Project Implementation Plan
Guide - Appendix

It is intended that this appendix to the Project Implementation Plan Guide (the "Guide") be interpreted in the context of each site's unique conditions. Common regulatory requirements that may apply to activities associated with building construction, alteration or demolition are included, but the list is not exhaustive. Legal advice should be sought to ensure that all relevant legislation is identified when a specific regulatory issue arises. Use of this appendix and the Guide does not exempt owners or contractors from their responsibilities under applicable legislation. In case of inconsistency between this Guide and legislation, the legislation shall prevail. In case of similarity between various legislated requirements, the most stringent legislated requirement shall prevail.

The City of Edmonton does not hold itself out to be an active participant in the day-to-day operations of the site, and involvement through permit issuance, site checks, audits and inspections, and provision of this appendix and the Guide is not to be misconstrued as exercising project managerial responsibility. Safety codes officers are not responsible for the means and methods of construction by the constructor or subcontractors and assume no responsibility for the work proposed or done which is required to be in accordance with the Safety Codes Act and regulations including National Building Code (Alberta Edition), and Safety Codes Permits Bylaw 15894 and other relevant legislation.

The City of Edmonton, its agents, employees and contractors make no warranties or guarantees as to the completeness or accuracy of the Project Implementation Plan Guide or appendix for your specific project and circumstances, and accept no liability for any damages, direct or indirect, arising out of their use. Ensure you reference the correct edition of any Act, code, standard or bylaw as they are updated from time to time. Feedback to: BuildingSafetyCodes@edmonton.ca RE: Project Implementation Plan

1 - Regulations relevant to common non-compliances

This appendix, to be read in conjunction with the Project Implementation Plan - Guide, also referred to as PIP Guide, identifies some of the most common regulatory requirements that **may apply** to activities and projects associated with your building construction, alteration or demolition project. The order of text in this appendix mirrors that of the Project Implementation Plan Guide "PROCEED" Chapter, Sections 7, 8 and 9. Enforcement officers determine relevant legislation when assessing any non-compliance, as every conceivable event or circumstance cannot be anticipated or listed herein.

This appendix is not intended to be any form of legal advice, and is not exhaustive. Seek legal advice if necessary to ensure that all relevant legislation is identified and complied with when a specific regulatory issue arises. In case of inconsistency between PIP Guide, appendix and legislation, the legislation shall prevail. In case of similarity between various legislated requirements, the most stringent legislated requirement shall prevail.

NBC(AE) refers to the National Building Code (Alberta Edition); OHS refers to the Occupational Health and Safety Code.

General

Safety Codes Act (Permit issues) 44 …

(2) A safety codes officer or other person designated by an Administrator may include terms and conditions in a permit.
(4) A person who acts pursuant to a permit shall do so in accordance with this Act and shall comply with this Act and any terms or conditions contained in the permit.

NBC(AE):DivC:2.2.2.1. General Information Required

1) Sufficient information shall be provided to show that the proposed work will conform to this Code and whether or not it may affect adjacent property.

NBC(AE):DivC:2.2.13.1. Notification

1) Before starting work on a project, the owner shall give written notice to the authority having jurisdiction of the date on which work will start.
2) Before starting work on a project, the owner shall give written notice to the authority having jurisdiction, listing the name, address and telephone number of

a) the constructor or other person responsible for the work,
b) any professional permit holders involved in the project,
c) any registered professionals involved in the project, and
d) any inspection or testing agency engaged to monitor the work.

3) The owner shall give written notice to the authority having jurisdiction of any change during the course of the project to the entities or persons listed in Sentence (2), immediately after the change occurs.

NBC(AE):DivC:2.2.13.3. Change of Ownership

1) The owner shall give written notice to the authority having jurisdiction of an impending change in ownership.

NBC(AE):DivC:2.2.13.4. Availability of Documents

1) The owner shall ensure that the plans on which the permit was issued are available at the project site for inspection by the authority having jurisdiction.

NBC(AE):DivC:2.2.14.1. Safety During Construction

1) The constructor shall be responsible for ensuring compliance with Part 8 of Division B and, when required, shall retain a registered professional to design temporary structural members such as formwork, falsework, hoarding and scaffolding. (See Article 4.1.1.3. of Division B.)
2) The constructor is responsible jointly and severally with the owner for any work undertaken.

NBC(AE):DivC:2.2.14.2. Responsibility for Damage

1) The owner shall be responsible for the repair of any damage to public property or works located thereon that occurs as a result of any work undertaken.
2) The owner shall ensure that work undertaken does not damage or create a hazard to adjacent properties.

NBC(AE):DivC:2.2.14.3. Cranes and Equipment

1) The authority having jurisdiction may order the method of construction to stop and the equipment used in that method of construction to be removed if cranes or other equipment used in a particular method of construction
- a) interfere with public safety,
- b) create an unsafe condition, or
- c) interfere with, disrupt activities on, or impede access to
  - i) adjacent properties, or
  - ii) public facilities within the municipality.

Project means any construction, alteration or demolition operation.

7 DEMOLITION

A demolition that is safe for workers per the OHS Code coincidentally contributes to the NBC(AE) goals of safety of the public and avoidance of damage to adjacent properties and infrastructure...

OHS Act s3 (1) Every employer shall ensure, as far as it is reasonably practicable for the employer to do so,
(a) the health, safety and welfare of **…**
(iii) other persons at or in the vicinity of the work site whose health and safety may be materially affected by identifiable and controllable hazards originating from the work site, …

Safety Codes Act s44 (2) A safety codes officer or other person designated by an Administrator may include terms and conditions in a permit.

Permit Regulation s22 A permit issuer may issue a permit for an undertaking, or part of the undertaking, and may,…subject to the applicable policies of the Minister and of the accredited municipality…, impose terms and conditions on the permit that are consistent with the purpose and intent of the Regulation....

Bylaw 15894 s6 (2) The City Manager may impose any conditions on a permit as are deemed necessary to ensure compliance with the Safety Codes Act, the Regulations, this bylaw and any other legal requirements

Bylaw 15894 s18 When an undertaking for which a permit has been issued is ready to be tested for compliance with the Safety Codes Act and Regulations the person holding the permit shall notify the City Manager..

NBC(AE):DivA:1.1.1.1. Application of this Code

1) This Code applies to any one or more of the following:…
- g) the demolition of any building,
- i) the correction of an unsafe condition in or about any building or property, …
- k) the work necessary to ensure safety in parts of any building that
  - i) remain after demolition, or
  - ii) are affected by, but are not directly involved in, additions or alterations, …
- n) the work necessary to ensure safety in a relocated building during and after relocation, **and**
- o) safety during construction of a project, including protection of the public and neighbouring properties.

NBC(AE):DivC:2.2.14.1. Safety During Construction

1) The constructor shall be responsible for ensuring compliance with Part 8 of Division B and, when required, shall retain a registered professional to design temporary structural members such as formwork, falsework, hoarding and scaffolding. (See Article 4.1.1.3. of Division B.)

2) The constructor is responsible jointly and severally with the owner for any work undertaken.

Bylaw 5590 s58 Unless a permit authorizing the activity has been issued by the City a person shall not:
(a) place, cause or permit to be placed a surface other than grass on a boulevard except on a driveway or a sidewalk; …
(e) move, cause or permit to be moved any house or other building across a boulevard

Fencing ...

NBC(AE):DivB: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 pedestrian 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.

NBC(AE):DivB:8.2.1.3. Fencing, Boarding or 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.

NBC(AE):DivB: 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).

Bylaw 15894 s13 (1) No person shall place any hoarding on a highway unless the person obtains a permit allowing that person to place hoarding on a highway.

s14 (1) If any covered way, fence, railing, boarding or barricade is required pursuant to the Regulations and is to be located on a highway, then the owner shall provide protection for pedestrians as follows:.....

Bylaw 5590 s68 (2) A person shall not erect, cause or permit the erection of any hoarding on a highway unless a permit authorizing the hoarding has been issued by the City.

Petty Trespass Act s2.2 Entry is prohibited without any notice on land
(a) that is a lawn or garden, …
(c) that is surrounded by a fence, a natural boundary or a combination of a fence and a natural boundary, or
(d) that is enclosed in a manner that indicates the owner's or occupier's intention to keep persons off the land or to keep animals on the land

Before beginning demolition…

- Conduct a survey to assess the potential effects of demolition operations…

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property

1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent
a) damage to, or movement of, any part of the adjoining building, and
b) the creation of a hazard to the public.

- Ensure that utilities have been located, shut down, terminated and labelled…

NBC(AE):DivB: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 NFC(AE).

NFC(AE):DivB:5.6.2.1. Services Shut-off

1) Except as provided in Article 5.6.2.2., before excavation begins, building services shall be shut off, terminated and labelled so as to be easily identifiable outside the limits of the excavation. (See also Sentence 5.6.1.9.(1).)
2) The service company whose service connections will be affected shall be notified before any action mentioned in Sentence (1) is taken and, if it is necessary to maintain any service, it shall be
a) relocated as necessary, and
b) protected from damage.

NFC(AE):DivB:5.6.2.2. Maintaining Existing Services

1) Existing gas, electrical, water, steam and other services are permitted to be left within the area of the excavation, provided that
a)before work begins, the service company concerned has approved the proposed method of operation,
b) the location of the services is determined before excavation commences,
c) a suitable method of excavation is adopted that will ensure that the services are not damaged, and
d) the services are provided with suitable temporary supports.

EPCOR Water and Drainage Customer Connection Guide

- Confirm any underground tank/piping and well decommissioning is complete…

NFC(AE):DivB:4.3.17.1. Removal

1) Except as permitted in Article 4.3.17.2., when an underground storage tank system has no further use or has been out of service for 2 years,
a) the owner shall notify the authority having jurisdiction in writing at least 30 days before the removal of an underground storage tank system,
b) storage tanks shall have all flammable liquids and combustible liquids removed from them,
c) storage tanks shall be purged of vapours and removed from the ground (see Note A-4.3.17.1.(1)(c)), and
d) the associated piping shall be
i) purged of vapours and the ends permanently sealed by capping or plugging, or
ii) removed from the ground.
2) If soil surrounding the storage tanks described in Sentence (1) is found to be contaminated, the owner shall
a) notify the authority having jurisdiction,
b) when requested, provide a report showing the extent of the site soil contamination, and
c) remove, treat or replace the contaminated soil in a manner acceptable to the authority having jurisdiction.

- Confirm any water well decommissioning is complete …

Water Wells: Guide for Private well owners in Alberta Chapter 8 Decommissioning (Reclamation)

- Ensure asbestos-containing materials are managed per OHS requirements

NBC(AE):DivB:2.2.13.1. Notification

4) Before starting work, an owner proposing to alter or demolish a building shall give written notice to the authority having jurisdiction that the plans describing the asbestos management and abatement work have been submitted to Occupational Health and Safety for compliance with the Occupational Health and Safety Act and its Regulations and that the work has been completed.

- Have acquired the appropriate building permit for demolition

Safety Codes Act s43(1) If this Act requires a person to have a permit to sell, construct, control or operate any thing or supervise, operate or undertake any process or activity, no person shall do so unless the person has the appropriate permit.

Bylaw 15894 s4 (1) Subject to subsection (2), a person shall not start any undertaking for which a permit is required pursuant to this bylaw unless a permit has been issued.

During demolition...

- Control dust or debris from blowing off the site

Bylaw 14600 s6 (1) A person shall not cause or permit a nuisance to exist on land they own or occupy...

S38.6 (1) A person shall not engage in any activity that creates odour, emission, smoke, vapour, dust or other airborne matter that is reasonably likely to disturb another individual…

- Ensure demolition proceeds with vibration levels that will not harm ...

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property

1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent

a) damage to, or movement of, any part of the adjoining building, and

b) the creation of a hazard to the public.

- Conduct periodic examination of adjacent structures and property...

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property

1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent

a) damage to, or movement of, any part of the adjoining building, and

b) the creation of a hazard to the public.

NBC(AE):DivC:2.2.15.1. Correcting an Unsafe Condition

1) If a building is in an unsafe condition, the owner shall forthwith take all necessary action to correct the condition.

NBC(AE):DivC:2.2.14.3. Cranes and Equipment

1) The authority having jurisdiction may order the method of construction to stop and the equipment used in that method of construction to be removed if cranes or other equipment used in a particular method of construction

a) interfere with public safety,

b) create an unsafe condition, or

c) interfere with, disrupt activities on, or impede access to

i) adjacent properties, or

ii) public facilities within the municipality.

Bylaw 5590 s78 A person shall not operate a vehicle on a highway so as to track any earth, sand, gravel or other material on the highway.

s79 A person shall not operate a vehicle on a highway with:

(a) spikes, lugs, cleats, bands or other items projecting from the surface of the wheel or tire; or

(b) skids, unless using flat metal or rubberized tracks.

At all times...

NBC(AE):DivC:2.2.12.1. Prohibited Actions

1) No person shall…

b) cause, allow or maintain an unsafe condition,...

NBC(AE):DivB:8.1.2.2. Protection from Risk

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

NBC(AE):DivB: 8.2.2.1. Water Removal

1) Excavations shall be kept reasonably clear of water.

NBC(AE):DivB: 9.12.1.2. Standing Water

1) Excavations shall be kept free of standing water.

NBC(AE):DivB: 9.12.3.2. Grading of Backfill

1) Backfill shall be graded to prevent drainage towards the foundation after settling.

Further work such as excavation for new development beyond the work needed to remove a foundation is not allowed before the appropriate relevant permits are issued. Request mandatory building inspection upon concluding the demolition in compliance with the Demolition Building Permit Conditions of Issuance and Advisements.

Demolition Plan in PIP A demolition plan must be included in the PIP which will contain appropriate strategies for building demolition, deconstruction or moving ...

7.1 An authenticated site-specific engineered demolition plan will be included in the PIP...due to project size or complexity or method of work for any building or part of building ...

7.2 Where none of the conditions of 7.1 apply to the demolition, a site-specific demolition plan must be included in the PIP addressing the six Demolition Plan elements listed above.

NBC(AE):Div C:2.4.1.1. General

4) If the size or complexity of a project may give rise to special safety concerns, the authority having jurisdiction may require the involvement of one or more registered professionals to authenticate all or part of the drawings and specifications and perform field reviews.

NBC(AE):Div C:2.2.4.2. Professional Authentication of Designer

1) Structural drawings and related documents submitted with the application to build shall be authenticated by a registered professional as required by Sentence 2.4.1.2.(1).

NBC(AE):Div C: 2.4.1.2. Structural Design

1) For design carried out in accordance with Part 4 of Division B, the designer shall be a registered professional skilled in the work concerned. (**Note A-2.4.1.2.(1)**: Structural Design.

If not competent or uncertain how to proceed with a demolition, obtain services of a competent party and place the documented directives in the PIP. Or contact BuildingSafetyCodes@edmonton.ca

8 EXCAVATION

An excavation that is safe for workers per the OHS Code contributes directly to the NBC(AE) goals of safety of the public, prevention of loss of supporting soils for adjoining property foundations, and avoidance of damage to adjacent properties and infrastructure...

NBC(AE):DivA:1.1.1.1. Application of this Code

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

b) the construction of a new building,…

e) an alteration to any building,

f) an addition to any building,...

h) the reconstruction of any building that has been damaged by fire, earthquake or other cause,

i) the correction of an unsafe condition in or about any building or property, …

k) the work necessary to ensure safety in parts of any building that

i) remain after demolition, or

ii) are affected by, but are not directly involved in, additions or alterations, …

n) the work necessary to ensure safety in a relocated building during and after relocation, **and**

o) safety during construction of a project, including protection of the public and neighbouring properties.

NBC(AE):DivB:2.2.14.1. Safety During Construction

1) The constructor shall be responsible for ensuring compliance with Part 8 of Division B and, when required, shall retain a registered professional to design temporary structural members such as formwork, falsework, hoarding and scaffolding. (See Article 4.1.1.3. of Division B.)

2) The constructor is responsible jointly and severally with the owner for any work undertaken.

Safety Codes Act s2 A safety codes officer or other person designated by an Administrator may include terms and conditions in a permit.

Bylaw 15894 s6(2) The City Manager may impose any conditions on a permit as are deemed necessary to ensure compliance with the Safety Codes Act, the Regulations, this bylaw and any other legal requirements.

s18 When an undertaking for which a permit has been issued is ready to be tested for compliance with the Safety Codes Act and Regulations the person holding the permit shall notify the City Manager.

Fencing...

NBC(AE):DivB: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 pedestrian 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.

NBC(AE):DivB:8.2.1.3. Fencing, Boarding or 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.

NBC(AE):DivB: 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).

Bylaw 15894 s13 (1) No person shall place any hoarding on a highway unless the person obtains a permit allowing that person to place hoarding on a highway.
s14 (1) If any covered way, fence, railing, boarding or barricade is required pursuant to the Regulations and is to be located on a highway, then the owner shall provide protection for pedestrians as follows:.....
Bylaw 5590 s68 (2) A person shall not erect, cause or permit the erection of any hoarding on a highway unless a permit authorizing the hoarding has been issued by the City.
Petty Trespass Act s2.2 Entry is prohibited without any notice on land
(a) that is a lawn or garden, …
(c) that is surrounded by a fence, a natural boundary or a combination of a fence and a natural boundary, or
(d) that is enclosed in a manner that indicates the owner's or occupier's intention to keep persons off the land or to keep animals on the land

Before beginning excavation…

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property

1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent
a) damage to, or movement of, any part of the adjoining building, and
b) the creation of a hazard to the public.

- Ensure that utilities have been managed…

NFC(AE):DivB:5.6.2.1. Services Shut-off

1) Except as provided in Article 5.6.2.2., before excavation begins, building services shall be shut off, terminated and labelled so as to be easily identifiable outside the limits of the excavation. (See also Sentence 5.6.1.9.(1).)
2) The service company whose service connections will be affected shall be notified before any action mentioned in Sentence (1) is taken and, if it is necessary to maintain any service, it shall be
a) relocated as necessary, and
b) protected from damage.

NFC(AE):DivB:5.6.2.2. Maintaining Existing Services

1) Existing gas, electrical, water, steam and other services are permitted to be left within the area of the excavation, provided that
a)before work begins, the service company concerned has approved the proposed method of operation,
b) the location of the services is determined before excavation commences,
c) a suitable method of excavation is adopted that will ensure that the services are not damaged, and
d) the services are provided with suitable temporary supports.

EPCOR Water and Drainage Customer Connection Guide

- Confirm any petroleum tank/piping management is complete…

NFC(AE):DivB: 3.17.Removal and Abandonment in Place of Underground Storage Tanks

NFC(AE):DivB:4.3.17.1. Removal

1) Except as permitted in Article 4.3.17.2., when an underground storage tank system has no further use or has been out of service for 2 years,
a) the owner shall notify the authority having jurisdiction in writing at least 30 days before the removal of an underground storage tank system,
b) storage tanks shall have all flammable liquids and combustible liquids removed from them,
c) storage tanks shall be purged of vapours and removed from the ground (see Note A-4.3.17.1.(1)(c)), and

d) the associated piping shall be
i) purged of vapours and the ends permanently sealed by capping or plugging, or
ii) removed from the ground.

2) If soil surrounding the storage tanks described in Sentence (1) is found to be contaminated, the owner shall
a) notify the authority having jurisdiction,
b) when requested, provide a report showing the extent of the site soil contamination, and
c) remove, treat or replace the contaminated soil in a manner acceptable to the authority having jurisdiction.

- Confirm any water well decommissioning is complete

Water Wells: Guide for Private well owners in Alberta Chapter 8 Decommissioning (Reclamation)

- Confirm any energy well decommissioning is complete

Energy Wells:Alberta Energy Regulator Abandoned Wells Information Service

- Have acquired the building permit that allows for excavation to proceed

Safety Codes Act **s43(1)** If this Act requires a person to have a permit to sell, construct, control or operate any thing or supervise, operate or undertake any process or activity, no person shall do so unless the person has the appropriate permit.
Bylaw 15894 **s4(1)** Subject to subsection (2), a person shall not start any undertaking for which a permit is required pursuant to this bylaw unless a permit has been issued.

During excavation...

- Control dust or debris from blowing off the site

Bylaw 14600 **s6 (1)** A person shall not cause or permit a nuisance to exist on land they own or occupy...
S38.6 (1) A person shall not engage in any activity that creates odour, emission, smoke, vapour, dust or other airborne matter that is reasonably likely to disturb another individual…

- Ensure excavation proceeds with vibration levels that will not harm adjacent structures, their contents, and infrastructure; and that soil stability is maintained while excavating

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property
1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent
a) damage to, or movement of, any part of the adjoining building, and
b) the creation of a hazard to the public.

- Conduct periodic examination of adjacent structures and property...

NBC(AE):DivC:2.2.15.1. Correcting an Unsafe Condition
1)If a building is in an unsafe condition, the owner shall forthwith take all necessary action to correct the condition.
NBC(AE):DivC:2.2.14.3. Cranes and Equipment
1) The authority having jurisdiction may order the method of construction to stop and the equipment used in that method of construction to be removed if cranes or other equipment used in a particular method of construction
a) interfere with public safety,
b) create an unsafe condition, or
c) interfere with, disrupt activities on, or impede access to
i) adjacent properties, or
ii) public facilities within the municipality.
NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property
1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent
a) damage to, or movement of, any part of the adjoining building, and
b) the creation of a hazard to the public.
Bylaw 5590 **s78** A person shall not operate a vehicle on a highway so as to track any earth, sand, gravel or other material on the highway.
s79 A person shall not operate a vehicle on a highway with:
(a) spikes, lugs, cleats, bands or other items projecting from the surface of the wheel or tire; or
(b) skids, unless using flat metal or rubberized tracks.

At all times...

NBC(AE):DivC:2.2.12.1. Prohibited Actions
1) No person shall…
b) cause, allow or maintain an unsafe condition,...
NBC(AE):DivB:8.1.2.2. Protection from Risk
1) Precautions shall be taken to ensure that no person is exposed to undue risk.

NBC(AE):DivB: 8.2.2.1. Water Removal
1) Excavations shall be kept reasonably clear of water.
NBC(AE):DivB: 9.12.1.2. Standing Water
1) Excavations shall be kept free of standing water.
NBC(AE):DivB: 9.12.3.2. Grading of Backfill
1) Backfill shall be graded to prevent drainage towards the foundation after settling.
...

Excavation Plan in PIP ...which will contain appropriate strategies for making and maintaining a stable excavation for as long as needed to complete the relevant work, including backfilling.....

8.1 An authenticated site-specific engineered excavation plan must be included in the PIP if any of the following applies to the excavation...

8.2 Where none of the conditions of 8.1 apply to the excavation, a site-specific excavation plan applying OHS Code soil classifications must be included in the PIP...

NBC(AE):Div C:2.4.1.1. General
4) If the size or complexity of a project may give rise to special safety concerns, the authority having jurisdiction may require the involvement of one or more registered professionals to authenticate all or part of the drawings and specifications and perform field reviews.
NBC(AE):Div C:2.2.4.2. Professional Authentication of Designer
1) Structural drawings and related documents submitted with the application to build shall be authenticated by a registered professional as required by Sentence 2.4.1.2.(1).
NBC(AE):Div C: 2.4.1.2. Structural Design
1) For design carried out in accordance with Part 4 of Division B, the designer shall be a registered professional skilled in the work concerned. (**Note A-2.4.1.2.(1): Structural Design**. Part 4 of Division B is written on the assumption that structural design will be carried out by a registered professional who is qualified to perform such design. Sentence 2.4.1.2.(1) is not intended to imply that a registered professional may not also be required in the application of requirements in other Parts of the NBC(AE).
NBC(AE):Div C:2.2.14.1. Safety During Construction
1) The constructor shall be responsible for ensuring compliance with Part 8 of Division B and, when required, shall retain a registered professional to design temporary structural members such as formwork, falsework, hoarding and scaffolding. (See Article 4.1.1.3. of Division B.)
NBC(AE):Div B:9.12.1.1. Removal of Topsoil and Organic Matter
1) The topsoil and vegetable matter in all unexcavated areas under a building shall be removed.
2) In localities where termite infestation is known to be a problem, all stumps, roots and other wood debris shall be removed from the soil to a depth of not less than 300 mm in unexcavated areas under a building.
3) The bottom of every excavation shall be free of all organic material.
NBC(AE):Div B:9.12.1.2. Standing Water
1) Excavations shall be kept free of standing water.
NBC(AE):Div B:9.12.1.3. Protection from Freezing
1)The bottom of excavations shall be kept from freezing throughout the entire construction period.
NBC(AE):Div B: 9.12.2.1. Excavation to Undisturbed Soil
1) Excavations for foundations shall extend to undisturbed soil.
NBC(AE):Div B: 4.2.4.13. Construction on Fill
1) Buildings may be placed on fill if it can be shown by subsurface investigation that
a) the fill is or can be made capable of safely supporting the building,
b) detrimental movement of the building or of services leading to the building will not occur, and
c) explosive gases can be controlled or do not exist.

Where necessary excavation sloping/cutback cannot be safely achieved within the properly-fenced site, and explicit written permission to extend fencing, excavation, materials, etc. onto adjoining property is not provided by that adjoining-property owner, a temporary excavation support system or amended foundation plan that results in the excavation remaining within the site and not impacting the adjoining site is required.

If not competent or uncertain how to proceed with a demolition, obtain services of a competent party and place the documented directives in the PIP. Or contact BuildingSafetyCodes@edmonton.ca

9 CONSTRUCTION SAFETY CONTROLS AND MEASURES

…Failure to follow any applicable Acts, regulations, codes or bylaws may result in enforcement action being taken….

Construction Site Fire Safety Plan in PIP

You must establish a fire safety plan per Section 5.6 of Division B of the National Fire Code (Alberta Edition). Measures including emergency planning must be undertaken on construction sites. Review Fire Rescue Services construction site fire safety planning requirements, and considerations for work in occupied buildings.

Fencing and Access Control:

NBC(AE):DivB:8.2.1.3. Fencing, Boarding or 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.

NBC(AE):DivC:2.2.12.1. Prohibited Actions

1) No person shall…

b) cause, allow or maintain an unsafe condition,...

Petty Trespass Act s2.2 Entry is prohibited without any notice on land

(a) that is a lawn or garden, …

(c) that is surrounded by a fence, a natural boundary or a combination of a fence and a natural boundary, or

(d) that is enclosed in a manner that indicates the owner's or occupier's intention to keep persons off the land or to keep animals on the land.

Hoarding is specialized fencing, covered way or walkway temporarily placed on public road right-of-way, for a fee, and is coordinated with an OSCAM permit. See Hoarding Building Permit.

Bylaw 15894 s13(1) No person shall place any hoarding on a highway unless the person obtains a permit allowing that person to place hoarding on a highway.

Hazard Identification and Control through ongoing monitoring of conditions, situations or materials …

- Correct missing, misplaced or fallen site fencing or address signage.

Bylaw 15894: **s9** A person to which a permit has been issued must:

(a) have a copy of the examined plans and specifications for the undertaking at the site of the undertaking; and

(b) ensure that the municipal address of the parcel for which the permit was issued is clearly visible from the adjacent roadway.

- Clean up public walks, alley, boulevard and road of any construction-related dirt, debris, material

Bylaw 14600 s7 A person shall maintain any sidewalk adjacent to land they own or occupy clear of all snow and ice.

s8 A person shall maintain any boulevard adjacent to land they own or occupy by:

(a) keeping any grass on the boulevard cut to a reasonable length; and

(b) removing any accumulation of fallen leaves or other debris.

Bylaw 5590 s48 A person shall not place, cause or permit to be placed any earth, sand, gravel, grass, leaves, snow, ice or other material upon any sidewalk or roadway.

s78 A person shall not operate a vehicle on a highway so as to track any earth, sand, gravel or other material on the highway.

s79 A person shall not operate a vehicle on a highway with:

(a) spikes, lugs, cleats, bands or other items projecting from the surface of the wheel or tire; or

(b) skids, unless using flat metal or rubberized tracks.

NBC(AE):DivC:2.2.12.1. Prohibited Actions

1) No person shall…

b) cause, allow or maintain an unsafe condition,...

- Building on the site is safe to access and walk through as it progresses…

OHS Act, regulation and Code

- Apply compliant site-specific excavation, trenching and water management for top-of-bank sites

NBC(AE):DivC:2.14.2. Responsibility for Damage

1) The owner shall be responsible for the repair of any damage to public property or works located thereon that occurs as a result of any work undertaken.

2) The owner shall ensure that work undertaken does not damage or create a hazard to adjacent properties.

- Work in ways that minimize dusting, and do not cause flooding, contaminated run-off, or icing…

Bylaw 14600

Bylaw 5590

- Remove water accumulation in excavations or depressions on the site

NBC(AE):DivB: 8.2.2.1. Water Removal

1) Excavations shall be kept reasonably clear of water.

NBC(AE):DivB: 9.12.1.2. Standing Water

1) Excavations shall be kept free of standing water.

- Maintain safe conditions of work so that no part endangers the public or adjacent property…

NBC(AE):DivC:2.2.12.1. Prohibited Actions

1) No person shall…

b) cause, allow or maintain an unsafe condition,...

NBC(AE):DivB:8.2.1.4. Special Hazards

1) Where any special hazard exists from which it is not possible to protect the public by other means, persons shall be employed to prevent the public from entering the danger zone at any time of the day or night.

NBC(AE):DivC:2.2.14.3. Cranes and Equipment

1) The authority having jurisdiction may order the method of construction to stop and the equipment used in that method of construction to be removed if cranes or other equipment used in a particular method of construction

a) interfere with public safety,

b) create an unsafe condition, or

c) interfere with, disrupt activities on, or impede access to

i) adjacent properties, or

ii) public facilities within the municipality.

NBC(AE):DivB: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 pedestrian 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.

NBC(AE):DivB:8.2.3.4. Restoration and Repair

1) All sidewalks, streets or other public property that have been damaged shall be restored to a safe condition.

2) All obstructions on sidewalks, streets or other public property shall be removed when the need for such obstructions is ended.

- Establish hoisting zone access controls, flaggers and signage to warn and redirect the public

NBC(AE):DivB:8.2.3.2. Overhead Activities

1) Operations such as the hoisting of major components onto a tall building or other overhead activities that constitute a hazard to pedestrians below 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.

NBC(AE):DivB: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 pedestrian 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.

- Identify and use eco-centre location for disposal of controlled substances

Bylaw 14600

- Handle waste materials appropriately on the site

NBC(AE):DivB:8.2.5.3. Enclosures for Waste Material

1) Waste material cleared as provided in Sentence 8.2.5.2.(1) shall be deposited in an enclosure

a) so arranged as to prevent waste material from being projected beyond the confines of the enclosure, and

b) not accessible to the public.

Bylaw 14600

- Manage concrete pumping operations including hoses/lines and on-site washout location
- Designate onsite fuelling points per Alberta Environment aquifer protection rules

- Have current valid locate records of gas lines, water lines, sewer lines, electricity on hand

NBC(AE):DivC:2.2.12.1. Prohibited Actions
1) No person shall…
b) cause, allow or maintain an unsafe condition,...

- Arrange temporary gas/power permit inspection for 'winter construction heat' before activating

NBC(AE):DivB:9.12.1.3. Protection from Freezing
1) The bottom of excavations shall be kept from freezing throughout the entire construction period.
Bylaw 15894 s18 When an undertaking for which a permit has been issued is ready to be tested for compliance with the Safety Codes Act and Regulations the person holding the permit shall notify the City Manager.

2 - Excavation and temporary supports - design and construction

When determining acceptable solutions for a small building foundation, Subsection **9.4.4. Foundation Conditions** addresses potential characteristics of soils to be considered, with informative elaboration in the Appendix Note A-9.4.4.1. Where the prescriptive solutions provided in Part 9 do not address specific circumstances, the Code user is directed to apply provisions of Section **4.2. Foundations.** Potential soil characteristics for foundation design, and by extension excavation design, are discussed in greater detail in Subsection **4.2.4. Design Requirements**, which mirrors Appendix Note A-9.4.4.1.

The designer must acknowledge guidance provided within subsections of 4.2. as further detail is provided on design basis for excavation. Excavations and excavation supports (shoring or any other method) are to be developed in light of the conditions that the foundation itself is designed for, per Articles **4.2.4.1. Design Basis** and **4.2.5.1. Design of Excavations.** The NRC User's Guide to Part 4 (NBC2015) section entitled Foundations integrates additional information on excavations.

While not all foundations require excavation, excavations and their support determinations are to be determined on the same basis as the foundation that is to occupy the excavation, with allowance made for the temporary nature of the excavation and excavation support through application of operational controls and oversight to any constructed elements. This is expressed through the mandatory Excavation Plan to be included in a PIP.

Article **4.2.4.3. Identification** allows for soils classification by any widely accepted system; for example, the Alberta OHS Code soil classification system could be applied without formal subsurface investigation for excavations of depth not exceeding 3m. The competent person in charge of the excavation determines the soil classification before and as the excavation develops, and acts according to the soil type encountered.

Any building described in Article 2.4.1.1. of Division C of NBC(AE) that requires professional involvement, including any building containing 5 or more dwelling units or of sufficient complexity as determined by the permit issuer, must include design of the foundation and any inextricably-related excavation. Excavations deeper than 3m require professional involvement per the OHS Code, regardless of building code classification of the building.

The following table, to be read in the context of the PIP Guide, approximately correlates excavation requirements from Part 4, to those prescriptively set out in Part 9 and OHS Code for excavations for projects which do not strictly require professional involvement. Note that Part 8 requirements apply in all cases. (Further detail, intents, objectives and function statements in abbreviated form follow the table.)

A significant number of excavations may be safely created by competent, consistent and coordinated application of the prescriptive requirement of Part 9 (and Part 8) and of the Occupational Health and Safety Code together. The PIP Guide lists the conditions that require professional involvement for circumstances not conforming to the acceptable solutions in the coordinated application of the two Codes.

NBC(AE):DivB:Part 4, Part 9 and Part 8 requirements related to excavation design and construction

Following the table is expanded detail of the Code provisions listed in the table itself.

NBC(AE):DivB:Part 4	**NBC(AE):DivB:Part 9, Part 8, and OHS Code**
4.2.4. Design Requirements **4.2.4.1. Design Basis** ...excavation and soil/rock-retaining structure design basis per Section 4.2. + generally accepted engineering principles, established local practice,...	**OHS 442 (1), (2), (3), (4) Classification of soil type**
4.2.4.2. Subsurface Investigation ...provide necessary information for the design and construction of the excavation	
4.2.4.3. Identification ... classification by widely accepted system of soil, rock and groundwater and descriptions of their engineering and physical properties	
4.2.5. Excavations **4.2.5.1. Design of Excavations...**excavation + supports must conform to Subsec 4.2.4.+ 4.2.5. For clarity, an Appendix Note directs the reader to consult NRC Structural Commentaries User's Guide to Part 4 "Foundations" for more information about excavations.	**OHS 450 (1) Methods of protection** **OHS451 Cutting back walls**
4.2.5.2. Excavation Construction...at all phases, prevent movement that would cause damage to adjacent buildings; comply with Part 8; no material/equipment placed in/adjacent to excavation	**8.2.2.2. Protection of Adjoining Property** **OHS 450 (1) Methods of protection** **OHS 451 Cutting back walls**
4.2.5.3. Supported Excavations...excavation sides in soil/rock must be supported per 4.2.5.1.+ 4.2.5.2., except per 4.2.5.4.	**OHS 443 (1), (2), (3) Soil stabilization** **OHS 456 (1), (2), (3) Temporary protective structures**
4.2.5.4. Unsupported Excavations ...excavation sides in soil/rock may be unsupported where design per 4.2.5.1.+ 4.2.5.2.	**OHS 449 Exemption** **OHS 455(1), (2) Safe entry and exit**
4.2.5.5. Control of Water around Excavations ... at all phases of excavation and construction, keep surface water, groundwater(incl perched and artesian) under control	**8.2.2.1. Water Removal** **9.12.1.2. Standing Water** **OHS 445 Water hazard**
4.2.5.6. Loss of Ground ... at all phases of excavation and construction, prevent loss of ground due to water or other cause	
4.2.5.7. Protection and Maintenance at Excavations any excavation protected from possible deterioration by construction activity or by the action of frost, rain and wind.	**9.12.1.2. Standing Water** **9.12.1.3. Protection from Freezing** **OHS 444 Marking an excavation**

	OHS 452 Loose materials **OHS 453 Spoil piles** **OHS 454 Power pole support**
4.2.5.8. Backfilling of a type not subject to detrimental volume change with changes in moisture content and temperature	**9.12.3.3. Deleterious Debris and Boulders**

NBC(AE):DivB:Part 4 - Excerpts relevant to excavation and temporary excavation supports

Source: National Building Code-2023 Alberta Edition and National Building Code of Canada 2015: Intent Statements

NBC(AE):B:4.2.2.1. Subsurface Investigation

1) A subsurface investigation, including groundwater conditions, shall be carried out by or under the direction of a registered professional having knowledge and experience in planning and executing such investigations to a degree appropriate for the building and its use, the ground and the surrounding site conditions. (Note A-4.2.2.1.(1): Where acceptable information on subsurface conditions already exists, the investigation may not require further physical subsurface exploration or testing.)

Intents (consolidated):

To limit the probability that the ground conditions below any proposed building will not be taken into account in the design and construction of the excavation and foundation system, which could lead to
*structural failure, including the collapse of the excavation, which could lead to harm to persons OS2.6
*excessive movements of the ground, which could lead to damage to the building OP2.6
*excessive displacement of the ground or collapse of the excavation, which could lead to damage to adjacent buildingsOP4.1,OP4.4

Intent 2:

To facilitate, through qualification of persons involved with the investigation, the determination of compliance with this requirement.

NBC(AE):B:4.2.2.3. Field Review

1) A field review shall be carried out by the designer or by another suitably qualified person to ascertain that the subsurface conditions are consistent with the design and that construction is carried out in accordance with the design and good engineering practice. (Note A-4.2.2.3.(1): Responsibilities of the Designer as Defined in Part 4. In certain situations, such as when the design is highly technical, it may be necessary for the "other suitably qualified person" to be someone responsible to the designer. In such cases the authority having jurisdiction may wish to order that the review be done by the designer.

Intents (consolidated):

To limit the probability that the ground conditions will not be consistent with the design, **and** excavation, dewatering and construction will not be carried out in accordance with the design and good engineering practice, which is to limit the probability of *structural failure, including excavation collapse, which could lead to harm to persons OS2.2,OS2.6
*excessive ground movements, which could lead to damage to the building OP2.2,OP2.5
*excessive ground displacement, which could lead to damage to adjacent buildings OP4.1,OP4.4

Intent 2:

To facilitate, through qualification of persons involved with the review, the determination of compliance with this requirement.

2) The review required by Sentence (1) shall be carried out
- a) on a continuous basis
  - i) during the construction of all deep foundation units with allpertinent information recorded for each foundation unit,
  - ii) during the installation and removal of retaining structures and related backfilling operations, and
  - iii) during the placement of engineered fills that are to be used to support the foundation units, and
- b) as required, unless otherwise directed by the authority having jurisdiction,
  - i) in the construction of all shallow foundation units, and
  - ii) in excavating, dewatering and other related works.

Intent:

To facilitate the determination of compliance with the requirements of Sentence 4.2.2.3.(1).

NBC(AE):B:4.2.2.4. Altered Subsurface Condition

1) If, during construction, the soil, rock or groundwater is found not to be of the type or in the condition used in design and as indicated on the drawings, the design shall be reassessed by the designer.
2) If, during construction, climatic or any other conditions change the properties of the soil, rock or groundwater, the design shall be reassessed by the designer.

Intents (consolidated):

To limit the probability that the type or condition of soil, rock or groundwater below the building, as determined during the review, will not be taken into account in the design and construction of the excavation and foundation system, which could lead to
*structural failure, including the collapse of the excavation, which could lead to harm to persons OS2.2, OS2.6
*excessive movement of the ground, which could lead to damage to the building. OP2.2, OP2.6
*excessive displacement of the ground or collapse of the excavation, which could lead to damage to adjacent buildingsOP4.1,OP4.4

Intent 2:

To facilitate, through qualification of persons skilled in the interpretation of the types or conditions found for the design, the determination of compliance with this requirement.

NBC(AE):B:4.2.2.4.1. Design Basis

1) The design of foundations, excavations and soil- and rock-retaining structures shall be based on a subsurface investigation carried out in conformance with the requirements of this Section, and on any of the following, as appropriate:

a) application of generally accepted geotechnical and civil engineering principles by a registered professional especially qualified in this field of work, as provided in this Section and other Sections of Part 4,
b) established local practice, where such practice includes successful experience both with soils and rocks of similar type and condition and with a foundation or excavation of similar type, construction method, size and depth, or
c) in situ testing of foundation units, such as the load testing of piles, anchors or footings, carried out by a person competent in this field of work.

See Note A-4.2.4.1.(1) for innovative foundation designs

Intents (consolidated):

To limit the probability that the method of design of foundations, excavations and soil- and rock-retaining structures will not be based on a subsurface investigation carried out in accordance with Section 4.2., and generally accepted geotechnical and civil engineering principles, established local practice or in situ testing of foundation units, which is to limit the probability of structural failure, including excavation collapse, which could lead to
*harm to persons OS2.2,OS2.6
*damage to the building OP2.2,OP2.5
*damage to adjacent buildings OP4.1,OP4.4

Intent 2:

To facilitate, through qualification of persons involved with the design and testing, the determination of compliance with this requirement.

NBC(AE):B:4.2.2.4.2. Subsurface Investigation

1) A subsurface investigation shall be carried out to the depth and extent to which the building or excavation will significantly change the stress in the soil or rock, or to such a depth and extent as to provide all the necessary information for the design and construction of the excavation or the foundations.

Intents (consolidated):

To limit the probability that the subsurface investigation will not be to sufficient depth or extent for design and construction of the *excavation and foundation system, which could lead to insufficient capacity of the foundations or insufficient stability of the excavation, which could lead to structural failure, which could lead to harm to persons.OS2.2,OS2.6
*foundation system, which could lead to excessive displacement of the foundation, which could lead to damage to the building. OP2.2, OP2.6
*excavation system, which could lead to excessive displacement of ground or insufficient stability of the excavation, which could lead to damage to adjacent buildings. OP4.1,OP4.4

NBC(AE):B:4.2.2.4.3. Identification

1) The identification and classification of soil, rock and groundwater and descriptions of their engineering and physical properties shall be in accordance with a widely accepted system.

Intents (consolidated):

To limit the probability that the identification and classification of ground materials will not be stated in terms that are commonly understood in practice for verification, which could lead to
*insufficient capacity of the foundations or insufficient stability of the excavation, which could lead to structural failure, which could lead to harm to persons OS2.2,OS2.6
*excessive displacement of the foundation, which could lead to damage to the building OP2.2,OP2.6]
*excessive displacement of ground or insufficient stability of the excavation, which could lead to damage to adjacent buildings OP4.1,OP4.4]

NBC(AE):B:4.2.5.1. Design of Excavations

1) The design of excavations and of supports for the sides of excavations shall conform with Subsection 4.2.4. and with this Subsection. (Note A-4.2.5.1.(1): Information on excavations can be found in the Commentary entitled Foundations in the "Structural Commentaries (User's Guide – NBC 2020: Part 4 of Division B)."

NBC(AE):B:4.2.5.2. Excavation Construction

1) Every excavation shall be undertaken in such a manner as to
a) prevent movement that would cause damage to adjacent buildings at all phases of construction, and
b) comply with the appropriate requirements of Part 8.

Intent 1:
To limit the probability that an excavation procedure will not take into account the expected ground movements during all phases of construction, which could lead to the excessive displacement of ground, which could lead to damage to adjacent buildings. OP4.1

Intent 2:
To direct Code users to Part 8 for other requirements applicable to excavations.

2) Material shall not be placed nor shall equipment be operated or placed in or adjacent to an excavation in a manner that may endanger the integrity of the excavation or its supports.

Intents (consolidated):
To limit the probability that, during construction, loads placed adjacent to an excavation will not be greater than
* the capacity of the excavation, including its supports, which could lead to the collapse of the excavation, which could lead to harm to persons OS2.6
* those the excavation, including its supports, was designed for, which could lead to excessive displacement of ground, which could lead to damage to the building OP2.3]
* those the excavation, including its supports, was designed for, which could lead to excessive displacement of ground, which could lead to damage to adjacent buildings OP4.1

NBC(AE):B:4.2.5.3. Supported Excavations

1) The sides of an excavation in soil or rock shall be supported by a retaining structure conforming with the requirements of Articles 4.2.5.1. and 4.2.5.2., except as permitted in Article 4.2.5.4.

Intents (consolidated):
To limit the probability that, during construction, the sides of an excavation will not be supported in accordance with the structural design requirements of Part 4, which could lead to
* the collapse of the excavation, which could lead to harm to persons OS2.6
* excessive displacement of ground, which could lead to damage to adjacent buildings OP4.1

Intent 2: To direct Code users to the requirements of Articles 4.2.5.1. and 4.2.5.2. with respect to design and construction of excavation supports.

NBC(AE):B:4.2.5.4. Unsupported Excavations

1) The sides of an excavation in soil or rock may be unsupported where a design is prepared in conformance with the requirements of Articles 4.2.5.1. and 4.2.5.2.

Intents (consolidated):
To limit the probability that, during construction, the sides of the unsupported excavation will not be stable, which could lead to the
*collapse of the excavation, which could lead to harm to persons
*excessive displacement of ground, which could lead to damage to adjacent buildings OS2.6,OP4.1

Intent 2:
To direct Code users to the requirements of Articles 4.2.5.1. and 4.2.5.2. with respect to design and construction of unsupported excavations.

Intent 3:

To exempt unsupported excavations from the requirements of Sentence 4.2.5.3.(1).

NBC(AE):B:4.2.5.5. Control of Water around Excavations

1) Surface water, all groundwater, perched groundwater and in particular artesian groundwater shall be kept under control at all phases of excavation and construction.

Intents (consolidated):

To limit the probability that pressure due to groundwater around excavations will lead to the instability of an excavation or to ground heaving, which could lead to

*the collapse of ground, which could lead to harm to persons. OS2.6

*excessive displacement of ground, which could lead to damage to adjacent buildings. OP4.1,OP4.4

NBC(AE):B:4.2.5.6. Loss of Ground

1) At all phases of excavation and construction, loss of ground due to water or any other cause shall be prevented.

Intent 1:

To limit the probability that loss of ground behind excavations will occur due to water flow or any other cause, such as densification of loose cohesionless soils, which could lead to excessive displacement of ground, which could lead to damage to adjacent buildings. OP4.1

NBC(AE):B:4.2.5.7. Protection and Maintenance at Excavations

1) All sides of an excavation, supported and unsupported, shall be continuously maintained and protected from possible deterioration by construction activity or by the action of frost, rain and wind.

Intents (consolidated):

To limit the probability that deterioration of the ground surrounding the excavation, or of the excavation supports, will occur, which could lead to

*the collapse of the excavation, which could lead to harm to persons OS2.6

*excessive displacement of ground, which could lead to damage to adjacent buildings OP4.1

NBC(AE):B:4.2.5.8. Backfilling

1) Where an excavation is backfilled, the backfill shall be placed so as to

a) provide lateral support to the soil adjacent to the excavation, and

b) prevent detrimental movements.

2) The material used as backfill or fill supporting a footing, foundation or a floor on grade shall be of a type that is not subject to detrimental volume change with changes in moisture content and temperature.

Intents (consolidated):

To limit the probability that backfill will not be sufficiently compact to support adjacent soil or will undergo volume changes, which could lead to excessive vertical and lateral displacements of the ground after construction, which could lead to

*structural failure, which could lead to harm to persons. (a)OS2.1

* damage to the building. (a)OP2.1,OP2.4

* damage to adjacent buildings. OP4.1

NBC(AE):B:4.2.7.5. Installation of Deep Foundations

1) Deep foundation units shall be installed in such a manner as not to impair **…**

c) the integrity of neighbouring buildings.

Intents (consolidated):

To limit the probability that

the method of installation of deep foundation units will impair the properties of soil or rock, **and**

the strength and integrity of previously installed units, **and**

the integrity of neighbouring buildings,

which is to limit the probability of…

*the excessive displacement of ground, which could lead to damage to adjacent buildings. (c)OP4.1

Referenced Function selected from Division A of NBC(AE) 2023

F20 To support and withstand expected loads and forces.

F21 To limit or accommodate dimensional change.

F60 To control the accumulation and pressure of water on and in the ground.

F80 To resist deterioration resulting from expected service conditions.

F81 To minimize the risk of malfunction, interference, damage, tampering, lack of use or misuse.

NBC(AE):DivB:Part 8 and Part 9 - Excerpts relevant to excavation and temporary excavation supports

Source: National Building Code of Canada 2015: Intent Statements and National Building Code-2023 Alberta Edition

NBC(AE):DivB:8.2.2.2. Protection of Adjoining Property

1) If the stability of adjoining buildings may be endangered by the work of excavating, adequate underpinning, shoring and bracing shall be provided to prevent

a) damage to, or movement of, any part of the adjoining building, and

b) the creation of a hazard to the public.

Intents (consolidated):

To limit the probability that excavation operations will lead to

*damage to adjacent buildings. **(a)[F21-OP4.1]**

*failure of any part of adjoining buildings, which could lead to harm to persons. **(b)[F21-OS5.8]**

NBC(AE):DivB: 8.2.2.1. Water Removal

1) Excavations shall be kept reasonably clear of water.

Intents (consolidated):

To limit the probability that

*water will cause the failure of the sides of the excavation, which could lead to the ground surrounding the excavation collapsing into the excavation, **[F60-OS5.8]**

*persons who might enter or fall into the excavation will be drowned or injured from the intake of water, **[F60-OS5.4]** which could lead to harm to persons.

NBC(AE):Div B:9.12.1.3. Protection from Freezing

1)The bottom of excavations shall be kept from freezing throughout the entire construction period.

Intents (consolidated,as applicable):

To limit the probability of ice lens formation beneath foundations that are installed on fine-grained soils (which can retain quite a bit of water), which could lead to the excessive vertical movement of the soil, which could lead to excessive stress on foundations, which could lead to structural damage to foundations and superstructures. This is to limit the probability of compromised structural integrity, which could lead to:...structural failure, … **[F21-OP2.3,OP2.4]...**

NBC(AE):Div B: 9.12.2.1. Excavation to Undisturbed Soil

1) Excavations for foundations shall extend to undisturbed soil.

Intents (consolidated, as applicable):

To limit the probability that foundations will be installed on loose soil which has a lower bearing capacity than expected, which could lead to the undue subsidence of soil beneath foundations, which could lead to excessive stress on foundations, which could lead to structural damage to foundations and superstructures. This is to limit the probability of compromised structural integrity

* of elements supported by foundations, which could lead to:..inability to support… lateral earth loads… This is to limit the probability of harm to persons. **[F20-OS2.2,OS2.3]**

*which could lead to:...structural failure, …an inability to resist expected loads, which could lead to…the excessive deformation or deflection of walls, This is to limit the probability of: …damage to the building. **[F20-OP2.2,OP2.3,OP2.4]**

NBC(AE):Div B: 9.12.3.3. Deleterious Debris and Boulders

1) Backfill that is within 600 mm of the foundation shall be free of deleterious debris and boulders larger than 250 mm diam. (See Note -9.12.3.3.(1). Deleterious Material in Backfill.)

Intents (consolidated, as applicable):

To limit the probability of inappropriate backfill material, which could lead to point loads being applied to foundation walls by boulders in the backfill under lateral soil pressure, which could lead to:

the cracking of foundation walls …This is to limit the probability of compromised structural integrity of elements supported by foundations, which could lead to…inability to support… lateral earth loads …This is to limit the probability of

*harm to persons. **[F81-OS2.3]**

*damage to the building. **[F81-OP2.3]**

2) Except as provided in Sentence (3), backfill shall not contain pyritic material or material that is susceptible to ice lensing in concentrations that will damage the building to a degree that would adversely affect its stability or the performance of assemblies. (See Note A-9.4.4.4.(1).)

Intents (consolidated, as applicable):

To limit the probability of excessive lateral loading on foundation walls or jacking pressures from adfreezing to foundation walls, which could lead to movement or cracking of foundation walls. This is to limit the probability of…structural collapse of the foundation or of supported elements…, This is to limit the probability of the deterioration of … supported elements, which could lead to structural collapse, which could lead to

*harm to persons. **[F20-OS2.1,OS2.3]**

*damage to the building. **[F20-OP2.1,OP2.3]**

3) Backfill with material of any concentration that is susceptible to ice lensing is permitted where foundation walls are

a) cast-in-place concrete,

b) concrete block insulated on the exterior, or

c) concrete block protected from the backfill by a material that serves as a slip plane.

(See Note A-9.4.4.4.(1).)

Intents (consolidated, as applicable):

To limit the probability of excessive lateral loading on foundation walls or jacking pressures from adfreezing to foundation walls, which could lead to movement or cracking of foundation walls. This is to limit the probability of…structural collapse of OR compromised structural integrity of supported elements, …to limit the probability of the deterioration of… supported elements, which could lead to

*structural collapse, which could lead to harm to persons. **[F20-OS2.1,OS2.3]**

*compromised structural integrity, which could lead to damage to the building. **[F20-OP2.1,OP2.3]**

OHS Code - Excerpts most relevant to this topic Part 32 Excavating and Tunnelling

Source: Occupational Health and Safety Code

Classification of soil type

442(1) For the purpose of this Part, soil is classified as "hard and compact" if it closely exhibits most of the following characteristics:

(a) it is hard in consistency and can be penetrated only with difficulty by a small, sharp object;

(b) it is very dense;

(c) it appears to be dry;

(d) it has no signs of water seepage;

(e) it is extremely difficult to excavate with hand tools;

(f) it has not been excavated before.

442(2) For the purpose of this Part, soil is classified as "likely to crack or crumble" if

(a) it has been excavated before but does not exhibit any of the characteristics of "soft, sandy or loose" soil, or

(b) it closely exhibits most of the following characteristics:

(i) it is stiff in consistency and compacted;

(ii) it can be penetrated with moderate difficulty with a small, sharp object;

(iii) it is moderately difficult to excavate with hand tools;

(iv) it has a low to medium natural moisture content and a damp appearance after it is excavated;

(v) it exhibits signs of surface cracking;

(vi) it exhibits signs of localized water seepage.

442(3) For the purposes of this Part, soil is classified as "soft, sandy or loose" if it closely exhibits most of the following characteristics:

(a) it is firm to very soft in consistency, loose to very loose;

(b) it is easy to excavate with hand tools;

(c) it is solid in appearance but flows or becomes unstable when disturbed;

(d) it runs easily into a well-defined conical pile when dry;

(e) it appears to be wet;

(f) it is granular below the water table, unless water has been removed from it;

(g) it exerts substantial hydraulic pressure when a support system is used.

442(4) If an excavation contains soil of more than one soil type, for the purposes of this Part an employer must operate as if all of it is the soil type with the least stability.

Soil stabilization
443(1) Subject to subsection (2), an employer must stabilize the soil in
(a) an excavation by shoring or cutting back,...
443(2) An employer may stabilize the soil in an excavation ... using an artificial soil stabilization technique, including freezing soil by artificial means **or** grouting if the process used is
(a) designed by a professional engineer to control soil conditions, and
(b) performed in accordance with the professional engineer's specifications.
443(3) A person must not use natural freezing of the soil as an alternative or partial alternative to a temporary protective structure, or to stabilize the soil in an excavation...

Marking an excavation
444 If there is a danger of a worker or equipment falling into an excavation, an employer must ensure that workers are made aware of the excavation through flagging, marking, safeguards or other appropriate and effective means.

Water hazard
445 An employer must ensure that an excavation that a worker may be required or permitted to enter is kept free of an accumulation of water that may pose a hazard to the worker.

Worker access
446(1) An employer must provide workers with a safe means of entering and leaving an excavation...
446(2) An employer must ensure that a worker does not enter an excavation...that does not comply with this Part.
446(3) A worker must not enter an excavation...that does not comply with this Part.

Exemption
449 Sections 450 to 459 and sections 461 to 464 do not apply to an excavation if a professional engineer certifies that the ground formation is and will remain stable, free from cave-ins, sliding or rolling materials and other hazards associated with the workings that may compromise worker safety.

Methods of protection
450(1) Before a worker begins working in an excavation that is more than 1.5 metres deep and closer to the wall or bank than the depth of the excavation, an employer must ensure that the worker is protected from cave-ins or sliding or rolling materials by
(a) cutting back the walls of the excavation to reduce the height of the remaining vertical walls, if any, to no more than 1.5 metres for "hard and compact soil" and "likely to crack or crumble soil",
(b) installing temporary protective structures, or
(c) using a combination of the methods in clauses (a) and (b). ...

Cutting back walls
451 If the walls of an excavation are cut back, an employer must ensure that
(a) if the soil is classified as "hard and compact soil", the walls are sloped to within 1.5 metres of the bottom of the excavation at an angle of not less than 30 degrees measured from the vertical,
(b) if the soil is classified as "likely to crack or crumble soil", the walls are sloped to within 1.5 metres of the bottom of the excavation at an angle of not less than 45 degrees measured from the vertical, and
(c) if the soil is classified as "soft, sandy or loose soil", the walls are sloped from the bottom of the excavation at an angle of not less than 45 degrees measured from the vertical.

Loose materials
452 An employer must ensure that loose materials are scaled and trimmed from the sides of an excavation if workers may be on or near the sides.

Spoil piles
453 An employer must ensure that a spoil pile is piled so that
(a) the leading edge of the pile is at least 1 metre away from the edge of the excavation,

(b) the slope of a spoil pile adjacent to the excavation is at an angle of not more than 45 degrees from the horizontal, and
(c) loose materials are scaled and trimmed from the spoil pile.

Power pole support
454 An employer must ensure that work that disturbs the ground in the vicinity of an overhead power line is performed in a manner that does not reduce the original support provided for power line poles.

Safe entry and exit
455(1) An employer must ensure that if a worker is required to enter a trench that is more than 1.5 metres deep, a safe point of entering and leaving is located not more than 8 metres from the worker.
455(2) An employer must ensure that if a worker is in a trench that is more than 1.5 metres deep, the trench is supported or sloped so that the worker can reach the safe point in order to enter and leave.

Temporary protective structures
456(1) An employer must ensure that temporary protective structures in an excavation
(a) 3 metres deep or less are of sufficient strength to prevent the walls of the excavation from caving in or otherwise moving into the excavation, and
(b) more than 3 metres deep are designed, constructed and installed in accordance with the specifications of a professional engineer.
456(2) The specifications of a professional engineer for subsection (1)(b) must include
(a) the size and specifications of the structure, including the type and grade of materials used in its construction, and
(b) the loads for which the structure is designed.
456(3) An employer must ensure that, before beginning an excavation, a foundation that may be affected by the excavation is supported by a temporary protective structure designed, constructed and installed in accordance with the specifications of a professional engineer.

3 - Common regulatory requirements that are available online

This appendix identifies some of the most common legislation and guidelines that **may apply** to activities and projects associated with building construction, alteration or demolition in Edmonton. Enforcement officers determine relevant legislation when assessing any non-compliance, as every conceivable regulation cannot be listed herein.
This section is not intended to be any form of legal advice, and is not exhaustive. Seek legal advice if necessary to ensure that all relevant legislation is identified and complied with when a specific regulatory issue arises. Current as of June 2024

Municipal Government Act (Alberta)
Zoning Bylaw 20001
Community Standards Bylaw 14600
Business Licence Bylaw 20002
City Streets Access Bylaw 13521
Public Tree Bylaw 18825
Corporate Tree Management Policy C456C
Drainage Bylaw 18093 (sewerage system protection)
Epcor Water Services Bylaw 19626
Epcor Drainage Services and Wastewater Treatment Bylaw 19627
Waste Services Bylaw 20363
Erosion And Sediment Control Guideline & Field Manual
Safe Disposal Of Concrete And Cement Based Products

Environmental Protection and Enhancement Act (Alberta)
Petty Trespass Act (Alberta) / Trespass to Premises Act (Alberta)

Safety Codes Act (Alberta)
Permit Regulation (Alberta)
Administrative Items Regulation
Building Code Regulation
National Building Code - 2023 Alberta Edition
Safety Codes Permit Bylaw 15894
Click before you dig & Dial before you dig
ATCO Gas Safety
Damage Prevention For the Protection Of Underground Infrastructure CSA Z247
Code Of Practice For Safety In Demolition Of Structures CSA S350-M1980 (informative (discontinued))
National Fire Code - 2023 Alberta Edition

Traffic Safety Act (Alberta)
Traffic Bylaw 5590
Manual of Temporary Traffic Control