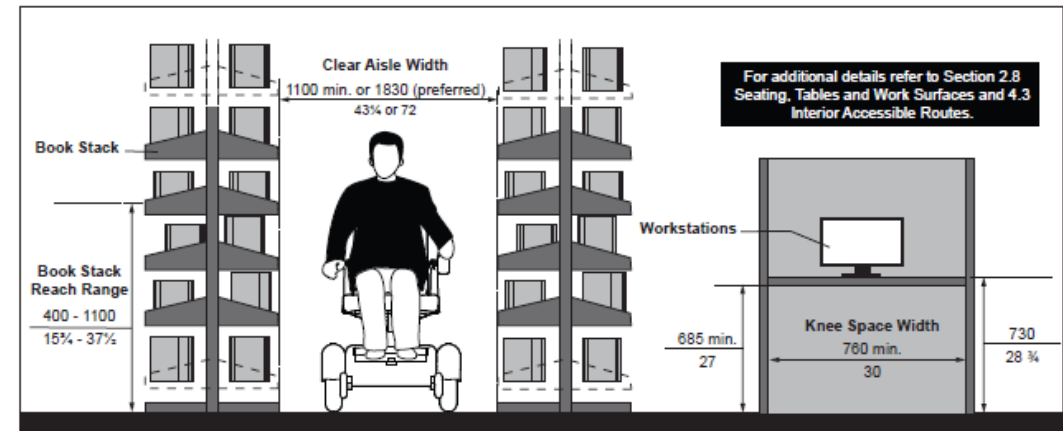


Figure 105: Book Stacks and Workstations (Typical)

DEXTERITY

- Controls should be operable by a closed fist
- Handrails and grab bars should have graspable perimeter



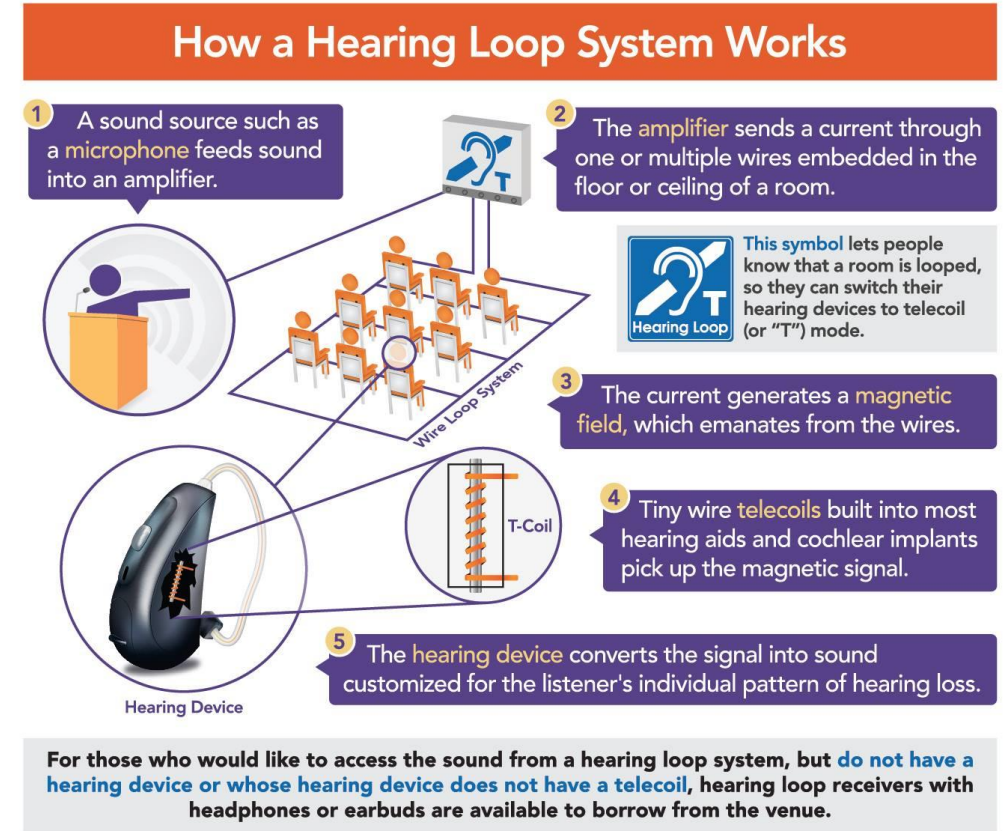
VISION

- The following improvements can help those with **vision**-related disabilities:
 - Annunciation (elevators, devices, etc.)
 - Tactile text or braille on signage
 - Lighting levels
 - Tactile walking surface indicators
 - Guardrails
 - Opaque strips for full-height glass
 - Colour contrast



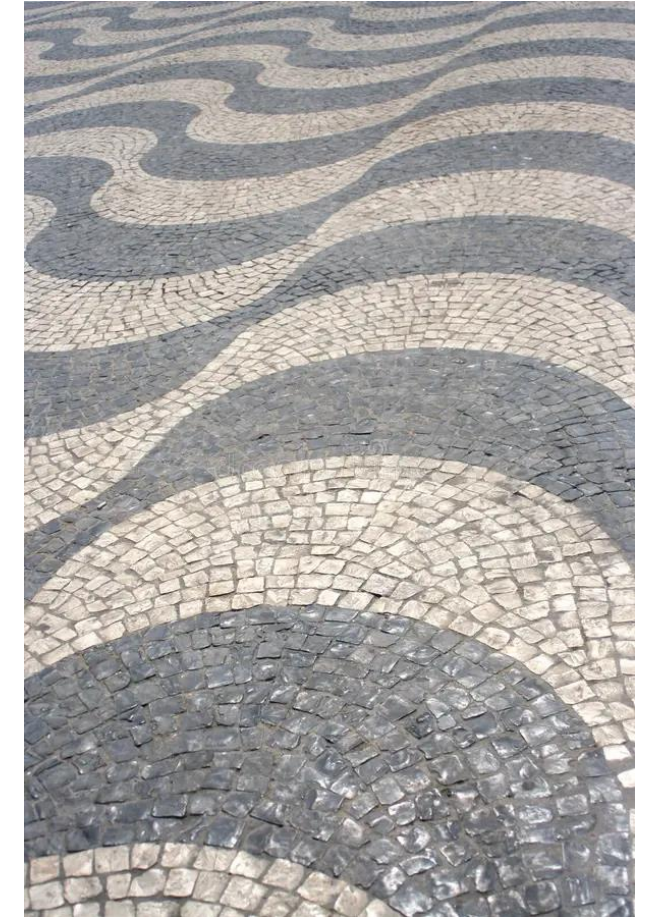
HEARING

- The following improvements can help those with **hearing**-related disabilities:
 - Assistive listening devices
 - Signage
 - Visual indicators (strobe lights)



NEUROLOGICAL

- The following improvements can help those with **neurological or learning-related** disabilities:
 - Patterns in the built environment (finishes, walkways, etc.)
 - Designated or dedicated sensory room



SAFETY



- Installing or improving the following elements can minimize safety hazards:
 - Fire alarm strobe lights
 - Tactile walking surface indicators
 - Guardrails
 - Emergency call systems
 - Trip hazards



WHAT TO DO?

- Limitations in addressing long list of accessibility improvements:
 - Budget
 - Other capital renewal priorities
 - Sharing funding with other capital projects



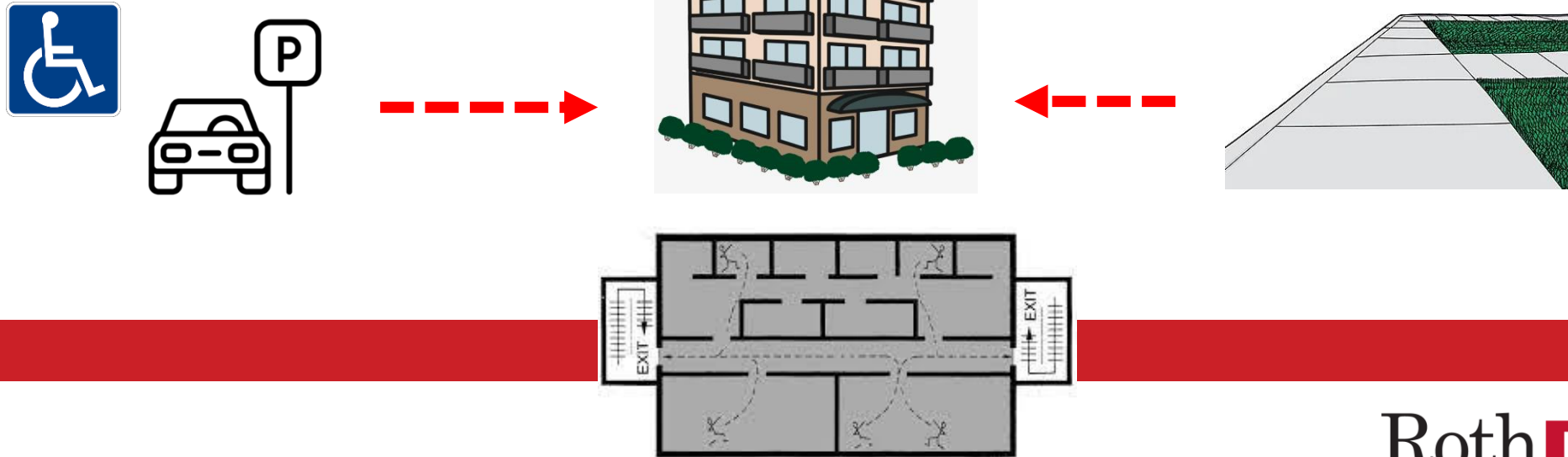


PRIORITIZATION

APPROACH FOR TACKLING THE IMPROVEMENT
RECOMMENDATIONS

PRIORITIZATION BASED ON PATH OF TRAVEL

- Suggest prioritization of projects based on path of travel.
- A person must be able to travel to the building, enter into the building, and travel within the building.



MULTI-VARIABLE PRIORITIZATION (MVP)

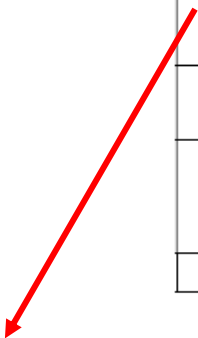
- MVP can be customized that can provide prioritization across a portfolio (multiple buildings)
- Some factors to consider in MVP:
- **Building Size or Occupancy Frequency**
 - More worthwhile to complete a project within a high-occupancy building
- **Facility Type**
 - Some facilities may be prioritized over others (e.g. classrooms/academic vs. maintenance)
- **Direct and Immediate Need (Timeline)**
 - May need to consider addressing current needs requested by students/faculty



MULTI-VARIABLE PRIORITIZATION (MVP)

Example:

Priority Categories	Definition	Weight
Residence Type	Total number of residential units at the subject facility	30%
Barrier Location	Location where the barrier was identified (site exterior, common areas, or within the residential unit)	30%
Deferral Consequence	Consequence when a barrier is not addressed	25%
Barrier-free Design Standard/Guideline Improvement	Improvements to OBC, Section 3.8 Barrier-free Design Standard and/or CMHC guidelines	15%
Total		100%



<i>Barrier Location (30%)</i>		
Site Exterior	Accessible improvement to site components, such as parking spaces, exterior paths of travel (ramps, exterior stairs, etc.)	10
Common Area	Improvements to common areas such as corridors, laundry rooms, lounges, etc. Example elements include exterior doors, interior paths of travel, common area washroom fixtures and accessories, amenities, etc.	7
Unit	Improvements in the designated barrier-free unit (e.g. unit entrance door, interior path of travel, washroom, kitchen, etc.)	3



Table 5 – Priority & Score Ranges	
Priority	Overall Priority Score
Low	0-24
Medium	25-60
High	61-100

INTEGRATION WITH CAPITAL PLAN

- Incorporate recommendations and MVP into capital plan
- Advantages:
 - Centralized data
 - Consistent data
 - Analyze data based on multiple scenarios
 - Systematically plan capital renewals

Element

Asset [330 Leaside](#)

Uniformat Code [C104021 - Communal Washroom Refurbishment](#)

Descriptor [1993](#)

Description [The communal washrooms consist of a floor-mounted water closet with flush valve, wall-mounted urinals with flush valves, and a pedestal-mounted lavatory. The washroom fittings include ceiling suspended laminate, plastic water closet partitions. The washroom interior finishes include ceramic tile floors, painted concrete block walls and painted gypsum board ceilings.](#)

Last Assessed [Apr 5, 2021](#)

Last Merged [-](#)

Installation Year [1993](#)

Expected Useful Life [25](#) Years

Expected Renewal [2018](#) Year

Remaining Useful Life [4](#) Years

Renewal Year [2027](#)

Condition [2 - Good](#)

Condition Narrative [No major deficiencies were observed or reported. Replacement has been deferred.](#)

Recommendations [11](#)

Quantity [3 Per Lavatory](#)

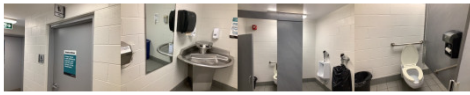
Assessments


Status	Assessor	Condition	Assessment Date	Renewal Year	Recommendations
Nothing to display					

Recommendations

Status	Descriptor	Year	Type	Qty	Cost
A	Doors	2023	Accessibility	0	\$5,900.00
A	Fixtures	2023	Accessibility	0	\$310.00
A	Grab Bars	2023	Accessibility	0	\$540.00
A	Toilet Paper Holder	2023	Accessibility	0	\$350.00
A	Grab Bars	2023	Accessibility	0	\$540.00
A	Individual Washroom Stall	2023	Accessibility	0	\$160.00
A	Opening and Doorways	2023	Accessibility	0	\$5,900.00
A	Toilet Paper Holder	2023	Accessibility	0	\$350.00
A	Urinals	2023	Accessibility	0	\$950.00
A	Vanity / Counter / Sink	2023	Accessibility	0	\$350.00
A	Communal Washroom Refurbishment	2027	Life Cycle Replacement	3	\$154,684.45

Photos [Add](#)







NEXT STEPS

SUMMARY

- Before diving into space planning:
 - Identify the accessibility needs in the space
 - Plan and provide an accessible path of travel to the space
 - Choose a desired barrier-free design guideline including building code to evaluate the space
 - Determine the list of improvements based on recommendations from an assessment
 - Prioritize recommendations
 - Design the space in accordance with legislative requirements and referenced design guidelines



WE CAN HELP!

- We can help you with the space planning process from the beginning to end:
 - **Assessments**
 - Baseline Accessibility Screening Checklist
 - Comprehensive barrier-free accessibility assessment
 - Thoroughly understand whether the parameters meet legislative requirements or design guidelines
 - **Multi-variable Prioritization (MVP) / Asset Management**
 - Integration of accessibility improvement recommendations into capital or asset management plan
 - Collaborate and determine MVP factors
 - Apply priority ratings with recommendations
 - **Design**
 - Develop concept drawings for targeted space



SLAM | streamlined
asset
management



THANK YOU FOR ATTENDING

- ▶ Visit our website at rothiams.com
- ▶ Follow us on [LinkedIn](#)
- ▶ Connect with us directly through email at andrew.chow@rothiams.com or info@rothiams.com



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