

## Discussion Paper 1

## Site Safety in vicinity of Construction Sites

### Joint Fire+Building Proposal for Standata Working Title: ACCESS & ACCESSIBILITY

This document is prepared by Barrier-Free Sub-Council, for consideration by Building Technical Council and Fire Technical Council, with intention to provide guidance to safety codes officers, industry and owners and to promote consistency of approach to temporary provisions for site safety in the vicinity of construction sites (2014ABC-v 6).

#### DivA:1.1.1.1. Application of this Code

1) This Code applies to any one or more of the following ...

- i) the correction of an *unsafe condition* in or about any *building* or property,
- o) safety during construction of a *project*, including protection of the public and neighbouring properties.

*Unsafe condition* means any condition that, in the opinion of the *authority having jurisdiction*, could endanger the life, limb or health of any person authorized or expected to be on or about the premises.

*Building* means any structure used or intended for supporting or sheltering any use or *occupancy*.

*Project* means any construction, *alteration* or demolition operation.

*Public way* means a sidewalk, *street*, highway, square or other open space to which the public has access, as of right or by invitation, expressed or implied.

1. In relation to safety in the vicinity of a construction site, *the public way* is not excluded from application of the Code, which specifically applies to protection of the public and property, and to addressing perceived risks that could endanger the life, limb or health of any person reasonably on or about the property. A building is a structure intended to support a use; included in this description are temporary facilities such as stipulated in Part 8 provided for the public passing by a construction site.

#### DivA:2.2.1.1. Objectives

1) The objectives of this Code are as follows.....

##### OA Accessibility

An objective of this Code is to limit the probability that, as a result of the design or construction of the *building* or facility, a person with a physical or sensory limitation will be unacceptably impeded from accessing or using the *building* or its facilities (see Sentence 2.1.1.2.(5) for application limitations).

**OA1 Barrier-Free Path of Travel**-- An objective of this Code is to limit the probability that, as a result of the design or construction of the *building* or facility, a person with a physical or sensory limitation will be unacceptably impeded from accessing the *building* or facility or circulating within it (see Sentence 2.1.1.2.(5) for application limitations).

#### DivA:2.1.1.2. Application of Objectives

(See A-2.2.1.1.(1) in Appendix A.)

1) Except as provided in Sentences (2) to (6), the objectives described in this Part apply

a) to all *buildings* covered in this Code (see Article 1.1.1.1.), and

b) only to the extent that they relate to compliance with this Code as required in Article 1.2.1.1....

5) Objective OA, Accessibility (including Objectives OA1, Barrier-Free Path of Travel, and OA2, Barrier-Free Facilities), does not apply to

a) detached houses, semi-detached houses, houses with a *secondary suite*, duplexes, triplexes, townhouses, row houses and boarding houses (see A-1.4.1.2.(1), Secondary Suite, in Appendix A),

b) *buildings* of Group F, Division 1 *major occupancy*, and

c) *buildings* that are not intended to be occupied on a daily or full-time basis, including automatic telephone exchanges, pumphouses and substations.

#### DivA:3.2.1.1. Functional Statements

1) The objectives of this Code are achieved by measures, such as those described in the acceptable solutions in Division B, that are intended to allow the *building* or its elements to perform the following functions .....

**F73** To facilitate access to and circulation in the *building* and its facilities by persons with physical or sensory limitations (see Sentence 3.1.1.2.(3) for application limitation).

### DivA:3.1.1.2. Application of Functional Statements

1) Except as provided in Sentences (2) to (4), the functional statements described in this Part apply

a) to all *buildings* covered in this Code (see Article 1.1.1.1.), and

b) only to the extent that they relate to compliance with this Code as required in Article 1.2.1.1.

3) Functional Statements **F73 and F74** do not apply to

a) detached houses, semi-detached houses, houses with a *secondary suite*, duplexes, triplexes, townhouses, row houses and boarding houses (see A-1.4.1.2.(1), Secondary Suite, in Appendix A),

b) *buildings* of Group F, Division 1 *major occupancy*, and

c) *buildings* that are not intended to be occupied on a daily or full-time basis, including automatic telephone exchanges, pumphouses and substations.

2. Accessibility objective OA1 and functional statement F73 apply to all buildings and facilities other than specific small residential, high-hazard industrial and certain low-occupancy utility buildings. *Public ways* are not excluded from their application; accessibility provisions for persons with physical or sensory disabilities shall be part of any facilities provided for the public in the vicinity of a construction site.

### DivC:2.2.12.1. Prohibited Actions

1) No person shall ...

b) being responsible for the use, *occupancy*, relocation, construction, *alteration*, demolition of, or addition to a *building*, cause, allow or maintain an *unsafe condition*,

3. No *unsafe condition* is permitted to arise or persist in the performance of *work* in, on or around a *building*; barrier-free provisions shall be incorporated to facilitate safe passage of persons with disabilities.

### DivB:3.8.1.1. Application of Barrier-Free Design

1) The requirements of this Section apply to all *buildings* except

a) detached houses, semi-detached houses, houses with a *secondary suite*, duplexes, triplexes, townhouses, row houses and boarding houses, which are not used in social programs such as group homes, halfway houses and shelters (see A-1.4.1.2.(1), Secondary Suite, in Appendix A of Division A),

b) relocatable industrial accommodations,

c) *buildings* of Group F, Division 1 *major occupancy*, in which only the requirements dealing with hearing sensory disabilities would apply, and

d) *buildings* that are not intended to be occupied on a daily or full-time basis, including automatic telephone exchanges, pumphouses and substations, in which only the requirements dealing with hearing sensory disabilities would apply. (See Appendix A.)

2) *Buildings* required to be *barrier-free* must comply with all requirements designed to assist persons with physical, sensory and developmental disabilities.

**Appendix-B:3.8. Barrier-Free Design Assumptions.** This Section contains minimum provisions to accommodate a person using a typical manual wheelchair or other manual mobility assistance devices such as walking aids, including canes, crutches, braces and artificial limbs.

4. Barrier-free design principles should be applied in all buildings and in all areas other than the exceptions mentioned in this Article (per Appendix 3.8.1.1.(1)).

### INTERPRETATION

*Barrier-free* design principles, with objective to remove as many barriers as practical for persons with disabilities, shall be incorporated into the construction of temporary facilities providing protection for the public passing through or around a construction site. All public way users and private property users shall be provided with safe passage through or around any *project* or *work/development* that requires temporary closure or adjustment of the *public way*, *building* access or exit routes.

## ADDITIONAL EXPLANATORY MATERIAL FOR POTENTIAL INCLUSION IN BARRIER-FREE DESIGN GUIDE

### B:8.1.2.1. Application

1) Where a building is undergoing construction, alteration or demolition, measures shall be taken at the building site in conformance with this Code. (See Appendix A)

**Appendix 8.1.2.1.(1) Application** The use of streets or public property and vehicular traffic during construction or demolition is normally controlled by regulations of authorities other than the building department (e.g., police department).

Risk to the public in areas proximate to a construction or demolition site is reduced by application of provisions of Part 8--barricades, fences or covered ways, and active management of the area around the site. Enduring only as long as construction-related risks exist at the site, these temporary facilities must nevertheless be constructed to meet the needs of all users, including persons with disabilities.

### ABC2006:B:8.1.2.2. Protection from Risk

1) Precautions shall be taken to ensure that no person is exposed to undue risk.

*Wayfinding and signage* posted for any temporary *public way* or *street* variation, detour or closure should provide intelligible, appropriate and timely notice to the public of any planned changes to normal routes due to any *work* or development.

### B:8.2.1.1. Covered Way Exceptions

1) Where the construction may constitute a hazard to the public, work shall not commence on the construction, alteration or repair of a building until a covered way has been provided as described in Article 8.2.1.2. to protect the public, except where

- a) the work is done within a solid enclosure,
- b) the building is at a distance of 2 m or more from a public way used by pedestrians, or
- c) site conditions warrant a distance greater than provided in Clause (b).

### B:8.2.1.2. Covered Way Construction

1) A covered way shall

- a) have a clear height of not less than 2.5 m,
- b) have a clear width of not less than 1.5 m or the width of the *public way*, whichever is lesser,
- c) be designed and constructed to support safely all loads that may be reasonably expected to be applied to it, but in no case less than 2.4 kPa on the roof,
- d) have a weathertight roof sloped toward the site or, if flat, be equipped with a splash board not less than 300 mm high on the *street* side,
- e) be totally enclosed on the site side with a structure having a reasonably smooth surface facing the *public way*,
- f) have a railing 1070 mm high on the *street* side where the covered way is supported by posts on the street side,
- g) be adequately lighted when the *public way* is lighted, and
- h) have at each opening for pedestrian access, a gate not less than 1200 mm high that can be locked or bolted in a closed position.

### B:8.2.1.3. Fencing, Boarding and Barricades

1) When a construction or demolition activity may constitute a hazard to the public and is located 2 m or more from a *public way*, a strongly constructed fence, boarding or barricade not less than 1.8 m high shall be erected between the site and the *public way* or open sides of a construction site.

2) Barricades shall have a reasonably smooth surface facing the *public way* and shall be without openings, except those required for access.

3) Access openings through barricades shall be equipped with gates that shall be

- a) kept closed and locked when the site is unattended, and
- b) maintained in place until completion of the construction or demolition activity.

Where work may constitute a hazard to the public, suitable temporary protection must be constructed to shield the public from the hazard.

Covered ways are typically required to maintain public pedestrian access and egress from an existing building itself (in the case of alteration or repair) and any adjacent or adjoining buildings to which the site hazard extends due to the nature and scale of the work.

Sidewalk is defined by many municipalities as a part of the public way "...especially adapted to the use of or ordinarily used by pedestrians..." Pedestrians sometimes walk on the edge of a public way where there is no sidewalk because it is the most direct route or the only option, resulting in a level of pedestrian activity equal to that of a sidewalk; such routes require protection equal to sidewalk.

The clear width of the sidewalk sheltered under a covered way or remaining after fence construction is to be free of poles/posts, street furniture, trees, fire hydrants, utility boxes, signs and other streetscape elements that could be obstacles, tripping hazards, or obscure pedestrian visibility. Any projections/obstructions are subject to the provisions of 3.8.3.2. Detectable warning strips shall be installed at any change in height or slope of the walking surface, such as at the top of a ramp or where leaving a sidewalk to enter a roadway.

#### **B:8.2.3.1. Safe Passage Past Site**

- 1) Except as provided in Article 8.2.3.2., provisions shall be made at all times for the safe passage of pedestrians and vehicular traffic past the site.
- 2) Material or equipment shall not be placed on any *street* or other public property except as authorized.
- 3) Except as provided in Sentence (4), where a sidewalk exists adjacent to the site it shall be kept clear of obstructions at all times.
- 4) Where construction operations necessitate the obstruction of a sidewalk, a temporary sidewalk shall be provided and it shall be kept clear of obstruction at all times.

Sidewalks are to be kept clear of materials and equipment of any kind, unless permitted by the AHJ.

Where any part of the *public way* sidewalk must be obstructed or closed for *work* or other reason, a clearly marked or apparent alternative route that does not take pedestrians too far out of direction must be established providing an accessible, convenient path that replicates as nearly as practical the positive characteristics of the existing sidewalk provisions.

This safe, comfortable, accessible temporary route must be provided with suitable separation from vehicles, bicycles and the *work*, and be constructed as a covered way where it does not meet the test of 8.2.1.1. Temporary routes should not put pedestrians at risk by extending into or crossing a roadway without the appropriate barrier protection and signage. The clear width of this temporary sidewalk should be free of poles/posts, street furniture, trees, fire hydrants, utility boxes, signs and other streetscape elements that could be obstacles, tripping hazards, or obscure pedestrian visibility. Detectable warning strips shall be installed at any change in height or slope of the walking surface.

#### **B:8.2.3.2. Protection from Dangerous Activities**

- 1) Operations such as the hoisting of major components onto a tall building or other activities that constitute a hazard from which the public cannot be protected by barricades, covered ways or similar means shall not be carried out until the *street* or other *public way* is closed.
- 2) If the safety of pedestrians cannot be assured during hoisting of the undertaking of other hazardous operations, then the gates required by Sentence 8.2.1.3.(3) and Clause 8.2.1.2.(1) (h) that are located in the danger zone shall be closed and locked and pedestrians be redirected away from the danger.

Temporary, short-term closure of a *public way* is required when public cannot be protected from activities such as hoisting of steel, concrete, and other building components. This usually is brief, and involves all traffic passing under the load flight path.

More specialized access management strategies must be considered where numerous or excessively wide driveways impede pedestrian travel or create potential conflicts between vehicles, bicycles and pedestrians.

#### **B:8.2.3.3. Barricades**

Excavations in streets or public property shall

- a) be adequately barricaded, and
- b) have warning signs or lights installed on each section of the barricades referred to in Clause (a)

Cane-detectable temporary barriers and provisional accessible ways must be provided around localized, short-term repair sites (e.g. sidewalk repairs, manhole access covers, etc.), with intelligible signage appropriately provided.

\* \* \*

Alberta Building Code (with NBCC application in some National Park and federal facilities) with Alberta Transportation together contemplate safe passage of the public through, past or around any construction area. Normal or near-normal circulation is to be maintained, with due regard for separation of the construction site/work area from the public, while maintaining separation of vehicular traffic from persons afoot--with or without mobility aids. Closures are to be of short duration. Obstructions on all public property are to be removed when no longer needed, and any public property damage is to be restored to a safe condition.

#### **B:8.1.1.1. Scope**

3) Fire safety at construction and demolition sites shall conform to Section 5.6. of Division B of the Alberta Fire Code 2014.

#### **B:8.1.1.3. Demolition Procedures**

1) Measures shall be taken during demolition to protect the public in conformance with Section 5.6. of Division B of the Alberta Fire Code 2014.

#### **PEDESTRIAN ZONE 3.4.3** [InfraGuide2004; Government of Canada/National Research Council]

The width of the pedestrian zone for the sidewalk should be related to pedestrian demand, which is determined by the type of adjacent land uses. Each municipality should set its own guidelines for the minimum width of the pedestrian zone, depending on factors, such as pedestrian volumes, road classification, adjacent land use, and right-of-way width.

A clear pedestrian zone is required to accommodate pedestrians. No street furniture, trees, utilities, poles, signs, mailboxes, or other streetscape elements should be allowed in the pedestrian zone. Figures 3-1 and 3-2 show typical pedestrian zones for residential and commercial areas. The sidewalk grades and finishes in the pedestrian zone should be compatible with design guidelines outlined in Section 3.6.

This best practice recommends a minimum sidewalk width of 1.5 metres. When the sidewalk is located adjacent to the curb on major roadways, the width should be increased to 1.8 metres. The preferred width to provide for the safe passage between an adult and a person pushing a baby carriage or in a wheelchair, or a child on a tricycle is 1.8 metres.

**TRAFFIC ACCOMMODATION IN WORK ZONES** October 2004 | Technical Standards Branch, Transportation and Civil Engineering Division of Alberta Transportation...

#### **4. TRAFFIC ACCOMMODATION**

##### **4.7 ACCOMMODATING PEDESTRIANS ON URBAN HIGHWAYS**

Pedestrians shall be provided with safe passage through or around Work Areas on urban highways. When passage is provided through the Work Area, suitable provisions shall be made to ensure pedestrians are physically separated from workers and equipment. When pedestrian traffic cannot be accommodated through the Work Area, an alternate route shall be made available.