

# ACCESSIBILITY STANDARDS for the BUILT ENVIRONMENT

City of Kitchener | 200 King Street West, Kitchener, ON N2G 4G7 P. 519.741.2200 | TTY. 1.866.969.2624

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Approved by Council: May 2017





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Accessible design is not just about designing for people with disabilities...it's about designing for people of all abilities.

### INTRODUCTION

The City of Kitchener's 'Accessibility Standards for the Built Environment' has been prepared to assist in implementing the accessibility requirements of Part IV.1 Design of Public Spaces Standards (DOPSS) of Ontario Regulation 191/11 (Integrated Accessibility Standards), under the *Accessibility for Ontarians with Disabilities Act 2005* (AODA). Developers and organizations are obligated to follow these standards in order to identify, remove and prevent barriers so that persons with disabilities can access and participate in activities within the community.

Under the City of Kitchener's Site Plan Approval process, this document will be utilized to ensure that plans have adequate provisions for accessibility, as authorized through the *Planning Act*. This document will also be used for City projects such as multi-use trails and pathways, and roadway design.

Please be advised that this document may not replicate all details of the DOPSS. Onus is on the proponent to ensure they are aware of legislation applicable to their proposed development or redevelopment.

The intension of the City of Kitchener is to maximize accessibility on a site. Property owners and their designers should consider the 'end users' of the sites to accommodate all people comfortably.

### **Regulation References**

For more information on Accessibility Standards in Ontario, refer to the *Accessibility for Ontarians with Disabilities Act,* 2005. The regulations can be by visiting:

www.ontario.ca/e-laws.

For further information regarding the Design of Public Spaces Standards (DOPSS), refer to Ontario Regulation 191/11 by visiting:

www.e-laws.gov.on.ca/html/regs/english/elaws\_regs\_110191\_e.htm.

The Ontario Building Code was amended in January 2015 to include enhancements for accessibility in buildings. Learn more about the changes to the Ontario Building Code by visiting: <a href="http://www.ontario.ca/laws/regulation/120332">http://www.ontario.ca/laws/regulation/120332</a>.

Accessible parking space requirements including parking space and access aisle dimensions can be found in Section 6: Off-Street Parking & Off-Street Loading of the City's Zoning By-law.

# 1.1 LOCATION OF ACCESSIBLE PARKING SPACES WITHIN SURFACE PARKING AREAS

### **General Requirements**

- a) Accessible parking spaces shall be located in close proximity to an accessible building entrance. A dedicated, safe path of travel from the accessible parking space to the entrance should be provided.
- b) Where there are multiple points of entry to a building(s), accessible parking spaces shall be distributed throughout the development.
- c) Asphalt within designated parking spaces should be benched / ramped flush with the adjacent curb or sidewalk.

# 1.2 ACCESSIBLE PARKING SPACES WITHIN A PARKING STRUCTURE

- a) Accessible parking spaces shall be located within close proximity to an accessible building entrance or be in close proximity to an elevator within a parking structure.
- b) Where a separate parking structure serves multiple buildings, accessible parking spaces should be located near an accessible pedestrian entrance of the parking facility.
- c) Accessible parking spaces within a parking structure should be located with direct access to an accessible building entrance and a parking structure exit. This allows people to access their parking space in extreme cases such as when an elevator is out of service or there is a power outage.
- d) Provide a level surface treatment with slip resistant markings. Where paved or concrete surfaces exist, access aisles shall be clearly marked.



Figure 1: Example of accessible parking spaces



Figure 2: International Symbol of Access



# 1.3 SIGNAGE FOR ACCESSIBLE PARKING SPACES

Each accessible parking space shall be identified with an accessible permit parking sign as per the Accessible Parking for Persons with Disabilities Regulation 581, under the *Highway Traffic Act*, 1990.

### **General Requirements**

a) A pavement sign with the 'International Symbol of Access' shall be provided (Figure 2).

### Size

b) Signage shall be a minimum of 300 mm wide by 600 mm high and may be mounted on a pole or wall or securely anchored in the ground (Figure 3).

### Location

c) Signage should be located 1.5 to 2.0 m above grade; 600 mm to 2.0 m from a curb edge, or on a building face within 2.0 m of curb.

Signage can be obtained through Kitchener Utilities by contacting 519-741-2200, extension 4166.

# 1.4 ACCESSIBLE PASSENGER LOADING ZONES

Accessible passenger loading zones or drop-off areas should be provided for taxis and other vehicles used to transport people.

### **General Requirements**

a) Many buildings require accessible passenger pick-up and drop-off areas and these facilities should be designed to provide comfortable waiting areas and allow safe and direct access to the facilities.

### Size

b) Drop-off areas should be at least 7.4 m long 2.44 m wide with a minimum vertical clearance of 3.6 m (Figure 4).

### **Slope**

c) The slope should 1-3% and a path of travel that is flush with the adjoining sidewalk.

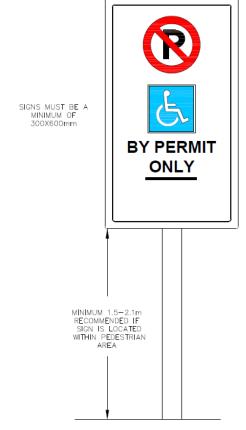


Figure 3: Example of an accessible parking space sign

### **Surface**

- d) Pick-up and drop-off areas should provide a level, non-slip, non-glare textured hard surface.
- e) Vehicle pull-up spaces should be provided outside of the regular drive aisles and be appropriately sized to accommodate the movements of larger passenger vans equipped with lift devices. Providing a protected shelter or canopy with seating facilities is recommended.

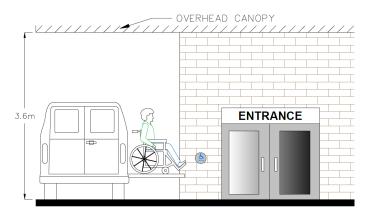


Figure 4: Example of vertical clearance at passenger loading zones

Exterior paths of travel consist of sidewalks and walkways as well as associated elements including curbs, ramps, stairs, handrails and landings. They serve a functional purpose for pedestrian travel.

### Size

- a) Sidewalks and walkways shall be a minimum width of 1.5 m.
- b) When parking spaces are perpendicular to one side of a sidewalk, the minimum sidewalk width shall be 1.8 m.
- c) Where parking is located on both sides of the sidewalk, a minimum sidewalk width of 2.1 m is required.
- d) Where there is a curb ramp on the path of travel, the minimum clear width may be reduced to 1.2 m to accommodate the flared sides and base ramp features of the curb ramp design.
- e) Obstructions such as vending machines, bike racks, utilities, mail boxes, planters, planting beds, etc., shall not encroach on to or obstruct the minimum path of travel.

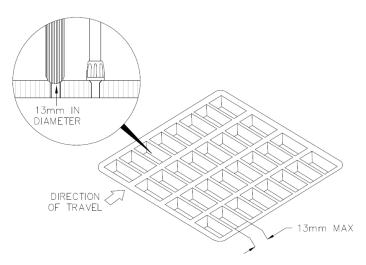


Figure 5: Surface openings diameter which includes vent grates, tree gates, grated stairs/landings, etc.

### **Slope**

- f) Running slopes shall be a maximum of 5%.
- g) Cross slopes shall be a maximum of 5% where the surface is asphalt, concrete or another hard surface, or no more than 10% in all other cases.
- h) Where there is a change in level along a path of travel, a requirement for bevels, slopes, curb ramps and ramps is necessary at different degrees of level change. The greater the change, the gentler the slope shall be.

### **Surface**

i) Where an exterior path has openings in its surface, the openings shall not have a diameter of more than 13 mm (Figure 5). Surface should be firm, stable and slip-resistant.

### **Additional Requirements**

- j) Head room clearance should be a minimum of 2.1 m. Where a 2.1 m headroom clearance cannot be achieved, a cane detectable barrier must be provided to define where the clear height has been reduced.
- k) For entry points to a sidewalk or walkway, a minimum clear opening of 850 mm should be provided, even where an entrance includes a gate, bollard(s), etc.





Figure 6: Examples of exterior paths of travel

### 2.1 EXTERIOR RAMPS

A ramp is required in circumstances where there is a gradient greater than 5% along a pedestrian route. Ramps provide a dedicated path for persons with limited mobility and improve maneuverability because they are equipped with handrails.

### **General Requirements**

a) Locate ramps as close as possible to the most direct path of travel. Where the location of the ramp is not readily evident from the main access route, provide a sign incorporating the international symbol of accessibility and a directional arrow indicating the location (Figure 10).

### **Size**

- b) Ramps shall be a minimum width of 1.2 m wide with a minimum internal clear width of 900 mm between handrails (Figure 7).
- c) If a door is provided, the landing shall be extended at least 600 mm beyond the latch of the door opening.
- d) Provide a minimum vertical clearance of 2.3 m.

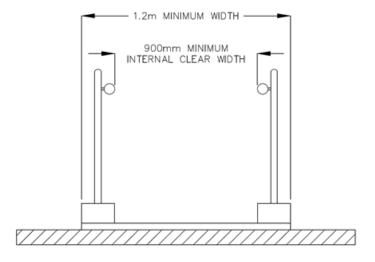


Figure 7: Example of ramp width specifications

### Slope

e) Maximum slopes shall be 6%.

### **Surface**

f) Provide a firm, stable, non-slip, non-glare surface of poured in place concrete, asphalt, or wood. Do not include aggregate or ridges which allow water or ice accumulation.

- g) Ramp surfaces shall have no opening that will permit the passage of a sphere more than 13 mm in diameter.
- h) Provide colour and texture contrast at the top and bottom of ramps.

### **Additional Requirements**

- i) The ramp shall have a wall or guard on both sides and where the guard is provided, it shall:
- Be no less than 1.07 m measured vertically to the top of the guard from the ramp surface; and
- Be designed so that no element, attachment or opening located between 140 mm and 900 mm above the ramp will facilitate climbing.



Figure 8: Example of ramp with handrails

- j) The ramp shall have edge protection that is provided:
- With a curb at least 50 mm high on any side of the ramp where no solid enclosure or solid guard is provided; or
- With railings or other barriers that extend within 50 mm of the finished ramp surface.



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- k) The ramp shall be provided with landings that meet the following requirements. Landings shall be provided:
  - At the top and bottom of the ramp;
  - Where there is an abrupt change in direction of the ramp; and
  - At horizontal intervals not greater than 9.0 m apart.
- l) Provide a landing at the top and bottom of the ramp at least 1.8 m wide by 1.8 m long with a cross slope not steeper than 2%.



Figure 9: Example of ramp with handrails

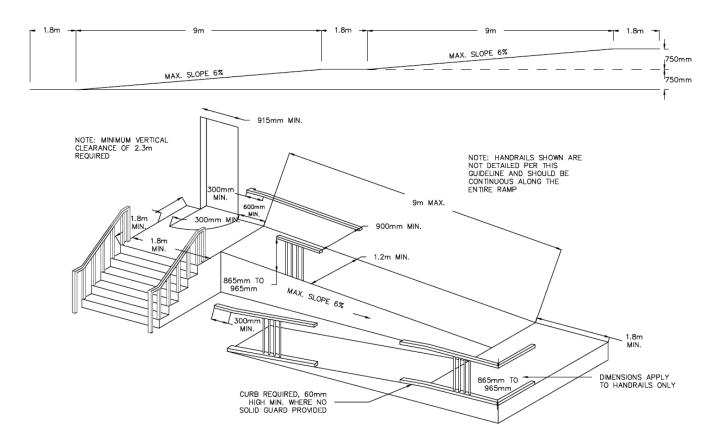


Figure 10: Example of ramp design specifications

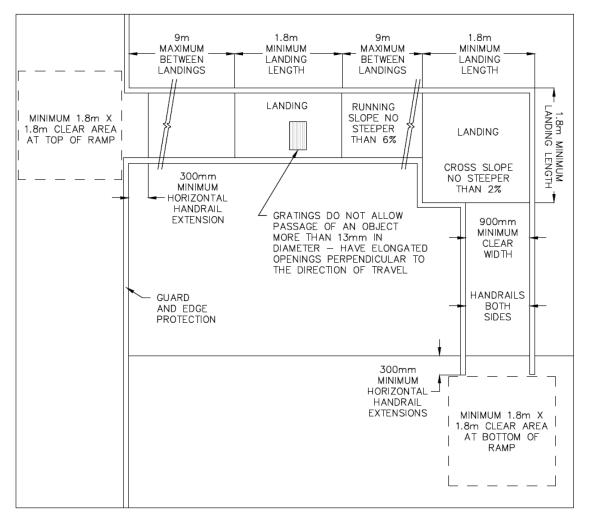


Figure 11: Overhead view of exterior ramp specifications

### 2.2 DEPRESSED CURB

A depressed curb is a portion of curb along a pedestrian route that is lowered to the level of the adjacent roadway and is usually found at intersections. A depressed curb improves the usability of sidewalks and walkways for all pedestrians.

### **General Requirements**

- a) Depressed curbs shall have a maximum running slope of 5% (Figure 13).
- b) Depressed curbs shall be aligned with the direction of travel.
- c) Where a depressed curb is provided at a pedestrian crossing, it shall have tactile walking surface indicators that:
- Have raised tactile profiles;
- Have high tonal contrast with the adjacent surface;
- Are located at the bottom portion of the depressed curb that is flush with the roadway;



Figure 12: Example of a tactile walking surface

- Are set back between 150 mm and 200 mm from the curb edge; and
- Are a minimum of 610 mm in depth.

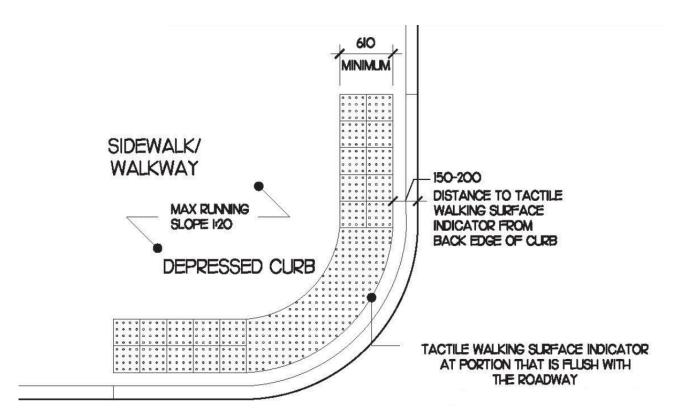


Figure 13: Overhead view of depressed curb specifications



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### 2.3 EXTERIOR STAIRS

Exterior stairs or stairs that connect to exterior paths of travel are often required to accommodate elevation changes. Stairs along pedestrian routes should be designed to accommodate persons with limited mobility/vision and provide a safe path for pedestrian circulation.

### Location

- a) Locate stairs near the most direct accessible path of travel.
- b) Locate stairs perpendicular to the pedestrian direction of travel.
- c) Locate stairs in safe and well-lit locations.

### **Size**

- d) Provide a minimum clear width of 1.8 m.
- e) Treads and risers shall have a uniform rise and run throughout a flight of steps. Rise shall be a minimum of 125 mm and maximum of 180 mm. Run shall be a minimum of 280 mm and a maximum of 355 mm (Figure 16).
- f) Flight of steps should not exceed 1.5 m in height without a landing.
- g) Provide a vertical clearance of 2.3 m.

### Slope

h) A cross-slope of 1% is recommended to ensure that steps are well drained and do not allow icing.

### **Surface**

- i) Provide a level non-slip, non-glare and textured hard surface. Do not include exposed aggregate or ridges which allow water or ice accumulation.
- j) Provide poured in place concrete (preferred), wood or concrete pavers. Poured in place concrete steps should have a broom finish which is perpendicular to the path of travel.

k) Provide colour and texture contrast at the top and bottom of flights of stairs and on stair nosings. Use a colour/lightness contrasted strip, a maximum of 50 millimetres deep on the leading edge on the tread and vertical face of the nosing. Steps shall be illuminated to a minimum level of 1.0 foot candles.

### **Surface Indicators**

- 1) Provide contrasting colours on the nosing of steps to assist persons with visual impairments.
- m) Nosing should not project. If a shadow line is proposed for decorative purposes, it should not have a height exceeding 12 mm (Figure 14).
- n) Provide a nosing radius or curvature between 6 and 13 mm.
- o) A guard shall be provided that is a minimum of 920 mm, measured vertically to the top of the guard from a line drawn through the outside edges of the stair nosings and 1.07 m around the landings. It is required on each side of a stairway where the difference in elevation between ground level and the top of the stair is more than 600 mm. Where there is a wall, a guard is not required on that side.
- p) Stairs shall have closed risers.

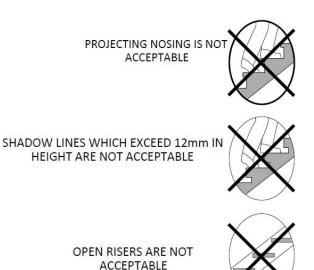


Figure 14: Example of unacceptable exterior stair features

- Stairs shall be equipped with tactile walking surface indicators that are built in or applied to the walking surface, and shall:
- Have raised tactile profiles;
- Have a high tonal contrast with the adjacent surface;
- Be located at the top of all flights of stairs; and
- Extend the full tread width to a minimum depth of 610 mm commencing one tread depth from the edge of the stair (Figure 17).



Figure 15: Accessible exterior stairs

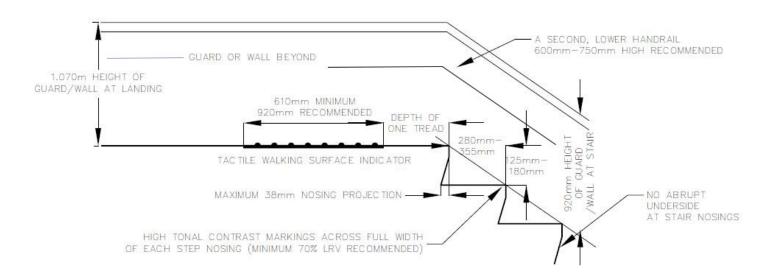


Figure 16: Example of exterior stair design

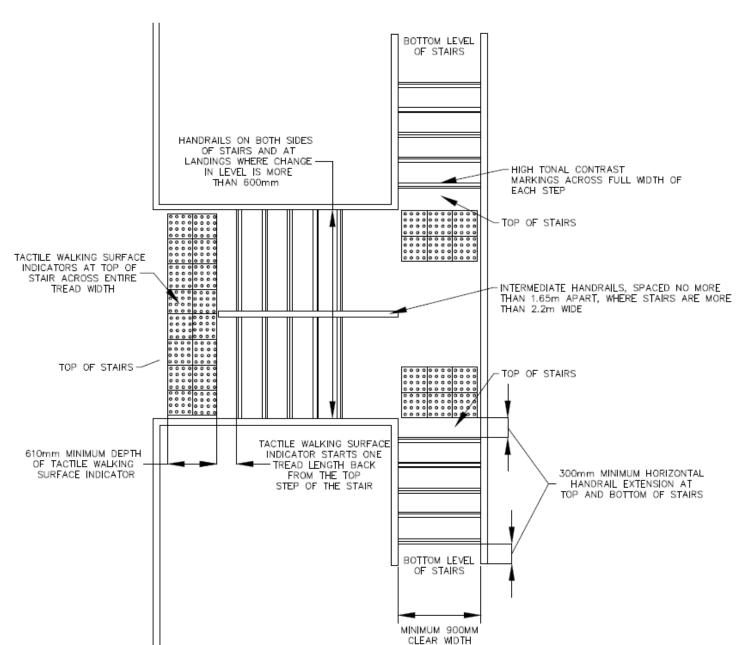


Figure 17: Overhead view of exterior stair design specifications

### 2.4 HANDRAILS

Handrails on ramps and stairs provide assistance and stability and function as a safety mechanism. They shall be designed to accommodate height differences and withstand the weight of a wide range of users.

### Location

- a) Handrails should be provided on both sides of ramps and stairs.
- b) Gradients of less than 5% do not require handrails. Handrails are required at elevation changes of 600 mm or greater.
- c) Where a ramp or stairway is more than 2.2 m in width, one or more intermediate handrails which are continuous between landings shall be provided and located so that there is no more than 1.65 m between handrails (Figure 17).

### Size

- d) Handrails shall be provided at a height between 865 mm and 965 mm as measured vertically from a line drawn through the surface of the ramp or stairway.
- e) Handrails shall be continuously graspable along their entire length and have circular cross-section with an outside diameter between 30 and 40 mm. Alternatively, provide any non-circular shape with a graspable portion that has a perimeter between 100 and 155 mm with the largest cross-sectional dimension a maximum of 57 mm (Figure 19).

- f) Provide a minimum clearance between every handrail and wall to which it is fastened a minimum of 50 mm (Figure 18).
- g) Extend horizontally a minimum 300 mm beyond the top and bottom of the ramp or stairway and curve to the wall or post.
- h) A minimum clearance of 900 mm is required between handrails.
- i) Avoid square edges. Terminate handrails in a manner which will not obstruct pedestrian travel or create a hazard. It is recommended that a continuous handrail terminate by returning the ends into the wall. Where there is no wall, the rail should terminate in the ground to provide an effective surface for cane detectability.
- j) Frequently used ramps or stairs shall have a second lower set of handrails with a recommended height between 600 and 700 mm.
- k) In instances where ramps or stairs are used extensively by children, a double set of handrails is encouraged.
- 1) Handrails and their supports shall withstand the loading values obtained from the non-concurrent application of a concentrated load a minimum of 0.9 kilonewtons (kN) applied at any point and in any direction for all handrails and a uniform load a minimum of 0.7 kN per metre applied in any direction to the handrail.

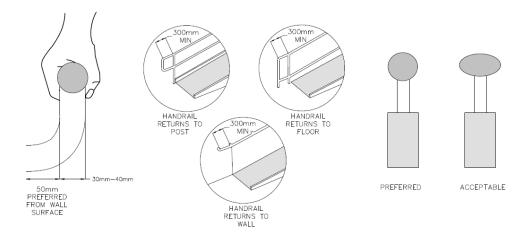


Figure 18: Handrail specifications

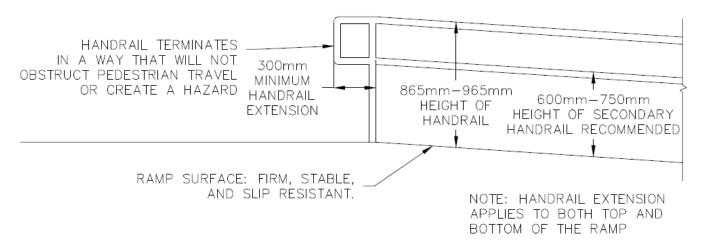


Figure 19: Handrail specifications

### 2.5 REST AREAS

Rest areas may consist of benches and/or level ground in which persons use to rest or wait. They may be found along exterior paths of travel or adjacent bus stops and drop off areas.

### **General Requirements**

- a) Rest areas shall be made of an acceptable accessible surface material that is a minimum of 3.52 m length by 1.2 m width (Figure 20). This dimension accommodates 1.82 m long bench and a 1.35 to 1.7 m long rest area beside the bench to be used for mobility devices including wheelchairs, walkers, and strollers and for service animals.
- b) Locate rest area directly abutting the exterior path of travel. The path of travel shall remain unobstructed.



Figure 20: Example of a rest area

### 3.0 ENTRANCES

Entrances should be safe, accessible and easy to use and shall allow for unrestricted access in and out of the building.

### Location

- a) Locate accessible entrances in prominent locations which are easy to find and sheltered from outside elements.
- b) In retrofit situations, at least one accessible entrance, preferably the main entrance, should be provided.
- c) Locate accessible main entrances near designated parking spaces and passenger loading zones.
- d) Grade level fire doors and exits shall be accessible and connect directly with accessible exteriors, as well as interior circulation routes.

### 3.1 ENTRANCE OPERATIONS

Entrance operators are recommended along accessible routes to accommodate people that may have difficulty operating manual doors. At main entrances and at other accessible entrances, automatic door openers or assisted door openers on both the exterior entrance and the related vestibule doors should be provided.

### **General Requirements**

- a) Motion sensors are the preferred automatic door activators. They should be timed to keep the door(s) fully open until the area is cleared.
- b) Motion sensors should be adjusted to fit the use. Wide zones should be used where there is side traffic; narrow zones should be used for direct approaches or swing doors (Figure 21).
- c) When motion sensors cannot be accommodated, push buttons should be placed 900 mm to 1.1 m above grade on a wall, post or handrail in a manner that does not create pedestrian or door conflicts.
- d) Push buttons should be square or round plates, at least 150 mm in diameter, or 50 mm by 100 mm when rectangular, with maximum colour contrast from the surrounding area for good visibility.

- e) Where push buttons are used on double (side by side) doors, swinging or sliding, the push buttons should be on the side of travel.
- f) Push bars should be easily locatable by vision or touch and be a minimum of 600 mm to 1.5 m in front of the door.
- g) Any exterior door not equipped with an automatic operator shall require a maximum force of 38 newtons (N) to open. Door closers shall take a minimum of 3 seconds to close from a 70 degree position.
- h) Where a revolving door is used, an adjacent accessible swinging door shall be provided.

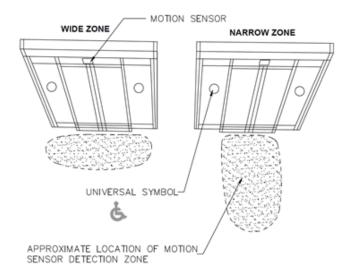
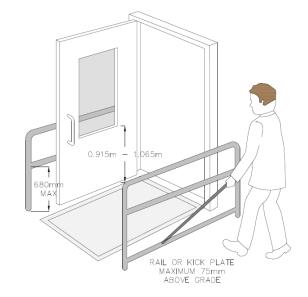


Figure 21 (above): Example of motion sensor detector zones and Figure 22 (below): Example of required guards at an outswing



## 4.0 RECREATIONAL MULTI-USE PATHWAYS AND TRAILS

Recreational multi-use pathways and trails are primarily intended for recreational and leisure purposes. They provide an inclusive experience that allows people of all abilities to enjoy more natural spaces within the City of Kitchener.

### Size

- a) Pathways and trails shall be a minimum width of 3.0 m to accommodate a wide range of users, and may be wider depending on the frequency and use of maintenance access requirements.
- b) Maintain a minimum vertical clearance of 2.1 m above all sections of pathways and trails. Obstacles must not be located lower than this height.
- c) Where low vegetation abuts a pathway or trail edge, maintain a minimum horizontal clearance of 1.0 m on either side of the trail.
- d) The entrance to a pathway or trail must provide a clear opening of between 850 mm and 1 m.

### **Surface**

- e) The surface of all pathways and trails must be firm, stable, non-slip and non-glare.
- f) Where a trail has openings in its surface, the openings shall not allow passage of an object which has a diameter of more than 20 mm. Any elongated openings must be oriented approximately perpendicular to the path of travel.
- g) Surfaces of pathways and trails shall be designed to accommodate maintenance and small emergency vehicles.

### Signage

- h) All recreational pathways and trails must have, at each trailhead, signage that provides the following information:
- The length of the trail;
- The type of surface of which the trail is constructed;
- The average and the minimum trail width;

- The average and maximum running slope and cross slope; and
- The location of amenities, where provided.
- i) Information such as distance to various destinations is encouraged.
- i) Trail head signage must have text that has high tonal contrast with its background and sans serif font.



Figures 23 & 24 (above and below): Accessibile trails



### 4.1 BOARDWALKS

Boardwalks are generally described as planked structures that are built close to the ground or over wet soil or water. They can be effective solutions to providing access for people that use mobility aids or have poor balance.

### Size

- a) Boardwalks shall be a minimum width of 2.4 m.
- b) Provide and maintain a minimum vertical clearance of 2.3 m above the boardwalk.

### **Slope**

c) Slopes greater than 5% and less than 10% shall be designed as a ramp, as per requirements set out in DOPPS Section 80.13 of Ontario Regulation 191/11.

### **Surface**

- d) Provide a firm, slip-resistant and stable surface treatment.
- e) Where a trail has openings in its surface, the openings shall not allow passage of an object which has a diameter of more than 20 mm. Any elongated openings must be oriented approximately perpendicular to the path of travel.

### Additional Requirements

f) Boardwalks shall have edge protection that is at least 50 mm in height.



Figure 25: Accessible boardwalk

### 4.2 WATER ACCESS ROUTES

Water access routes provide pedestrian access from offstreet parking facilities, exterior paths of travel, pathways, trails and amenities to an area of water, such as a beach or river edge. The requirements outlined apply to water access routes that can be either permanent or temporary, but do not include informal pathways or the river edge itself.

### Size

- a) A water access route must have a minimum clear width of 1.5 m.
- b) Provide and maintain a minimum height clearance of 2.1 m.
- c) Water access routes shall have a minimum clear opening entrance of 1.5 m, whether the entrance includes a gate, bollard or other entrance design.

### Slope

The following requirements apply to constructed, not natural, access routes:

- d) The maximum running slope of a water access route shall be 10%.
- e) The maximum cross slope shall be a minimum slope required for drainage but no more than 2%.
- f) The surface area must have a 1:2 bevel at changes in level between 6 mm to 13 mm.
- g) The surface area must have a maximum running slope of 10% at changes in level between 14 mm and 300 mm.
- h) The surface area must have a ramp that meets the requirements of DOPSS Section 80.13 of Ontario Regulation 191/11, where there are changed in level greater than 200mm.

### **Surface**

- i) Provide a firm and stable surface treatment.
- j) Where a water access route has openings in its surface, the openings shall not allow passage of an object which has a diameter of more than 20mm. Any elongated openings must be oriented approximately perpendicular to the path of travel.



Figures 26: Accessibile eating area

### 4.3 OUTDOOR PUBLIC USE EATING **AREAS**

Outdoor public use eating areas consist of tables in public areas intended for public use as a place to consume food. These areas are generally found in public parks, on hospital grounds and on university campuses. Owners of privatelyowned sites may wish to incorporate these standards to better serve their customers and end-users. Other spaces where outdoor eating areas may be found include seniors' facilities, privately-owned public spaces developed as part of an apartment or condominium, and outdoor patios at restaurants.

### **General Requirements**

- a) Provide accessible tables (Figure 26) at a minimum of 20% of the total tables provided, but never less than one.
- b) Provide knee and toe clearance underneath the table.
- c) The bottom edge of the table-top shall be no lower than 680 mm above ground level.
- d) Locate accessible tables within 30 m of accessible washroom facilities, concessions and viewpoints.
- e) Tables should be stable and fixed to the ground surface.

### **Surfaces**

- f) Ground surfaces leading to and under tables shall be level, firm and well-drained and slip-resistant.
- g) Provide clear ground space around accessible tables to allow unimpeded access.
- h) Providing at least 1.5 m of unobstructed ground space around tables, or at least 2.0 m when tables are placed sideby-side is encouraged.
- i) Accessible hard surface paths should be provided from parking spaces to outdoor eating areas and to other facilities.

### 4.4 OUTDOOR PLAY AREAS

Outdoor play areas provide play opportunities and experiences for children and caregivers. These areas include play equipment, such as swings, jungle gyms, splash pads and/features such as logs, rocks, sand or water.

### **General Requirements**

- a) Provide at least one accessible seating area within the vicinity.
- b) Outdoor play areas shall incorporate accessibility features, such as sensory and active play components, for children and caregivers with various disabilities.
- c) Elements which stimulate all senses such as water features, sand play areas, scented plantings and wind chimes are encouraged.
- d) Active play components, which are activities that include moderate to vigorous bursts of high energy that raise the heartrate, such as climbing or hop-scotch;
- e) Integration of accessible play components into play areas to promote inclusivity is encouraged; and
- f) Where required, include ramps or transfer systems to elevated play components.

### Size

- g) Sufficient clearance shall be provided to permit the ability to move through, in, and around outdoor play areas.
- h) Appropriate height, knee clearances, and reach ranges shall be provided for associates amenities including tables and water fountains.

### **Surface**

- i) Ground surfaces of outdoor play spaces shall be firm, stable, and have cushioning abilities for injury prevention.
- j) Surfaces that reduce the force of impact of children falling shall be located within the play areas as per the current Canadian Standard Association requirements for children's play areas.
- k) Materials may include synthetic poured-in-place play surfacing, synthetic tile, engineered wood fibers and certain types of rubber mulch.

### **Additional Requirements**

- l) Provide an accessible path of travel between outdoor play areas and other facilities such as accessible washrooms, concessions, water fountains or viewing points.
- m) Ground surfaces, such as pathways and trails, leading to accessible outdoor play areas shall be level, firm and well-drained.
- n) Adequate rest areas and shade opportunities along the route is encouraged.
- o) Play equipment design, manufacture/construction, installation, maintenance, and inspection practices shall be consistent with the current version of the Canadian Standards Associate CAN/CSA Z614-14 for Children's Play Spaces.



Figures 27 & 28 (above and below): Accessible play equipment

