LA TOUR CN TOWER

Accessibility Assessment

CN Tower - January 2019

Developed by:

Caleb Van Esch, Van Esch Enterprises
Jenny Blome, Manager, Accessibility Services
Rick Hansen Foundation
jblome@rickhansen.com
(778) 869-2003

Rick Hansen Foundation

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Introduction

This document provides an accessibility assessment analysis of the CN Tower based on site visits by a RHFAC professional, and floor plans provided by CN Tower facilities management.

CN Tower has recently had a RHFAC rating assessment and achieved the designation of RHFAC Accessibility Certified. The results and recommendations in this report are made in consideration of the future attainment of a RHFAC Accessibility Certified Gold level, and towards providing long term meaningful access for everyone.

The application of universal design principals is seen as a fundamental part of the facility development process in addition to any specific and separate requirements for people with disabilities.

Equitable and safe access for people with disabilities is an important part of ongoing upgrades and any planned renovations for all CN Tower facilities. Accessible design is the application of universal principles that improve the safety, convenience and service levels for all users.

The criterion presented in this document is intended to help managers recognize that through planning, discreet design and the application of universal design principles, access can be aesthetically pleasing, result in improved safety, and be extremely cost effective. This document sets out the required level of meaningful access to be provided in the new facility construction.

It is recognized that many of the requirements established here may go beyond minimum building code and/or existing regulatory requirements in our efforts to respond to the focused use of the facility as a public venue that serves a diverse demographic, and the increased use of all facilities by older adults and other people with disabilities. It is also recognized that there are practical limitations to the level of access that be achieved in any given building. Where these recommendations cannot be fully met by planners and management staff, the intent can be met by other means acceptable to CN Tower.

The Accessibility Assessment report was prepared for the CN Towers facilities management team by the RHF Accessibility Services team and RHFAC Professional. It takes a best practices approach after considering regulations and recommendations from existing standards including the ADA, ANSI, CSA, Ontario Building Code and the National Building Code, along with the practical experience of RHF.

This document is presented from the perspective of older adults, seniors and other people with disabilities. Recommendations made here have NOT been reviewed for conflicts with any other codes, regulations or requirements.

Definitions

This document uses the World Health Organization's (WHO) framework of disability. This framework defines disability "*as the relationship between body structures and functions, daily activities and social participation, while recognizing the role of environmental factors. Persons with disabilities are those who reported difficulties with daily living activities, or who indicated that a physical, mental condition or health problem reduced the kind or amount of activities they could do"*.

Planning Principle: *This 'medical model' of disability has limitations when understanding the complex community of people with disabilities as a whole; however, for the purpose of facility design and planning it offers the quantifiable anthropometrics needed to respond with inclusive design. The report discusses disability groups only in reference to specific barriers to specific user groups without regard to the cause of the disability.*

Hard of Hearing: Difficulty hearing what is being said in a conversation with one other person, in a conversation with three or more persons or in a telephone conversation.

Deaf: People unable to hear at a functional level for the activities of daily living

Vision Impairment: Difficulty seeing ordinary newsprint or clearly seeing the face of someone from 4 metres (12 feet).

Blind: No perception of light or people with less than 20/200 vision (legally blind).

Mobility: Difficulty walking half a kilometre or up and down a flight of stairs, about 12 steps without resting, moving from one room to another, carrying an object of 5 kg (10 pounds) for 10 metres (30 feet) or standing for long periods

Agility: Difficulty bending, dressing or undressing oneself, getting into and out of bed, using fingers to grasp or handling objects, reaching in any direction (for example, above one's head) or cutting own food.

Mobility/agility problems are the type of disability most often reported by adults aged 15 and over. In 2001, nearly 2.5 million or 10.5% of Canadians had difficulty walking; climbing stairs; carrying an object for a short distance; standing in line for 20 minutes or moving about from one room to another. For all age groups, women were more likely to have mobility problems than men. Indeed, among adults aged 15 and over, there was a significant difference in the overall proportion of women (12.2%) and men (8.6%) with a mobility-related disability. Also with respect to motor skills, activity limitations related to agility affect a substantial number of persons aged 15 and over. In all, 2.3 million or 9.7% of adults reported having difficulty with everyday activities that require these skills, such as bending down to pick up an object, getting dressed or undressed, or cutting one's food.

While mobility/agility issues are the most often *reported* by adults, sensory disabilities are probably even more prominent among seniors and older adults. This is because sensory difficulties more often go unreported. This is partially due to the subtle reduction of sensory abilities over time and the denial that commonly accompanies gradual vision, and particularly hearing loss.

People with cognitive issues tend not to be as directly affected by the built environment as some other disability groups because support for these individuals relates more to appropriate communications and facility operation than it does to anthropometrics. Still, people with developmental or cognitive disabilities must receive equal and appropriate consideration throughout the design process to develop safe environments via the application of universal design principles.

1. Vehicular Access

1.1 Parking

Existing Conditions:

There is no parking on-site or directly adjacent to facility. However, there are many underground parking options available in the vicinity. A limited number of designated accessible parking stalls are available for reservation in the Rogers Centre parking garage. The nearest public parking garage to CN Tower entrance is 300-400 meters away.

Key Areas of Success:

- Designated parking stalls are available at Rogers Centre underground. This is the closest parking area to the CN Tower entrance.
- Public parking areas expected to be used by visitors of CN Tower are generally all located in a garage, and therefore, provide shelter from weather. There are approximately 12 underground parking garages within 900 meters of CN Tower.

Key Areas of Improvement:

- **The path of travel should have shelter** from Rogers Centre parking to CN Tower entrance, where possible. This would make the route safer and more comfortable for everyone, particularly people with limited mobility.
- **Information regarding accessible parking options**, should be highlighted on the website and made available in various formats for people planning visits to the CN Tower. Information should include: clearance height of covered parking; payment options, including apps and parking ticket dispensers; dimensions of accessible parking stalls, and map of safe and accessible routes to CN Tower entrance.

1.2 General Vehicular Access

Existing Conditions:

The main passenger drop-off is located on Bremner Blvd. There is a TTC Wheel-Trans stop located on the CN Tower side of the Rogers Centre, approximately 150 meters from CN Tower entrance.

Key Areas of Success:

- Passenger drop-off area is located at closest possible location in relation to entrance.

- Passenger drop-off provides direct access to accessible entrance without need to travel across traffic.

Key Areas of Improvement:

- **Add access aisles to passenger drop-off located on Bremner Blvd that are level with road** or include curb ramp. This eliminates the need to step up onto sidewalk from road and will limit trips and falls that may occur while exiting vehicles.
- **Add passenger drop-off signage and markings** on surface to allow area to be more easily identified.
- **Consider repaving the passenger drop-off area** to remove sunken and uneven areas to reduce chances of tripping and help to prevent ice from forming.
- **Add seating with covered shelter** to allow people to be protected from weather, while resting or waiting.
  Note: Any shelter should meet minimum height requirement of 2750 mm to ensure accessible vans have adequate clearance.
- **Install tactile attention indicators along drop-off area**, which will alert people who may be visually impaired a change from pedestrian pathway to vehicular roadway.
- **Install tactile direction indicators to guide people with low vision to/from passenger drop-off.**
- **Promote the option to add shelter for nearby transit stops**. **Addition of a sheltered pathway** from transit stop to CN Tower entry would be ideal.

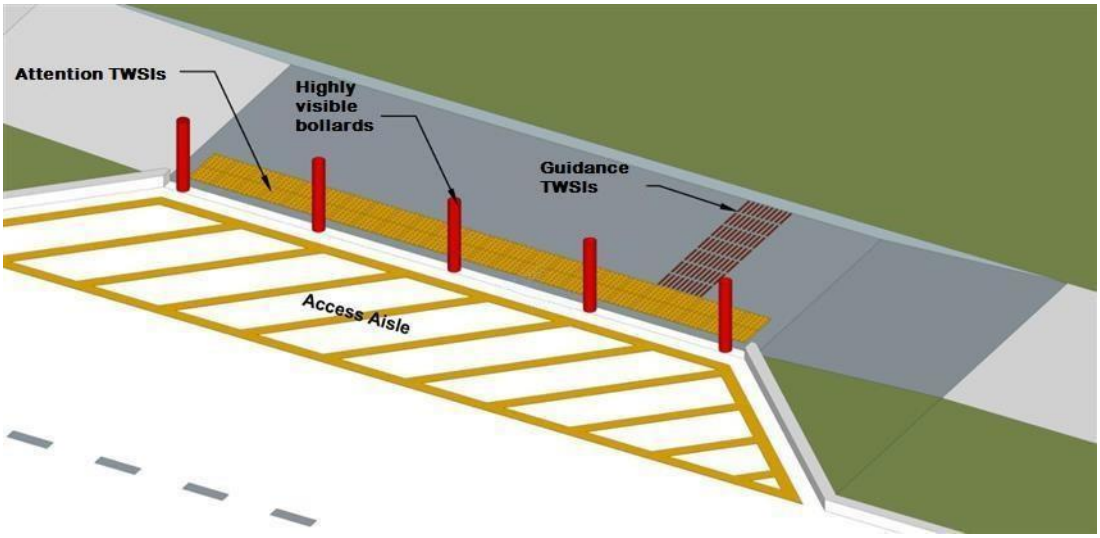
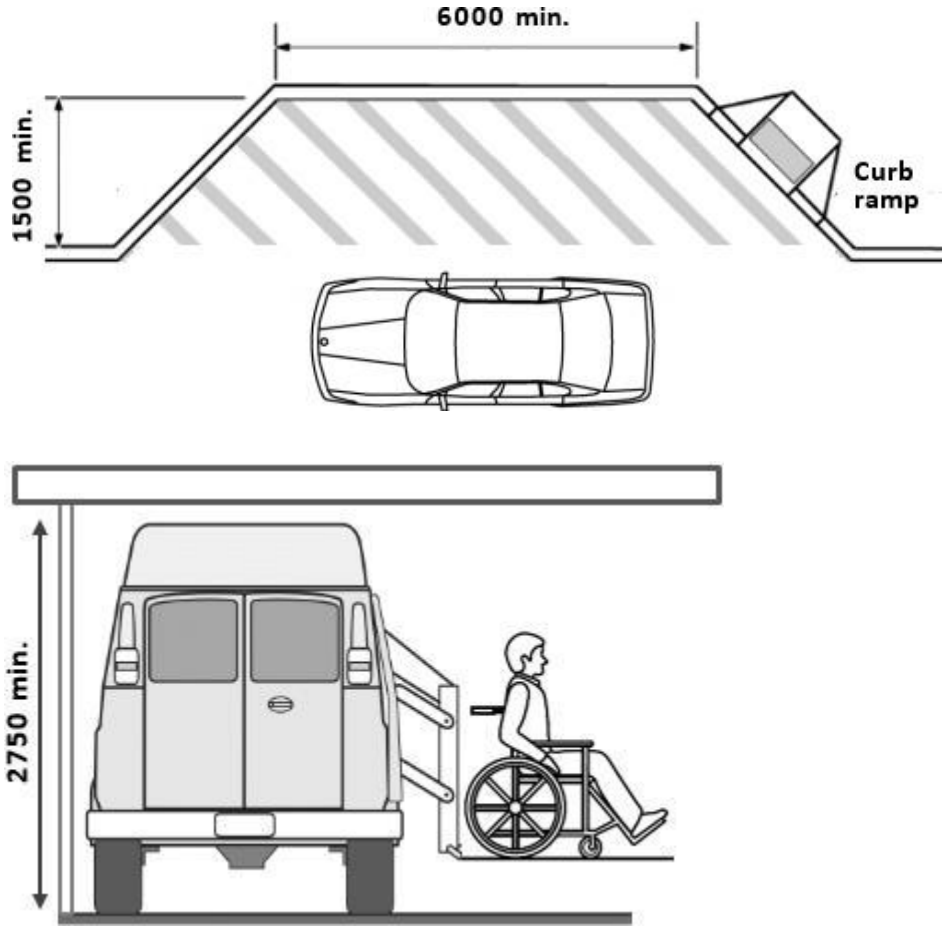


Illustration: Passenger drop-off level with road way. Painted drop-off access aisle increases visibility. Where pedestrian sidewalk meets road, high contrast TWSI indicate change in surface. High contrast Guidance TWSIs start at passenger drop-off and continue to CN Tower entrance.



2. Exterior Approach & Entrance

Existing Conditions:

The CN Tower is approachable from several directions. However, there is only one public entry and exit point from the building. Access from Bremner Blvd. is at the same elevation as CN Tower entry. Access from Front St. and the PATH Network connection are at a significantly higher elevation. In addition to stairs and a comfortably sloped ramp, an elevator has been installed granting access to the entry level elevation.

2.1 Exterior Pathways

Key Areas of Success:

- Access is enabled from multiple directions, allowing shortest possible path of travel.
- All pathways are firm, stable and well maintained.

- Pathways are an adequate width; allowing multiple flows of traffic with ease.
- Multiple options of access to entry level from elevated approach.
- PATH Network allows many users access from Union Station to travel along covered pathways.

Key Areas of Improvement:

- Edge protection or highly visual tactile indicators should be placed along top of drop-off of the lowered exterior seating area.
- Obstacles positioned along path of travel should visually contrast with walkway to help highlight items.
- Additional directional signage can be placed at the Bremner Blvd. approach and path of travel.
- A high contrast surface and/or directional tactile indicators can be placed along direct paths of travel from property line to CN Tower entry point.
- PATH from Union Station to the CN Tower has poor accessibility. Although, this is not an aspect that is controlled by the CN Tower, improvements would certainly enhance the accessibility of the exterior approach. Consider making a request to the City of Toronto to increase accessibility along the PATH from Union Station to the CN Tower.

Left Illustration: Shows highly visual furniture. Seating bench includes back and arm support.

Right Illustration: Top edge of lowered seating area, showing upper surface that blends into surface below creating fall hazard. A high contrast tactile indicator strip should run along top of fall hazard.

2.2 Exterior Ramps

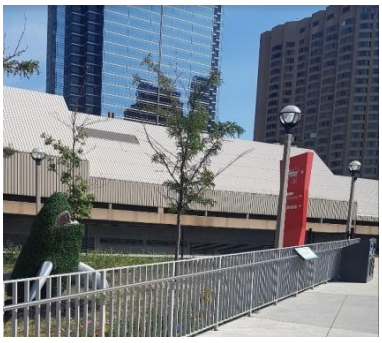
There are two ramps within CN Tower property. A large ramp provides access from upper area, Front St. and PATH approaches. This ramp runs between the CN Tower and Ripley's Aquarium and is moderately long. A second, smaller ramp is positioned along the Bremner Blvd. approach, extending from entry level down to a small exterior seating area.

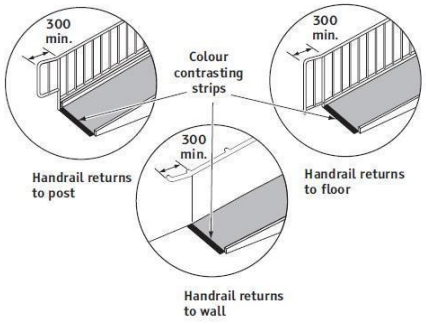
Key Areas of Success:

1. The large access ramp has a comfortable slope of 3.2 degrees.
2. The large access ramp also includes a small landing at the ramp midway point.
3. Ramps have adequate width for expected usage.
4. Ramp surfaces are firm, stable and well maintained.

Key Areas of Improvement:

1. Due to the extended length of the ramp that extends from the PATH access between Ripley's Aquarium and CN Tower, seating should be added at a mid-point of the ramp.
2. The small ramp extending from entrance level to lowered seating area has a slope of 1:12 or 4.7 degrees. This slope may be difficult to access for some people. A ramp with a slope of 1:20 is a more comfortable ramp angle.
3. Handrails should have an uninterrupted access along ramps. Light standards, garbage cans and information plaques are placed along ramp handrails. A person should not need to let go of handrail to maneuver around objects.
4. Ends of handrails should terminate into ground or return to post to avoid persons catching unprotected ends.
5. Surface of ramps should colour contrast top and bottom landings to help highlight elevation change.
6. A colour contrasting strip should be placed at top and bottom of ramp landings to help indicate change in elevation.





Left Illustration: Shows items impeding clear access of handrails, large ramp running between Aquarium and CN Tower.

Right Illustration: Correct termination of handrail at bottom or top of stairs and ramps. Also note handrail extends one step length past bottom of steps.

2.3 Exterior Stairs

There are several stair systems located along exterior approach. The largest and most used stair system extends from the elevated Front St. access down to the entrance level. A stair system is located from the Rogers Centre sidewalk down to the entrance level. A third stair system grants access to the lowered seating area.

Key Areas of Success:

1. Stair systems are wide and allow two-way traffic.
2. Stair surfaces are firm, stable and well maintained.
3. All stairs have closed risers and have consistent rise and run.
4. Illumination levels are good. Multiple sources of lighting.

Key Areas of Improvement:

1. The top of stair handrails should be mounted at a uniform height between 860-920mm, measured vertically from the leading edge of the tread to top of handrail.
2. A colour contrasting strip and tactile walking indicators should be installed at the top and bottom landings of stair systems to indicate elevation change.
3. All stair nosing should include a non-slip tactile nosing on top of step nosing to indicate edge of step.
4. All stair systems should include a high colour contrasting strip that is present on the top, front edge of tread and wraps over nosing onto riser. Nosing should extend along entire length of step.
5. Stair nosing overhang stair riser, creating a tripping hazard. Nosing should have minimal protrusion over stair riser. Where nosing extends over riser, bottom of nosing should be rounded or angled to limit the foot from catching underside of nosing.

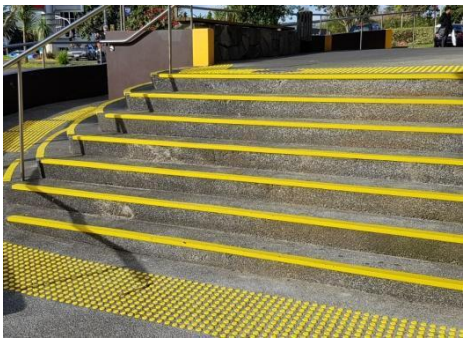


Illustration: Note the tactile indicators at top and bottom landing indicating elevation change. Also note the high contrast nosing which is extends from top of nosing onto riser.

2.4 Main Entrance or Alternative Entrance

A single public entry point is available. The entrance is on the Bremner Blvd. side of the CN Tower. The entry point includes three sections, a secure check point with metal detectors and scanners, a ticket counter, and finally the Concierge Area.

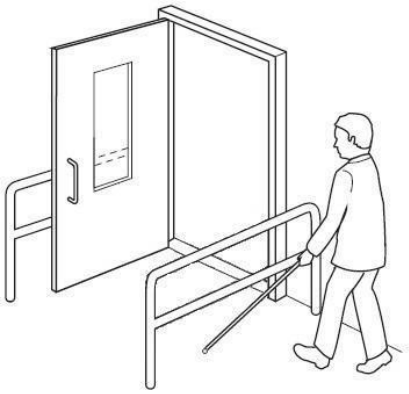
Key Areas of Success:

1. Entry point is easily identifiable red exterior surface and large sign.

2. The ticket line is fully covered by large overhang.
3. Power operated doors are available and have an adequate clear width.

Key Areas of Improvement:

1. Motion activated sliding doors are the recommended door style as they eliminate door swing and are hands-free.
2. Where push button controls are used to activate doors, buttons should contrast surrounding surface and include highly visible attention indicator.
3. Where hinged doors are installed, the swing path of door should be protected by a barrier or swing path should be marked. This is especially important of exit doors from security screening area into ticket sales area.
4. Glazed entry doors should include visually contrasting strips at two levels (including eye level) to highlight glass door.
5. Adequate clear space should be readily available on both sides of entry doors to limit persons being hit by entry doors. This is especially important of entry doors into security screening area.
6. Automatic doors must have adequate opening and closing time to allow persons to easily pass through without door closing. Minimum of 3 second opening time and 5 second time open.
7. Doors equipped with safety sensors which do not close on objects within door frame are recommended.



Left Illustration: Example of visual indicators at two levels on glazed surfaces.
Right Illustration: Example of door path protection.

3. Interior Circulation

Interior circulation follows a designed path of traffic flow beginning at the security screening area through to the elevator entrance. Exit of the CN Tower also follows a designed path of traffic flow from elevator exit, through retail store and Le Cafe to the exit.

3.1 Doors and Doorways

Key Areas of Success:

1. Power operated sliding doors installed allowing travel from ticket sales area into Concierge Area and on Level 2 viewing area.
2. Limited number of doors along circulation routes. Where doors are installed along circulation routes, doors are propped open.
3. Doors include accessible entry hardware.

Key Areas of Improvement:

1. Where power doors are installed, doors must have adequate opening and closing time to allow persons to easily pass through without door closing. Minimum of 3 second opening time and 5 second time open.
2. Glazed entry doors should include visually contrasting strips at two levels (including eye level) to highlight glass door.
3. Power operated doors should be sensor activated where possible. Where push button door openers are used, round door open buttons are preferred. "Open Door" text is preferred over the accessible symbol.
4. Manually activated power door controls should be in clear view and not hidden by objects. This is especially pertinent for the sliding power door control from Ticket Sales area into Concierge area.
5. Manually activated power door controls should contrast surrounding surface. A high visual indicator should be used to help persons located door control.
6. Door widths must be wide enough to accommodate a person using a larger mobility aid; minimum of 810mm. This is especially pertinent of the entry door into the 360 Restaurant which currently has 710mm clear width.
7. Doors should visually contrast surrounding walls and floor. Although most doors have adequate contrast not all doors adequately contrast surrounding surfaces.

Left Illustration: Door open button with colour; using non-segregating language or symbols.

Right Illustration: Glazed window and door system on Level 2 viewing deck lacking visual indicators on glazing.

3.2 Path of Travel

Main level path of travel have no elevation changes within a single floor. Permanent ramps used where elevation changes. Upper level viewing can have small elevation changes within a single floor.

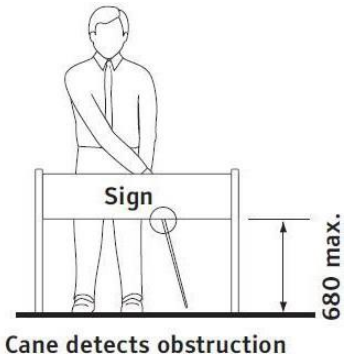
Key Areas of Success:

1. Access to all expected features.
2. Ramps and elevator options available where elevation change.

Key Areas of Improvement:

1. Crowd control stanchions used along path of travel from Concierge area to Liftoff area should be cane detectable, maximum 680mm above finished floor. Stanchions should also visually contrast floor area where they are placed.
2. Items placed along path of travel should not infringe on path of travel and should be highly visible. Objects include: pillars, garbage's, floor signs, seating and tables, interactive seating on Level 3 viewing area.
3. Main path of travel through Retail Store can be narrow and does not allow smooth traffic flow.

4. The 360 Restaurant is a split level floor plan. Currently access to the lower table area of 360 Restaurant requires a temporary ramp to grant access to a person using a mobility aid. A permanent solution should be installed to allow persons using a mobility aid to access the lower section of the restaurant without needing special adaption.



Left & Right Illustrations: Line stanchions should be detectable. Illustration on right shows a stanchion that is detectable and includes colour.

Far Right Illustration: Many items on Level 3 viewing area have limited visual contrast to surrounding surfaces.

3.3 Corridors & Halls

Halls on main floors have adequate clear width with limited pinch points. Upper level halls in view levels have narrower halls and have pinch points.

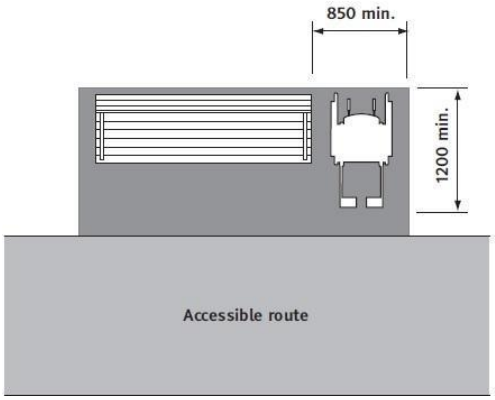
Key Areas of Success:

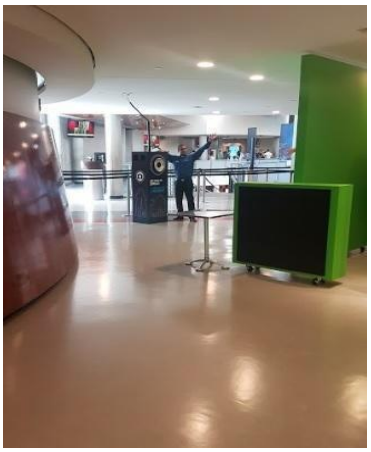
1. Railings are installed along longer halls and viewing areas.
2. Halls are well illuminated.
3. Seating areas positioned at several points along path of travel from Concierge area to Lift Off.
4. Main floor halls are very wide, allowing two-way traffic.

Key Areas of Improvement:

1. Several narrow points located in observation deck levels along halls, 870mm in width. A minimum clear width of 1500mm is recommended to allow uninterrupted two-way traffic.
2. Often floor surfaces have very limited contrast with walls. Floor and walls should have a visually noticeable colour contrast between surfaces; 70% colour contrast is recommended to provide noticeable contrast.
3. Natural lighting can cause significant glare on polished floors. Non-reflective floor and wall treatments should be applied where there is glare.

4. Furniture, plants, stanchions and pillars can project into halls and obstruct travel. Permanently fixed items should include adequate contrasting colour. Non-fixed items should be moved out of path of travel as well as provide colour contrast to floor surface.





Left Illustration: Shows example of seating set back from route of travel.

Right Illustration: Shows furniture placed in path of travel, making hall narrow and limiting clear path of travel.

3.4 Internal Ramps

There are two ramps located in the CN Tower interior. A large ramp runs from the Concierge Area to the Lift Off Area. A smaller ramp runs from the Concierge Area to Le Cafeteria.

Key Areas of Success:

1. Ramps include firm, non-slip surface.
2. Level landings at top and bottom of ramps.
3. Full edge protection run full length of ramps.
4. Large ramp to Lift Off area has a comfortable slope of 4 degrees.
5. Ramps include small landings at midpoint.

Key Areas of Improvement:

1. Handrails installed along ramps should be mounted between 860-920mm from ramp surface to top of handrail. Current ramp handrails are mounted at 940-950mm above finished ramp height.
2. Ends of handrails should terminate into ground, wall or return to post to avoid persons catching unprotected ends.
3. Small ramp extending from Concierge Area to Le Cafe has a slope of 1:12, this may be difficult to access for some persons. A ramp with a slope of 1:20 is a more comfortable ramp angle and is recommended where possible.

4. Although ramp surfaces have a colour contrast to top and bottom landings, greater colour contrast is recommended.
5. A colour contrasting strip and should be placed at top and bottom of ramp landings to help indicate change in elevation.
6. Ramp from Concierge area to Le Cafe has low illumination levels, lower than circulation routes.

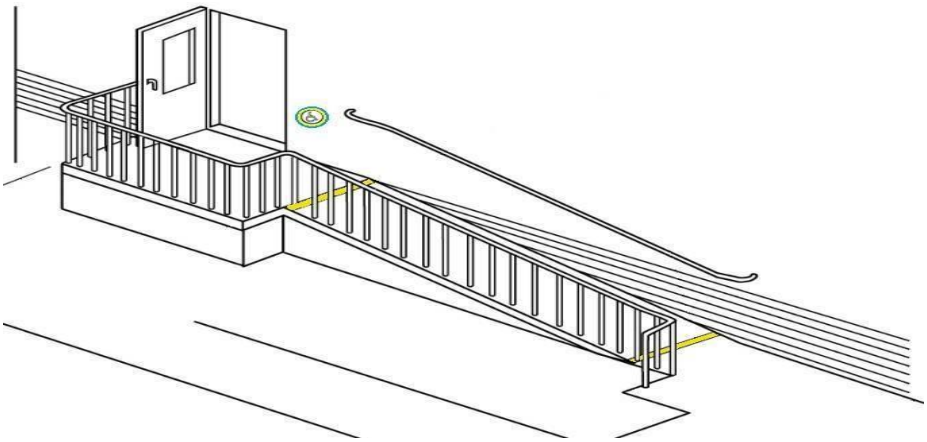


Illustration: The ramp illustration shows high contrast strip at top and bottom landings.

3.5 Elevators

There are two main elevator banks located within the CN Tower. The large elevators that run from Lift Off Area to Viewing Levels and smaller elevator that runs from Concierge Area to the Lower Level meeting area. Elevators are fully operated by CN Tower staff.

Key Areas of Success:

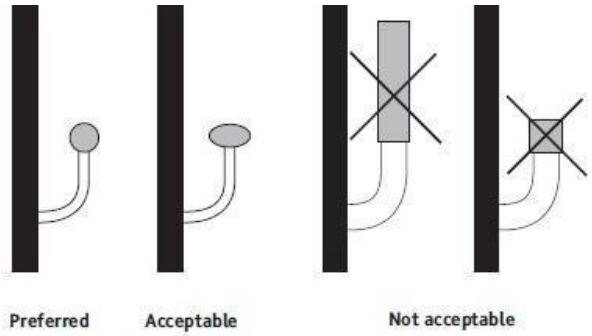
1. Large elevator size, allow for a person to maneuver around easily.
2. Elevators are staff operated, helps eliminate confusion and decision making associated.
3. Staff is knowledgeable of CN Tower and locations of facilities.
4. Staff can assist users who may require assistance.
5. Elevator waiting areas have digital screens indicating direction of elevator.

Key Areas of Improvement:

1. Additional directional signage should be installed.
2. Exterior side of elevator doors should contrast surrounding walls to help users identify elevator entry.
3. Elevators could benefit from verbal arrival time announcements on upper viewing decks waiting areas.

4. Handrails within main elevators are a flat, non-graspable design. Round handrails are easier to grip.
5. A fold down chair can be provided to assist visitors who may be unsteady on their feet.

Left Illustration: Fold down elevator chair that is flush with wall when folded up.



Right Illustration: Examples of graspable handrails shapes. Designs apply to stair and ramp handrails as well as elevator.

3.6 Interior Stairs

There are many public use stair systems throughout CN Tower. Stair systems have varying designs and finishes.

Key Areas of Success:

1. Stairs have firm, nonslip surface and are well maintained.
2. Stairs are adequately illuminated, often stairs include path lighting.

Key Areas of Improvement:

1. Handrails throughout facility should have handrails mounted at a uniform height between 860-920mm measured vertically from the leading edge of the tread to top of handrail. The height of handrails currently vary and are often above the recommended height.
2. Ends of handrails should terminate into ground, wall or return to post, to avoid persons catching unprotected ends.
3. A high visual stair nosing should wrap over the tread onto riser and visually contrast stair tread and riser. This highlights edge of step both while ascending and descending steps.
4. A colour contrasting strip and tactile walking indicators should be installed at the top and bottom landings of stair systems to indicate beginning of elevation change.
5. Stair risers should be closed and opaque. Open risers pose a tripping hazard as well as cause visual confusion. This is especially pertinent to the stairs that extend from Level 3 viewing deck up to the 360 Restaurant.
6. Stairs should allow two-way traffic. Stair system that extend from Level 3 viewing deck to the 360 Restaurant are narrow and will only allow one-way traffic.

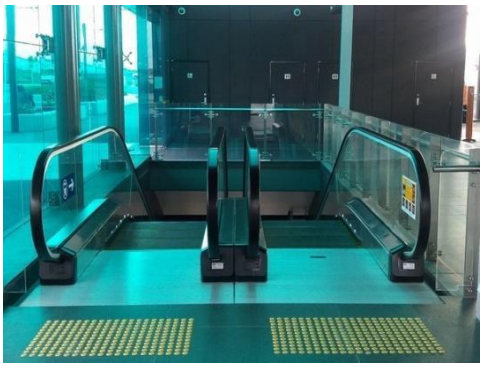
7. Circular stair systems should be avoided.
8. Where nosing extends over riser, bottom of nosing should be rounded or angled to limit the foot from catching underside of nosing.
9. Stair surface should be a plain colour or a simple pattern when patterns are used. The stairs extending from Level 3 viewing deck up to the 360 Restaurant have a patterned carpet which may confuse persons using stairs.

3.7 Escalators & Moving Walkways

An escalator is installed along an alternative exit of the Concierge Area. The escalator is very rarely used.

Key Areas of Improvement:

1. A high contrast marking should be provided on step nosing and run alongside of escalator steps.
2. Tactile walking surface indicators should extend along the entire landing at top and bottom of escalator. The surface indicators should also be a contrasting colour to surrounding surface.
3. The direction of the escalator should be clearly signed and indicated.



Left Illustration: An example of an escalator with high contrast nosing and continuous strip along the side.

Right Illustration: An example of an escalator with high contrast tactile indicators at landings.

3.8 Security and Entry Systems

Airport style security screening systems are in place upon entry into CN Tower.

Key Area of Improvement:

1. All security screening gates at security screening area should be a minimum width of 810mm to accommodate a person using a larger mobility aid.

4. Interior Services & Environment

4.1 Lobby and Reception

A small lobby area is located adjacent the ticket sales area. This area includes a help desk and the reservation desk for 360 Restaurant. The Concierge lobby area is small and may become over crowded during busy times.

Key Areas of Success:

1. The Concierge reception area is central and main features are located adjacent to this area.
2. Directional signage is very good in lobby.

Key Areas of Improvement:

1. Signage is not consistent design with signage found throughout rest of building.
2. A washroom facility is located adjacent the Concierge area however requires users to travel down one level. A washroom facility should be located near the reception minimizing travel.
3. Limited seating in Concierge area. Seating options located near Le Cafe should be highlighted. Multiple seating options with varying styles of support should be available in lobby.

4.2 Reception Desks and Service Counter

There are several service counter located throughout the CN Tower. The main two counters are ticket sales and guest service. Secondary service counters include the 360 Restaurant reservation counter and lobby, EdgeWalk counter and Skypod sales counter.

Key Areas of Success:

1. Service desks are within view of entry points.
2. Clear space in front of desks to approach.
3. Information at service desks include large font and good contrast.

Key Areas off Improvement:

1. Service counters located throughout the CN Tower are very high (960mm) and may not be accessible while seated. Service counters should be lowered to an accessible height. Desk heights between 730-860mm are a universally accessible height making them more accessible to a greater number of people.
2. There is often limited knee recess or overhang at service counters. Knee recesses should be available at all counters.
3. Signage above service desks indicating purpose of desk, should have good legibility. Lettering should be a solid colour with a solid background.
4. Informational signage at service windows should be available with raised lettering and Braille.

5. Service desks should colour contrast the surrounding floor and wall surfaces. This makes the service desks visually distinguishable from surroundings surfaces.

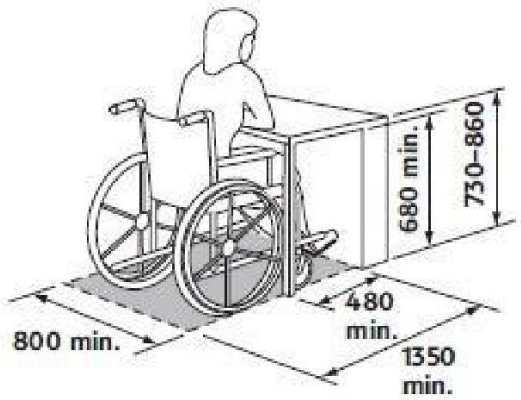


Illustration: Example desk shows universal height service counter, with accessible knee recess. Also note the contrast between floor and counter colour. Payment machines are within reach of a person in seated position.

4.3 Waiting Areas and General Seating

Interior waiting and seating areas are limited within the CN Tower. A large seating area can be found adjacent to Le Cafe in the lower Retail Level.

Key Areas of Success:

1. Room for people to move throughout seating areas.
2. Seating in meeting rooms have arm and back supports. Seating includes adjustable supports and height.

Key Areas of Improvement:

1. Although a seating area is located in the lower Le Cafe area, there is limited designated seating at the Ticket sales or Concierge area. It is recommended that a seating area be added in close proximity to the Concierge area. This will allow patrons that may have limited mobility endurance to rest after purchasing tickets and before touring the CN Tower.
2. Seating options should include seating options with a variety of support, colours, and shapes styles. Surface should be neutral patterns with non-slip upholstery.
3. Seating should also be arranged that there are clear spaces beside seats to accommodate people using mobility aids or service dogs.
4. Tables located in waiting areas should have rounded corners and edges.

Left Illustration: Shows a universal designed seating area. Note the distinct floor contrast between seating area and circulation route. Also note the variety of seating options including seating with arm and back support.

Right Illustration: Shows colourful seating options that offer obvious contrast to floor surface. Note the rounded corners of the tables.

4.4 Acoustic Considerations

Key Areas of Success:

1. PA system volume is adjustable on each floor and is capable of paging localized areas on floors or stairwells.

Key Areas of Improvement:

1. Sound dampening should be installed at transaction points or where other information transferred audibly. This is especially important in larger areas where background noise can interfere with verbal transactions.
2. Where public announcement systems are installed and may be regularly used, a PA system should use a direct induction loop to connect to hearing aid devices. This enables public service announcements to be made without causing echoing or feedback which can damage a person's ear.
3. Sound dampening technology and architectural features should be increased along halls and in areas where large numbers of people are expected to be gathered. This will help cut down on background noise which may make it difficult a person who may rely on sound to navigate through spaces.

Left Illustration: Shows a large open space with an acoustical stretch ceiling.

Right Illustration: Shows an acoustical wall surface solution.

4.5 Illumination Consideration

Key Areas of Success:

1. Signage is illuminated with additional lighting.

Key Areas of Improvement:

1. Illumination levels should be consistent throughout especially where elevation changes. The ramp from the Concierge are to Le Cafe has low illumination levels. Illumination levels should be increased where needed to.
2. Wayfinding cues and signage should be illuminated with non-glare lighting.
3. Artificial illumination sources have limited glare on wall and floor surfaces. However interaction of natural light on floor surfaces can cause glare. Window tinting, window covering or non-reflective floor finishes should be applied to help reduce glare.

5. Sanitary Facilities

5.1 Washrooms

There are many washrooms throughout the CN Tower. Washrooms are each different and have different levels of accessibility and features. There is limited consistency between washrooms. A new universal washroom with adjustable change table and other features can be found on Level 3 viewing deck.

Key Areas of Success:

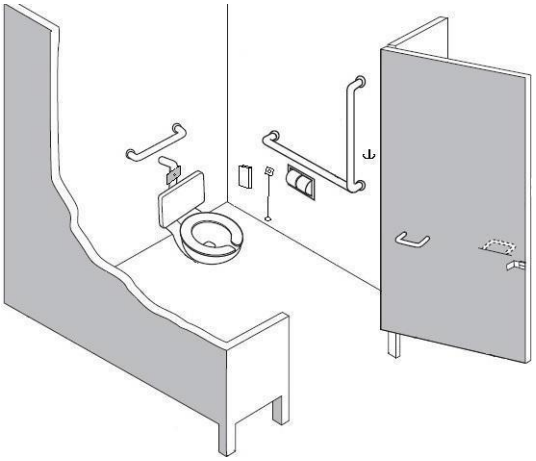
1. Full universal washroom available in viewing levels.
2. Automatic flush toilets throughout washrooms.

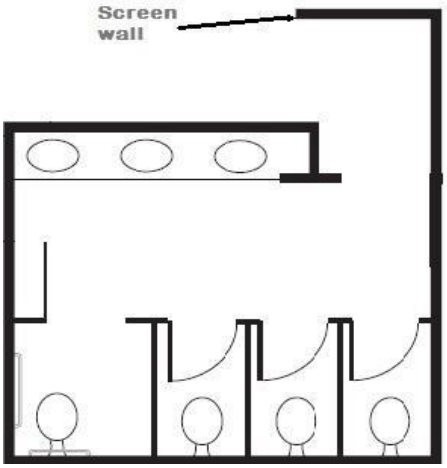
3. Washroom sinks are generally within recommended height and include knee space.
4. Hand dryers are motion sensor activated.
5. Child change tables are located in most washrooms, disposal bins located adjacent change tables.

Key Areas of Improvement:

1. Where possible, washrooms should include a screen wall entry in place of power doors or manual doors. This eliminates the need for door operation and possibility of pinch points at door openings. A screen wall opening should have a clear width to allow two people to pass each other.
2. Where doors are installed at washroom openings, clear width of door opening should be 860mm.
3. Where doors are installed at washroom openings, doors should visually contrast surrounding walls and floor surfaces.
4. Hardware on washroom stall doors must be accessible. D-ring handles on both sides of doors, door locks must be operable with a closed fist and doors should be self-closing and rest no more than 50mm from door jamb when not in use.
5. A universal washroom should be available on the main floor levels.
6. In addition to the features found in the universal washroom located on the Level 3 observation deck these features should include: an emergency call button that is operable from floor level, fold down grab bar on the transfer side of toilet, a sink should be located within reach of toilet, a sanitary disposal bin should be within reach of toilet, and plumbing below sink should be protected, universal washroom transfer space provided should alternate sides of toilet and should be kept clear of obstructions, washroom locks should be easily unlockable from exterior side.
7. A universal washroom with family facilities should include the following: room large enough to support a small family with stroller and/or mobility aid, an accessible toilet, a baby change table mounted at an accessible height that includes knee clearance.
8. Grab bars mounted in single-sex washrooms are often mounted at incorrect and inconsistent heights/locations.
9. Toilets located in accessible stalls, family washrooms and universal washrooms must have back support.
10. Toilet paper dispensers are often placed at incorrect and inconsistent locations. Toilet paper dispensers should be located within reach of toilet without need to lean forward or reach.
11. Urinals must colour contrast surrounding surfaces. Variable height urinals must be available without step ups. Grab bars and privacy screens should be installed on both sides of the urinals.
12. Wall mounted fixtures and amenities should be mounted consistently between 1000-1200mm above finished floor.

13. All fixtures should be motion sensor activated including faucets, soap and hand dryers/paper towels. It is also important that a hand dryer be placed adjacent to sink and a person is not required to travel from sink area to access hand dryers.
14. Emergency call buttons in accessible washrooms and stalls should be operable from ground level.
15. Washroom signs should be a consistent design and located in the same area on all washrooms. Signs should include raised lettering and Braille.





Left Illustration: Example accessible washroom stall. Note door handles on both sides of door, sliding door latch, and placement of toilet paper, garbage on sidewall beside toilet, emergency call button operable from seated position and floor, and backrest.

Right Illustration: Example washroom layout of screen wall entry in place of door. Eliminating door removes pinch points at door frames, removes need for power door openers, and allows everyone to enter and exit washroom quickly and safely.

6. Wayfinding, Signage and Information

6.1 Wayfinding and General Signage

The designed flow of traffic directs users through the CN Tower. Several areas have distinct floor finishes to help visitors way find. However, many areas have few or no distinguishable architectural wayfinding features. Signage is placed regularly along path of travel and at decision points. There is a lack of consistency in signage design throughout the CN Tower.

Key Areas of Success:

1. Floor signage and overhead signage is regularly placed at decision points.
2. A new mobile application is available to assist visitors navigate through CN Tower.

3. A view finding mobile application is also available that gives information about what can be seen from each viewing level.
4. Signs include international symbols.

Key Areas of Improvement:

1. Signage can have glare from lighting at certain angles. Reflective surfaces should be avoided and flat lighting sources should be used.
2. Font sizes should be increased, which will help to increase readability.
3. Signage should include upper and lower case font, use of wholly capitalized wording should be avoided.
4. Signage should be of a consistent design and style throughout the facility.
5. Sign font should have adequate contrast to sign background, 70% contrast is recommended.
6. The mobile navigation application can be improved to increase wayfinding capabilities with the addition of verbal instructions.
7. Distinct interior design features should be increased to help a person distinguish between certain areas. Architectural wayfinding features should be augmented to assist navigation throughout the CN Tower.

Left Illustration: A zone using colour to provide distinct identity. Note the obvious distinguishable path of travel.

Right Illustration: Colourful surface finishes being used to guide visitors along path of travel to certain zones.

6.2 Room Signage

Although the need for room signage is limited in most instances, there are several areas where room signage is used. Room signage can be found in the basement meeting rooms and Maple Leaf Theater. These guidelines are not intended for washrooms.

Key Areas of Success:

1. Limited number of rooms closed to visitors.

Key Areas of Improvement:

1. Room signage should be included on utility rooms, medical and sick rooms and support features.
2. Room signage font should have solid colour background and high contrast text.
3. Room signs should include raised lettering and Braille.
4. Text on signs should be limited to only necessary information and simply worded. This helps to reduce reading time and confusion.
5. Signs are often placed on doors. Room signage should be consistently on the wall of the latch side of the door.
6. Lettering must visually contrast with the background of sign.
7. Meeting and office rooms should include logical numbering system.

Illustration: Example room sign including raised lettering and Braille. Note the high contrast colour font.

6.3 Communication

Key Areas of Success:

1. The CN Tower website has an large quantity of information regarding the history, statistics, directions, amenities, etc.
2. The website is very accessible.
3. A visual messaging system is available in certain areas of the CN Tower.

Key Areas of Improvement:

1. A comprehensive digital visual messaging system should be installed throughout CN Tower visitor areas.
2. An assistive listening system should be installed in meeting rooms and the Maple Leaf Cinema.
3. A comprehensive accessibility awareness training program should be developed to instruct staff how to communicate, assist, and how to handle difficult situations. A program should include written materials and ongoing regular onsite training tailored to the particular needs of the CN Tower.

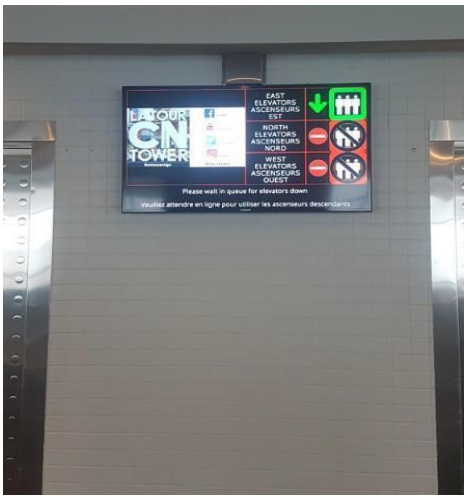


Illustration: Photo of messaging system installed on Level 2 viewing deck.

7. Emergency Systems

7.1 Emergency Exits

In event of emergency, 6 elevators remove persons from top of Tower. Generators operate in event of power loss. Emergency exit stairs are kept locked in normal circumstances however exits unlock during emergency alarm.

Key Areas of Success:

1. New style green running man emergency exit signs are installed throughout.
2. Stair chairs are available and located in stairwells in viewing levels.
3. Backup generators continue to power elevators during power loss.
4. PA system can page into stairwells. Phones within stairwells able to contact emergency control station.

Key Areas of Improvement:

1. Refuge areas should be made and available at every escape designated stairway on each building level. Refuge areas should include a hands-free two way communications systems connected to an emergency response system, and a power outlet.
2. Blade signage indicating refuge areas should be installed, complementing flush mounted signage.
3. Evacuation procedures should be posted at consistent and correct heights, increasing readability to persons in a seated position.
4. Evacuation procedures should have limited surface glare.

5. Evacuation instructions should include large font that is easy to read during low illumination levels.
6. Raised font and Braille should accompany the written evacuation instructions.
7. Clear space should be kept in front of evacuation maps and instructions.
8. Fire escape doors should be a bright, easily discoverable colour, contrasting surrounding surfaces.
9. Emergency exit stairs should be equipped with photo luminescent strips along stair nosing and/or running along stair hand railings.

Illustration: Example of photo-luminescent installed along stair railing and on stair nosing.

7.2 Fire Alarm Systems

Visual fire alarms are installed in public spaces in conjunction with audible fire alarms. Visual fire alarms are missing from most washrooms and other private areas. A visual messaging system is available in certain areas; however, many screens do not yet have visual messaging capabilities.

Key Areas of Success:

1. A visual messaging system is being installed and is available in certain areas.

Key Areas of Improvement:

1. Visual fire alarms should be installed in any area where audible fire alarms are installed. Visual fire alarms are especially important in areas where a person may be alone.
2. Fire pulls should be installed at a consistent height, no higher than 1100mm above finished floor.
3. A visual paging and messaging system, capable of displaying messages to visitors, should be implemented throughout the entire building.

8. Additional Use of Space

8.1 Public Assembly

The Maple Leaf Cinema is a comfortable 140 seat theater located on the Administration Level of the CN tower.

Key Areas of Success:

1. Stage area is level with floor, no raised platform.
2. Sloped floor allows for unimpeded view of stage.

Key Areas of Improvement:

1. Accessible seating should be made available at a number of evenly distributed locations throughout the cinema.
2. Accessible seating areas should be level and firm. This prevents a person from slipping out of a seat or mobility aid, while seated.

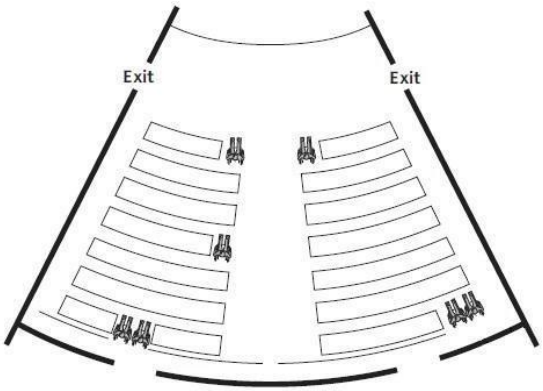


Illustration: Example of theater with space for accessible seating spread throughout seating area.

8.2 Cafeteria, Restaurants and Bars

There are 5 permanent food service facilities within the CN Tower, including: 360 Restaurant, 3 VUE Bistros, and Le Cafeteria. There is also a minimum of 1 food cart, located in exterior space.

Key Areas of Success:

1. VUE Bistro has lowered service counters and adequate leg space at service points.
2. Le Cafeteria has a shelf at an accessible height, running along service counter for food trays.
3. Most tables located within restaurant facilities are installed at an accessible height and include knee recess.

4. Most food items are served to visitors from behind food counter. This eliminates need for visitors to reach for food items.

Key Areas of Improvement:

1. An entry with no obstructions and a clear path of travel throughout all seated restaurants must be standard without need for special adaption. Seating areas should not impede on path of travel. This includes permanent entry solution into 360 Restaurant and access to lowered seating area.
2. Service counters should beat a standard accessible height without requiring a person to use a special counter.
3. Table heights should include variety of heights and knee space to accommodate a variety of persons using mobility aids.
4. Seating options should include a variety of seating styles with varied types of supports.
5. Cash register should clearly display price of purchase. This is particularly pertinent to the exterior vending cart.
6. Vending machines payment options should be at an accessible height and within reach of a person in seated position. Access to purchased products should not require a person to stoop or bend down in order to reach product.
7. Vending machine buttons should be raised and include raised lettering and Braille.

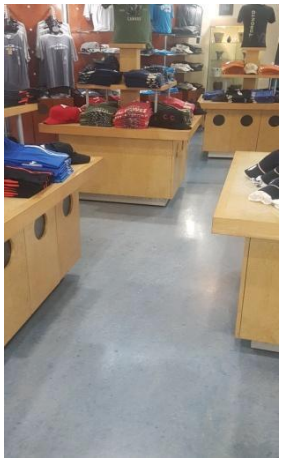
Illustration: Example of an accessible vending machine with lowered buttons and payment options. Also note the higher food retrieval slot, eliminating need to reach down.

8.3 Retail Outlets

The Tower's Gift Shop is a large 8000 square foot gift shop. Items are placed on shelving, tables and racks. Most, but not all items are arranged vertically.

Key Areas of Improvement:

1. Service counters should be at an accessible height and offer adequate knee space to accommodate a person using a mobility aid.
2. Clear width between merchandise tables and racks should be a consistent width allowing a person using a mobility aid to easily travel without encountering pinch points.
3. Merchandise table and racks should be placed in an accessible layout that enables a person using a mobility aid to approach easily.
4. Merchandise on tables and racks should be arranged in a manner that they are accessible from seated or standing positions.



Left Illustration: Example of vertical product arrangement on retail shelving, where products are available in standing or seated positions.

Right Illustration: Narrow pathways and pinch points in CN Tower retail store.